



CLOUD SOFTWARE FOR HOSTS

OnApp 2.1 API Guide

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Contents

1. Introduction	10
1.1 FAQs	11
2. Roles.....	12
2.1 Get the list of roles.....	12
2.2 Get role details.....	13
2.3 Edit a role.....	13
2.4 Add a new role.....	14
2.5 Delete a role	14
2.6 Edit a user's role assignment.....	15
2.7 Get the list of all permissions	15
3. Billing plans	17
3.1 Get the list of billing plans.....	17
3.2 Add a billing plan.....	18
3.3 Get billing plan details.....	19
3.4 Edit a billing plan.....	20
3.5 Delete a billing plan.....	20
3.6 View base resources for a billing plan.....	21
3.7 Get CPU Shares details.....	21
3.8 Edit CPU Shares.....	22
3.9 Delete CPU Shares.....	22
3.10 Get CPUs details.....	22
3.11 Edit CPUs resource	23
3.12 Delete a CPUs resource	24
3.13 Get memory details.....	24
3.14 Edit memory details	24
3.15 Delete memory resource.....	25
3.16 Get disk size details.....	25
3.17 Edit a disk size resource	26
3.18 Delete a disk size resource	26
3.19 Get IP address details.....	26

3.20	Edit an IP address resource	27
3.21	Delete an IP address resource	28
3.22	Get template & backup storage details.....	28
3.23	Edit a templates & backups storage resource	28
3.24	Delete a templates & backups storage resource	29
3.25	Get virtual machine details.....	29
3.26	Edit a virtual machines resource.....	30
3.27	Delete a virtual machines resource.....	30
3.28	Get data store zone details.....	30
3.29	Edit a data store zone resource	31
3.30	Delete a data store zone resource	31
3.31	Get network zone resource	32
3.32	Edit network zones resource	32
3.33	Delete a network zone resource.....	33
4.	Currencies.....	34
4.1	Get the list of currencies	34
4.2	Get currency details	35
4.3	Edit currencies	36
4.4	Add a currency.....	36
4.5	Delete a currency.....	37
5.	Users.....	38
5.1	Get the list of users	38
5.2	Get user details	38
5.3	Create a user.....	40
5.4	Generate API key.....	41
5.5	Suspend a user	41
5.6	Activate a user	41
5.7	Delete a user.....	41
5.8	Edit a user's role assignment.....	42
5.9	View billing statistics for a user	42
5.10	See VMs of a particular user.....	45

6. Whitelist IPs	47
6.1 Get the list of whitelist IPs.....	47
6.2 Get whitelist IPs details	47
6.3 Edit a whitelisted IP.....	48
6.4 Add a whitelisted IP	48
6.5 Delete a whitelisted IP.....	49
7. Firewall Rules for VMs.....	50
7.1 Get the list of firewall rules	50
7.2 Edit a firewall rule	50
7.3 Add a firewall rule.....	51
7.4 Delete a firewall rule.....	51
8. Data store zones.....	52
8.1 Get the list of data store zones.....	52
8.2 Add a data store zone	52
8.3 Get data store zone details.....	53
8.4 Edit a data store zone.....	53
8.5 Delete a data store zone	54
8.6 Get the list of data stores attached to a data store zone.....	54
8.7 Attach a data store to a data store zone	55
8.8 Detach a data store from a data store zone	55
9. Network zones	56
9.1 Get the list of network zones.....	56
9.2 Add a network zone	56
9.3 Get network zone details	57
9.4 Edit a network zone	57
9.5 Delete a network zone	58
9.6 Attach a network to a network zone.....	58
9.7 Remove a network from a network zone	58
10. Hypervisor zones.....	59
10.1 Get the list of hypervisor zones	59
10.2 Add a hypervisor zone.....	59

10.3	Get hypervisor zone details	60
10.4	Edit a hypervisor zone	60
10.5	Delete a hypervisor zone	61
10.6	Get the list of data stores attached to a hypervisor zone	61
10.7	Get the list of data store joins attached to a hypervisor zone	62
10.8	Add a data store join to a hypervisor zone.....	63
10.9	Remove a data store join from a hypervisor zone	63
10.10	Get the list of networks attached to this hypervisor zone	63
10.11	Get the list of network joins attached to this hypervisor zone.....	64
10.12	Attach a new network join to a hypervisor zone	65
10.13	Remove a network join from a hypervisor zone	66
11.	Hypervisors	67
11.1	Get the list of hypervisors	67
11.2	Get hypervisor details	67
11.3	Add a new hypervisor.....	68
11.4	Edit a hypervisor	69
11.5	Reboot a hypervisor	69
11.6	Delete a hypervisor	70
12.	Networks	71
12.1	Get the list of networks	71
12.2	Edit a network.....	71
12.3	Add a network.....	72
12.4	Delete a network.....	72
13.	Network Interfaces	73
13.1	Get the list of VM network interfaces.....	73
13.2	Get network interface details	74
13.3	Edit a network interface	74
13.4	Add a network interface to a VM.....	74
13.5	Delete a network interface.....	75
14.	IP Addresses.....	76
14.1	Edit an IP address.....	76

14.2	Create an IP address record.....	76
14.3	Delete an IP address.....	77
15.	IP address joins	78
15.1	Get the list of IP address joins	78
15.2	Assign an IP address join to a VM	78
15.3	Delete an IP address join	79
16.	Data stores.....	80
16.1	Get the list of data stores	80
16.2	Add a new data store	81
16.3	Get data store details.....	81
16.4	Edit a data store	81
16.5	Delete a data store.....	82
17.	Disks.....	83
17.1	Get the list of disks.....	83
17.2	Get the list of VM disks	84
17.3	Edit a disk.....	84
17.4	Add a new disk.....	84
17.5	Delete a disk	85
17.6	View disk IOPS.....	85
17.7	Build a disk.....	86
17.8	Unlock a disk.....	87
17.9	Enable autobackups for a disk	87
17.10	Disable autobackups for a disk	87
17.11	Get the list of schedules for a disk	87
17.12	Add a schedule to a disk	88
17.13	Get the list of backups available for a disk	88
18.	Templates	90
18.1	Get the list of templates.....	90
18.2	Make a template public.....	90
19.	Template Groups	91
19.1	See the list of template groups.....	91

19.2	Get template group details.....	91
19.3	Edit a template group.....	92
19.4	Add a template group	92
19.5	Get the list of templates attached to a group	92
19.6	Attach a template to a group.....	93
19.7	Detach a template from a group	93
20.	Software Licences	94
20.1	Get the list of software licenses.....	94
20.2	Get software license details	95
20.3	Edit a software license	96
20.4	Add a software license	96
20.5	Delete a software license	96
21.	Resolvers.....	97
21.1	Get the list of resolvers	97
21.2	Get resolver details	97
21.3	Edit a resolver	98
21.4	Add a resolver	98
21.5	Delete a resolver	99
22.	Virtual Machines.....	100
22.1	Get the list of VMs	100
22.2	Get VM details	102
22.3	Create a VM	103
22.4	Build a VM	104
22.5	Edit a VM	105
22.6	Change a VM owner	105
22.7	Reset root password	106
22.8	Migrate a VM	106
22.9	Destroy a VM	107
22.10	Resize a VM.....	107
22.11	Suspend a VM	107
22.12	Unlock a VM.....	108

22.13	Start up a VM	108
22.14	Shut down a VM.....	108
22.15	Stop a VM	108
22.16	Reboot a VM	108
22.17	Segregate a VM.....	109
22.18	Open a VM console	109
22.19	Billing statistics for a VM	110
23.	Load Balancers.....	115
23.1	Get the list of load balancing clusters	115
23.2	Get load balancing cluster details.....	118
23.3	Delete a load balancing cluster.....	119
23.4	Get the list of load balancers	120
23.5	Get load balancer details.....	122
23.6	Delete a load balancer.....	123
23.7	Start up a load balancer	123
23.8	Stop a load balancer.....	124
23.9	Shut down a load balancer	124
23.10	Unlock a load balancer	124
23.11	Suspend a load balancer.....	124
24.	Backups.....	125
24.1	Get the list of VM backups	125
24.2	Create a disk backup	126
24.3	Convert a backup to a template	126
24.4	Restore a backup.....	127
24.5	Delete a backup	127
25.	Autobackup Presets	128
25.1	Get the list of autobackup presets.....	128
25.2	Get an autobackup preset	128
25.3	Edit an autobackup preset.....	129
26.	Schedules.....	130
26.1	Get the list of schedules	130

26.2	Get schedule details.....	131
26.3	Edit a schedule.....	132
26.4	Delete a schedule.....	132
27.	Statistics.....	133
28.	Transactions.....	134
28.1	Get the list of transactions	134
28.2	Get a particular transaction's details	134
29.	Version.....	135
30.	Document revisions	136

1. Introduction

The API enables cloud integration with third party applications – for example, a billing application like Ubersmith. You can manage every aspect of your cloud through the API.

- The OnAPP API is RESTful
- All function calls respond to xml and JSON requests
- All function calls need authentication (Basic HTTP or API key)

To authenticate using HTTP Basic, just use your username/password combination. Curl example:

```
curl -u demo_user_login:demo_user_password
```

To authenticate using API key, put your account email (not login) and the key to the server.

Json example:

```
curl -u demouser@onapp.com:88c3d9ecfa2de8497e038cb5a1a5e2ce62ba0e755 -H 'Accept: application/json' -H 'Content-type: application/json' http://onapp.test/users.json
```

XML example:

```
curl -u demo_user_login:demo_user_pass -H 'Accept: application/xml' -H 'Content-type: application/xml' http://onapp.test/virtual_machines.xml
```

The API returns appropriate HTTP status codes for every request:

200 OK	The request completed successfully
201 Scheduled	The request has been accepted and scheduled for processing
403 Forbidden	The request is correct, but could not be processed.
404 Not Found	The requested URL is incorrect or the resource does not exist. For example, if you request to delete a user with ID {5}, but there is no such a user in the cloud, you will get a 404 error.
500 Internal Server Error	An error occurred. Please contact support.

1.1 FAQs

Q: Is it possible to enable API access via https?

A: We can enable https for your cloud, which can be used for both WebUI access and API access. Or you can do so yourself: the Apache config file is located at

`/etc/httpd/conf.d/onapp.conf`

Q: Can you create a VM on behalf of another user?

A: No. It is possible to switch VM owners, however. Refer to *Assign VM to another user* section for details.

Q: How are passwords stored – in plain text?

A: No, passwords are not stored in plain text. Except for a login and password combination, you can use email + API key combination to authorize a user via the API. API keys can be generated and changed easily on a user's profile page (as well as through the API). For security reasons we recommend users authenticate through the API key, not the login and password.

2. Roles

This class manages roles assigned to users. A role itself maintains a set of permissions that gives an access to cloud resources and control panel functionality. You can easily regulate roles (and users in turn) using view/edit/delete options.

2.1 Get the list of roles

This method gets the list of all the roles available in the system:

GET onapp.com/roles.xml
GET onapp.com/roles.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<roles>
  <role>
    <label>Administrator</label>
    <created_at>2010-05-26T13:34:58Z</created_at>
    <updated_at>2010-07-18T21:16:14Z</updated_at>
    <id>1</id>
    <identifier>admin</identifier>
    <permissions>
      <permission>
        <label>Any action on virtual machines</label>
        <created_at>2010-05-26T13:34:58Z</created_at>
        <updated_at>2010-05-26T13:34:58Z</updated_at>
        <id>1</id>
        <identifier>virtual_machines</identifier>
      </permission>
    </permissions>
  </role>
</roles>
```

Where:

- created_at* the date in the [YYYY][MM][DD]T[hh][mm]Z format
- updated_at* the date when the Group was updated in the [YYYY][MM][DD]T[hh][mm]Z format
- permission* the permissions assigned to this role with their Label and ID

2.2 Get role details

This method will output the details for a particular user role.

```
GET onapp.com/roles/{ID}.xml
GET onapp.com/roles/{ID}.json
```

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<role>
  <label>TT</label>
  <created_at type="datetime">2011-02-11T11:20:00Z</created_at>
  <updated_at type="datetime">2011-02-11T13:56:44Z</updated_at>
  <id type="integer">3</id>
  <identifier>gkue74amkiznb7</identifier>
  <permissions type="array">
    <permission>
      <label>Any action Sysadmin Tools</label>
      <created_at type="datetime">2011-02-11T10:35:16Z</created_at>
      <updated_at type="datetime">2011-02-11T10:35:16Z</updated_at>
      <id type="integer">4</id>
      <identifier>sysadmin_tools.read</identifier>
    </permission>
  </permissions>
</role>
```

Where:

<i>identifier</i>	the role Identifier
<i>label</i>	the role title
<i>Permissions</i>	an array of permissions assigned to this role

❗ *The role for a particular user is output on /users/{ID} request*

2.3 Edit a role

Use the Put method to edit a role:

```
PUT onapp.com/roles/{ID}.xml
PUT onapp.com/roles/{ID}.json
```

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<role>
  <label>NEW Role</label>
  <permissions type="array">
    <permission>
      <label>Any action Sysadmin Tools</label>
      <id type="integer">4</id>
    </permission>
  </permissions>
</role>
```

Where:

<i>identifier</i>	the role Identifier
<i>label</i>	the role title
<i>permissions</i>	set permissions for this role

2.4 Add a new role

POST onapp.com/roles.xml
POST onapp.com/roles.json

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<role>
  <label>LABELtest12345</label>
  <permission-ids type="array">
    <permission_id>48</permission_id>
  </permission_ids>
</role>
```

The following parameters should be sent:

label	the new role label (required)
identifier	the new role ID (required)
permission-id	the ID of the permission you would like to assign to this role (optional)

2.5 Delete a role

Use the following method to delete a user role:

DELETE onapp.com/roles/{ID}.xml

```
DELETE onapp.com/roles/{ID}.json
```

This returns an HTTP 200 response if the role is deleted, or HTTP 404 if the user with the specified ID isn't found.

2.6 Edit a user's role assignment

You can change a user's role assignment by setting the list of role IDs for that user.

Json request example:

```
curl -X PUT -H 'Accept: application/json' -H 'Content-type: application/json' -u user:pass http://onapp.test/users/9.json -d '{"user":{"role_ids:[2,3]}}'
```

XML request example:

```
<?xml version="1.0" encoding="UTF-8"?>
<hash>
  <user>
    <password-confirmation>H7YgiU6B</password-confirmation>
    <role-ids type="array">
      <role-id type="integer">1</role-id>
      <role-id type="integer">2</role-id>
      <role-id type="integer">3</role-id>
    </role-ids>
    <group-id type="integer">10</group-id>
    <last-name>Doe</last-name>
    <password>H7YgiU6B</password>
    <login>theone567</login>
    <first-name>Joe</first-name>
    <email>theone567@onapp.com</email>
  </user>
</hash>
```

This returns an HTTP 200 response if roles are changed, or HTTP 404 if the specified role ID isn't found.

2.7 Get the list of all permissions

To get the list of all available permissions, use the following request:

```
GET onapp.com/permissions.xml
GET onapp.com/permissions.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<permissions>
  <permission>
    <label>Any action on virtual machines</label>
    <created_at>2010-05-26T13:34:58Z</created_at>
    <updated_at>2010-05-26T13:34:58Z</updated_at>
    <id>1</id>
    <identifier>virtual_machines</identifier>
  </permission>
</permissions>
```

Where:

<i>label</i>	the permission title
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the permission was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>ID</i>	the permission ID

3. Billing plans

This class manages billing plans, which incorporate prices and resource limits for users. Billing plans can be associated with hypervisor, network and data store zones, as well as template groups. Consequently, these plans enable you to control overall user resource limits, and limits for resources in different zones of the cloud.

ⓘTo manage billing plans and their resources for a particular user, specify the request by a `user_id` parameter, e.g:

GET onapp.com/users/:user_id/billing_plans/:billing_plan_id/base_resources.xml

These are the resources you can limit and set prices for, along with the units in which they are measured:

Virtual Machine resources	Unit
CPU	CPU core/hour
CPU Share	CPU share/hour
Disk Size	GB/hour
Memory	Mb/hour
IP Address	IP/hour
Virtual Machine	VM/hour
Template & Backup Storage	GB/hour

Data store zone resources	Unit
Disk size	GB/hour
Data read	Gb/per Gb
Data written	Gb/per Gb
Input requests	per request
Output requests	per request

Network zone resources	Unit
IP Address	IP
Port Speed	MB/hour
Data received	Gb/per Gb
Data sent	Gb/per Gb

3.1 Get the list of billing plans

To get the list of billing plans created in your cloud, use the following method:

GET onapp.com/billing_plans.xml
 GET onapp.com/billing_plans.json

Example

```
<?xml version="1.0" encoding="UTF-8"?>
<billing_plans type="array">
  <billing_plan>
    <label>default billing</label>
    <created_at type="datetime">2011-02-11T12:35:17+02:00</created_at>
    <base_resources type="array">
      <base_resource>
        <created_at type="datetime">2011-02-14T16:11:51+02:00</created_at>
        <limits>
          <limit_free>4</limit_free>
          <limit>12</limit>
        </limits>
        <updated_at type="datetime">2011-02-14T16:11:51+02:00</updated_at>
        <billing_plan_id type="integer">1</billing_plan_id>
        <id type="integer">14</id>
        <unit nil="true"></unit>
        <label>CPU</label>
        <resource_name>cpu</resource_name>
        <prices>
          <price_on>5.000000</price_on>
          <price_off>2.000000</price_off>
        </prices>
      </base_resource>
    <updated_at type="datetime">2011-03-19T10:13:33+02:00</updated_at>
    <monthly_price type="decimal">20.0</monthly_price>
    <id type="integer">103</id>
    <show_price type="boolean">true</show_price>
    <currency_code>USD</currency_code>
  </billing_plan>
</billing_plans>
```

Explanation of the data returned:

<i>label</i>	the billing plan name
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the billing plan was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	the billing type ID
<i>base_resources</i>	an array o resource limits and prices for the resources included into this plan
<i>currency_code</i>	the currency that users are charged in within this billing plan
<i>show_price</i>	true if users can see the prices set up for them, otherwise false.
<i>monthly_price</i>	monthly fee for this billing plan

3.2 Add a billing plan

To add a new billing plan:

```
POST onapp.com/billing_plans.xml
POST onapp.com/billing_plans.json
```

```
curl -X POST -d "{ billing_plan: { label: 'TEST BILLING PLAN', monthly_price: '9.9',
currency_code: '1' } }" -u admin:password http://onapp.test/billing_plans.json -H
'Accept: application/json' -H 'Content-type: application/json'
```

The following parameters should be sent:

<i>label</i>	the billing plan name
<i>currency_code</i>	the currency that users will be charged in within this billing plan. Optional, if none specified USD will be applied
<i>monthly_price</i>	Set monthly fee for plan usage. Optional, if none specified 0.0 will be set

Response example:

```
{"billing_plan":{"label":"TEST BILLING PLAN","created_at":"2011-04-19T14:01:34+03:00","updated_at":"2011-04-19T14:01:34+03:00","base_resources":[],"id":105,"monthly_price":"9.9","currency_code":"1","show_price":null}}
```

3.3 Get billing plan details

This method outputs the details for a particular billing plan:

```
GET onapp.com/billing_plans/:id.xml
GET onapp.com/billing_plans/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<billing_plan>
  <label>user33</label>
  <created_at type="datetime">2011-01-14T14:06:45Z</created_at>
  <updated_at type="datetime">2011-01-14T16:15:16Z</updated_at>
  <id type="integer">13</id>
  <currency_code>EUR</currency_code>
  <show_price type="boolean">>false</show_price>
</billing_plan>
```

Explanation of the data returned:

<i>label</i>	the billing plan name
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the billing plan was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	the billing type ID

<i>currency_code</i>	the currency that users are charged in within this billing plan
<i>show_price</i>	true if users can see the prices set up for them, otherwise false.

3.4 Edit a billing plan

To edit an existing plan:

```
PUT onapp.com/billing_plans/:id.xml
PUT onapp.com/billing_plans/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<billing_plan>
  <label>[USERNAME]</label>
  <id type="integer">[USERID]</id>
  <currency_code>[CURRENCY]</currency_code>
  <show_price type="boolean">[TRUEORFALSE]</show_price>
</billing_plan>
```

With this method you can edit the following parameters:

- label* the desired billing plan name
- currency_code* the code of the currency you're going to charge in. Currently, you can choose between USD, EUR or GBP.
- show_price* Specify if users can see plan prices

3.5 Delete a billing plan

To delete a billing plan:

```
DELETE /billing_plans/:id.xml
DELETE /billing_plans/:id.json
```

Returns HTTP 200 response on successful processing, and HTTP 404 when there is no billing plan with a requested ID, or URL is incorrect.

3.6 View base resources for a billing plan

To view which base resources were added to a particular billing plan, use the following method:

```
GET onapp.com/billing_plans/:billing_plan_id/base_resources.xml
GET onapp.com/billing_plans/:billing_plan_id/base_resources.json
```

An array of base resources with their details will be returned.

3.7 Get CPU Shares details

To get details of a particular CPU Shares resource, use the following method:

```
GET onapp.com/billing_plans/:billing_plan_id/resource_cpu_shares/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_cpu_shares/:id.json
```

Output example:

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

```
<base_resource>
  <created_at type="datetime">2011-02-16T19:19:36+07:00</created_at>
  <limits>
    <limit_free>1</limit_free>
    <limit>4</limit>
  </limits>
  <updated_at type="datetime">2011-02-16T19:19:36+07:00</updated_at>
  <billing_plan_id type="integer">14</billing_plan_id>
  <id type="integer">96</id>
  <unit type="integer" nil="true"></unit>
  <prices>
    <price_on>0.000000</price_on>
    <price_off>2.000000</price_off>
  </prices>
  <label>CPU Share</label>
  <resource_name>cpu_share</resource_name>
</base_resource>
```

The system will output the details of the billing plan, as well as the following CPU Shares resource details:

limit - the total of CPU Shares allowed within this billing plan (in %)

limit_free - the limit of CPU Shares users get for free within this billing plan (in %)

price_on - the price for the resource for powered on VMs

price_off - the price for the resource for powered off VMs

3.8 Edit CPU Shares

You can edit CPU Shares resource for a particular billing plan:

```
PUT onapp.com /billing_plans/:billing_plan_id/resource_cpu_shares/:id.xml
PUT onapp.com/billing_plans/:billing_plan_id/resource_cpu_shares/:id.json
```

You can edit the following parameters:

limit - the total CPU Shares allowed in this billing plan (in %)

limit_free - the CPU Shares users get for free in this billing plan (in %)

price_on - the price for the resource for powered on VMs

price_off - the price for the resource for powered off VMs

3.9 Delete CPU Shares

To delete a CPU Shares resource, use the following method:

```
DELETE onapp.com/billing_plans/:billing_plan_id/resource_cpu_shares/:id.xml
DELETE onapp.com/billing_plans/:billing_plan_id/resource_cpu_shares/:id.json
```

3.10 Get CPUs details

To get details for CPU resource of a particular billing plan, use the following methods:

```
GET onapp.com/billing_plans/:billing_plan_id/resource_cpus/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_cpus/:id.json
```

An array of billing plan and CPU resource details will be returned.

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<base_resource>
  <created_at type="datetime">2011-01-19T22:50:42+07:00</created_at>
  <limits>
    <limit_free>4</limit_free>
    <limit>10</limit>
  </limits>
  <updated_at type="datetime">2011-01-19T22:50:42+07:00</updated_at>
  <billing_plan_id type="integer">14</billing_plan_id>
  <id type="integer">93</id>
  <unit type="integer" nil="true"></unit>
  <prices>
    <price_on>0.000050</price_on>
    <price_off>0.000010</price_off>
  </prices>
  <label>CPU</label>
  <resource_name>cpu</resource_name>
</base_resource>
```

Where:

limit_free - the number of CPU cores that users get for free

limit - the total number of CPU cores

price_on - the prices per CPU core per hour for powered on VMs

price_off - the prices per CPU core per hour for powered off VMs

3.11 Edit CPUs resource

You can edit CPUs resource details using the following method:

```
PUT onapp.com/billing_plans/:billing_plan_id/resource_cpus/:id.xml
PUT onapp.com/billing_plans/:billing_plan_id/resource_cpus/:id.json
```

You can send the following parameters to edit:

limit_free - the number of CPU cores that users get for free

limit - the total number of CPU cores

price_on - the prices per CPU core per hour for powered on VMs

price_off - the prices per CPU core per hour for powered off VMs

3.12 Delete a CPUs resource

You can remove a CPUs resource from a particular billing plan:

```
DELETE onapp.com/billing_plans/:billing_plan_id/resource_cpus/:id.xml
DELETE onapp.com/billing_plans/:billing_plan_id/resource_cpus/:id.json
```

3.13 Get memory details

To get details of a Memories resource for a particular billing plan, use the following method:

```
GET onapp.com/billing_plans/:billing_plan_id/resource_memories/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_memories/:id.json
```

Json output example:

```
{"base_resource":{"label":"Memory","created_at":"2011-02-17T19:32:37+07:00","limits":{"limit_free":"256","limit":"512"},"updated_at":"2011-02-17T19:32:37+07:00","billing_plan_id":14,"id":105,"unit":"mb","resource_name":"memory","prices":{"price_on":"5.000000","price_off":"1.000000"}}
```

Where:

limit_free - the amount of free RAM users get

limit - the entire amount of RAM

price_on - the price for memory per MB for powered on VM

price_off - the price for memory per MB for powered off VM

3.14 Edit memory details

To edit a Memories resource details for a particular billing plan:

```
PUT onapp.com /billing_plans/:billing_plan_id/resource_memories/:id.xml
```


PUT onapp.com/billing_plans/:billing_plan_id/resource_memories/:id.json

Send the following parameters to edit:

limit_free - the amount of free RAM users get

limit - the entire amount of RAM

price_on - the price for memory per MB for powered on VM

price_off - the price for memory per MB for powered off VM

3.15 Delete memory resource

To delete a Memories resource for a particular billing plan:

DELETE onapp.com/billing_plans/:billing_plan_id/resource_memories/:id.xml
DELETE onapp.com/billing_plans/:billing_plan_id/resource_memories/:id.json

3.16 Get disk size details

To see details for a Disk size resource:

GET onapp.com/billing_plans/:billing_plan_id/resource_disk_sizes/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_disk_sizes/:id.xml

Output example:

```
{"base_resource":{"label":"Disk Size","created_at":"2011-02-16T19:19:39+07:00","limits":{"limit_free":"5","limit":"20"},"updated_at":"2011-02-16T19:19:39+07:00","billing_plan_id":14,"id":97,"unit":"gb","resource_name":"disk_size","prices":{"price_on":"10.000000","price_off":"5.000000"}}
```

Where:

limit_free - the number of free GBs users can allocate to their disks

limit - the total number of GB users can allocate to their disks

price_on - the prices per GB for powered on VM's per hour

price_off - the prices per GB for powered off VM's per hour

3.17 Edit a disk size resource

You can edit a Disk size parameter using the following method:

```
PUT onapp.com/billing_plans/:billing_plan_id/resource_disk_sizes/:id.xml
PUT onapp.com/billing_plans/:billing_plan_id/resource_disk_sizes/:id.json
```

Send the following parameters to edit:

limit_free - the number of free GBs users can allocate to their disks

limit - the total number of users can allocate to their disks

price_on - the prices per GB for powered on VM's per hour

price_off - the prices per GB for powered off VM's per hour

3.18 Delete a disk size resource

To delete a Disk size resource:

```
DELETE onapp.com/billing_plans/:billing_plan_id/resource_disk_sizes/:id.xml
DELETE onapp.com/billing_plans/:billing_plan_id/resource_disk_sizes/:id.json
```

3.19 Get IP address details

To get details for an IP Address resource:

```
GET onapp.com/billing_plans/:billing_plan_id/resource_ip_addresses/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_ip_addresses/:id.json
```

Output example:

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

```
<created_at type="datetime">2011-02-15T23:25:33+07:00</created_at>
<limits>
  <limit_free>3</limit_free>
  <limit>10</limit>
</limits>
<updated_at type="datetime">2011-02-15T23:25:33+07:00</updated_at>
<billing_plan_id type="integer">14</billing_plan_id>
<id type="integer">95</id>
<unit type="integer" nil="true"></unit>
<prices>
  <price_on>2.000000</price_on>
  <price_off>1.000000</price_off>
</prices>
<label>IP Address</label>
<resource_name>ip_address</resource_name>
</base_resource>
```

Where:

limit_free - the number of IP Addresses users get for free

limit - the total number of IP Addresses users get

price_on - the price per IP Address for powered on Vms

price_off - the price per IP Address for powered off VMs

3.20 Edit an IP address resource

To edit an IP Address resource details:

```
PUT onapp.com/billing_plans/:billing_plan_id/resource_ip_addresses/:id.xml
PUT onapp.com/billing_plans/:billing_plan_id/resource_ip_addresses/:id.json
```

Send the following parameters to edit:

limit_free - the number of IP Addresses users get for free

limit - the total number of IP Addresses users get

price_on - the price per IP Address for powered on Vms

price_off - the price per IP Address for powered off VMs

3.21 Delete an IP address resource

To remove an IP address resource from a particular billing plan:

```
DELETE onapp.com/billing_plans/:billing_plan_id/resource_ip_addresses/:id.xml
DELETE
onapp.com/billing_plans/:billing_plan_id/resource_ip_addresses/:id.json
```

3.22 Get template & backup storage details

To get details about the disk space limits and prices allocated to Backups and Templates, use the following method:

```
GET onapp.com/billing_plans/:billing_plan_id/resource_storage_disk_sizes/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_storage_disk_sizes/:id.json
```

Output example:

```
{"base_resource":{"label":"Templates & Backups Storage","created_at":"2011-02-16T19:19:44+07:00","limits":{"limit_free":"5","limit":"15"},"updated_at":"2011-02-16T19:19:44+07:00","billing_plan_id":14,"id":99,"unit":"gb","resource_name":"storage_disk_size","prices":{"price":"5.000000"}}}
```

Where:

limit_free - the amount of free disk space (in GB) users can allocate to store backups and templates together

limit - the total disk space users can allocate to store backups and templates together

price - price per GB

3.23 Edit a templates & backups storage resource

```
PUT
onapp.com/billing_plans/:billing_plan_id/resource_storage_disk_sizes/:id.xml
PUT
onapp.com/billing_plans/:billing_plan_id/resource_storage_disk_sizes/:id.json
```

Send the following parameters to edit:

limit_free - the amount of free disk space (in GB) users can allocate to store backups and templates together

limit - the total disk space users can allocate to store backups and templates together

price - price per GB

3.24 Delete a templates & backups storage resource

To delete a resource:

DELETE

```
onapp.com/billing_plans/:billing_plan_id/resource_storage_disk_sizes/:id.xml
```

DELETE

```
onapp.com/billing_plans/:billing_plan_id/resource_storage_disk_sizes/:id.json
```

3.25 Get virtual machine details

To see the limits set for a Virtual Machines resource:

```
GET onapp.com/billing_plans/:billing_plan_id/resource_vm_limits/:id.xml
```

```
GET onapp.com/billing_plans/:billing_plan_id/resource_vm_limits/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<base_resource>
  <created_at type="datetime">2011-02-16T19:19:41+07:00</created_at>
  <limits>
    <limit_free>5</limit_free>
    <limit>10</limit>
  </limits>
  <updated_at type="datetime">2011-02-16T19:19:41+07:00</updated_at>
  <billing_plan_id type="integer">14</billing_plan_id>
  <id type="integer">98</id>
  <unit type="integer" nil="true"></unit>
  <prices type="yaml" nil="true"></prices>
  <label>Virtual Machine</label>
  <resource_name>vm_limit</resource_name>
</base_resource>
```

Where:

limit_free - the number of Virtual Machines users can create for free

limit - the total amount of virtual machines allowed

3.26 Edit a virtual machines resource

PUT onapp.com/billing_plans/:billing_plan_id/resource_vm_limits/:id.xml
PUT onapp.com/billing_plans/:billing_plan_id/resource_vm_limits/:id.json

You can send the following parameters:

limit_free - the number of Virtual Machines users can create for free

limit - the total amount of virtual machines allowed

3.27 Delete a virtual machines resource

To delete a VM resource, use the following method:

DELETE onapp.com/billing_plans/:billing_plan_id/resource_vm_limits/:id.xml
DELETE onapp.com/billing_plans/:billing_plan_id/resource_vm_limits/:id.json

3.28 Get data store zone details

GET onapp.com/billing_plans/:billing_plan_id/resource_data_store_zones/:id.xml
1
GET onapp.com/billing_plans/:billing_plan_id/resource_data_store_zones/:id.json

Output example:

```
{"base_resource":{"label":"Default DataStore Group","created_at":"2011-02-17T23:56:08+07:00","limits":{"limit_reads_completed_free":"50","limit_free":"100","limit_data_written_free":"10","limit_data_read_free":"20","limit_writes_completed_free":"100","limit":"20"},"updated_at":"2011-02-17T23:56:08+07:00","billing_plan_id":14,"id":108,"unit":"gb","resource_name":"data store_group","prices":{"price_on":"5.000000","price_data_read":"6.000000","price_writes_completed":"7.000000","price_off":"8.000000","price_data_written":"9.000000","price_reads_completed":"10.000000"}}
```

Where:

limit_reads_completed_free - the maximum number of Input requests which can happen at once

limit_writes_completed_free - the maximum number of Output requests which can happen at once

limit_data_written_free - the amount of data users get for free for write operations (in GB)

limit_data_read_free - the amount of data users get for free for read operations (in GB)

limit_free - a maximum amount of disk space users get for free

limit - a total disk size

3.29 Edit a data store zone resource

```
PUT onapp.com/billing_plans/:billing_plan_id/resource_data_store_zones/:id.xml
1
PUT onapp.com/billing_plans/:billing_plan_id/resource_data_store_zones/:id.js
on
```

You can edit the following parameters:

limit_reads_completed_free - the maximum number of Input requests which can happen at once

limit_writes_completed_free - the maximum number of Output requests which can happen at once

limit_data_written_free - the amount of data users get for free for write operations (in GB)

limit_data_read_free - the amount of data users get for free for read operations (in GB)

limit_free - a maximum amount of disk space users get for free

limit - a total disk size

3.30 Delete a data store zone resource

```
DELETE
onapp.com/billing_plans/:billing_plan_id/resource_data_store_zones/:id.xml
DELETE
onapp.com/billing_plans/:billing_plan_id/resource_data_store_zones/:id.json
```

3.31 Get network zone resource

GET onapp.com/billing_plans/:billing_plan_id/resource_network_zones/:id.xml
GET onapp.com/billing_plans/:billing_plan_id/resource_network_zones/:id.json

Output example:

```
{"base_resource":{"label":"Default Network Group","created_at":"2011-02-17T23:56:12+07:00","limits":{"limit_ip":"10","limit_data_sent_free":"100","limit_ip_free":"5","limit_data_received_free":"100","limit_rate":"10","limit_rate_free":"5"},"updated_at":"2011-02-17T23:56:12+07:00","billing_plan_id":14,"id":109,"unit":"gb","resource_name":"network_group","prices":{"price_rate_on":"10.000000","price_data_received":"10.000000","price_data_sent":"10.000000","price_ip_on":"10.000000","price_ip_off":"5.000000","price_rate_off":"5.000000"}}}
```

Where:

limit_ip - the total amount of IP addresses

limit_ip_free - the amount of IP addresses users get for free

limit_data_sent_free - the amount of data users can send for free

limit_data_received_free - the amount of data users can receive for free

limit_rate - the total available port speed users

limit_rate_free - the port speed users get for free

3.32 Edit network zones resource

PUT onapp.com/billing_plans/:billing_plan_id/resource_network_zones/:id.xml
PUT onapp.com/billing_plans/:billing_plan_id/resource_network_zones/:id.json

You can edit the following parameters:

limit_ip - the total amount of IP addresses

limit_ip_free - the amount of IP addresses users get for free

limit_data_sent_free - the amount of data users can send for free

limit_data_received_free - the amount of data users can receive for free

limit_rate - the total available port speed users

limit_rate_free - the port speed users get for free

3.33 Delete a network zone resource

DELETE

`onapp.com/billing_plans/:billing_plan_id/resource_network_zones/:id.xml`

DELETE

`onapp.com/billing_plans/:billing_plan_id/resource_network_zones/:id.json`

4. Currencies

This class allows you to set up the currency for your payments. There are four currencies in a default installation: USD, EUR, GBP and JPY. You can add more currencies at any time.

4.1 Get the list of currencies

To get the list of available currencies, use the following request:

```
GET    onapp.com/settings/currencies.xml
GET    onapp.com/settings/currencies.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<currencies>
  <currency>
    <name>United States dollar</name>
    <format>%u%n</format>
    <created_at>2011-03-02T12:09:36+02:00</created_at>
    <code>USD</code>
    <updated_at>2011-03-22T16:12:41+02:00</updated_at>
    <id>1</id>
    <unit>$</unit>
    <separator>.</separator>
    <precision>5</precision>
    <delimiter>,</delimiter>
  </currency>
</currencies>
```

Where:

name – the currency label

format - how the currency is displayed in the control panel. The following parameters are used: %n (for the digits), %u (for the currency symbol)

created_at – the date when the record in DB was added

updated_at – the date when the record in DB was updated

code - three-character currency code that is generally used to represent the currency

id – the ID of the currency

unit – a currency symbol

separator - a character used to format decimal numbers, e.g 100.99

precision - the number of digits after the delimiter

delimiter - a grouping character used to separate thousands, e.g: 100,000,000.

4.2 Get currency details

To get details for a particular currency, use the following request:

```
GET    onapp.com/settings/currencies/:id.xml
GET    onapp.com/settings/currencies/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<currency>
  <name>British pound</name>
  <format>%u%n</format>
  <created_at>2011-03-02T12:09:36+02:00</created_at>
  <code>GBP</code>
  <updated_at>2011-03-22T15:31:10+02:00</updated_at>
  <id>2</id>
  <unit>&#163;</unit>
  <separator>.</separator>
  <precision>1</precision>
  <delimiter>,</delimiter>
</currency>
```

Where:

name – the currency label

format - how the currency is displayed in the control panel. The following parameters are used: %n (for the digits), %u (for the currency symbol)

created_at – the date when the record in DB was added

updated_at – the date when the record in DB was updated

code - three-character currency code that is generally used to represent the currency

id – the ID of the currency

unit – a currency symbol

separator - a character used to format decimal numbers, e.g 100.99

precision - the number of digits after the delimiter

delimiter - a grouping character used to separate thousands, e.g: 100,000,000.

4.3 Edit currencies

To edit details of a currency, use the following request:

```
PUT    onapp.com/settings/currencies/:id.xml
PUT    onapp.com/settings/currencies/:id.json
```

Request example:

```
curl -i -X PUT -H 'Accept: application/xml' -H 'Content-type: application/xml' -u
admin:password -d
'<currency><name>Test_name_change</name><format>%n%u</format><code>TST</code><unit>+</
unit><separator>,</separator><precision>3</precision><delimiter>,</delimiter></currenc
y>' http://onapp.test/settings/currencies/5.xml
```

Parameters:

name – the currency label

unit – a currency symbol (\$, €, £, etc.)

format - how the currency is displayed in the control panel. The following parameters are used: %n (for the digits), %u (for the currency symbol)

code - three-character currency code that is generally used to represent the currency

separator - a character used to format decimal numbers, e.g 100.99

precision - the number of digits after the delimiter

delimiter - a grouping character used to separate thousands, e.g: 100,000,000.

4.4 Add a currency

To add a currency, use the following request:

```
POST    onapp.com/settings/currencies.xml
POST    onapp.com/settings/currencies.json
```

Request example:

```
curl -i -X POST -H 'Accept: application/xml' -H 'Content-type: application/xml' -u
admin:password -d
'<currency><name>Test</name><format>%n%u</format><code>TT</code><unit>%</unit><separat
or>,</separator><precision>3</precision><delimiter>;</delimiter></currency>'
http://onapp.test/settings/currencies.xml
```

Output example:

```
{"currency":{"name":"Test_name","created_at":"2011-04-19T17:20:26+03:00","format":"%n%u","code":"TST","updated_at":"2011-04-19T17:20:26+03:00","id":7,"unit":"%","separator":",","precision":4,"delimiter":","}}
```

4.5 Delete a currency

To delete a currency, use the following request:

```
DELETE    onapp.com/settings/currencies/:id.xml
DELETE    onapp.com/settings/currencies/:id.json
```

5. Users

This class manages user accounts created in the cloud. It enables you to set up different types of user and allocate their role. Roles define user access to cloud resources and functions, including managing virtual machines and hypervisors, performing actions on templates and backups, and configuring data stores and networks.

5.1 Get the list of users

```
GET onapp.com/users.xml
GET onapp.com/users.json
```

Outputs all existing users with their details.

5.2 Get user details

To get details for a particular user account:

```
GET onapp.com/users/{ID}.xml
GET onapp.com/users/{ID}.json
```

Example:

```
curl -X GET -H 'Accept: application/json' -H 'Content-type: application/json' -u
user:pass http://demo.onapp.com/users/164.json
```

Outputs:

```
<?xml version="1.0" encoding="UTF-8"?>
<user>
  <activated_at type="datetime">2011-04-12T14:29:49+03:00</activated_at>
  <created_at type="datetime">2011-04-12T14:29:48+03:00</created_at>
  <remember_token_expires_at type="datetime" nil="true"></remember_token_expires_at>
  <suspend_at type="datetime">2011-04-13T14:29:48+03:00</suspend_at>
  <deleted_at type="datetime" nil="true"></deleted_at>
  <updated_at type="datetime">2011-04-12T14:32:23+03:00</updated_at>
  <activation_code nil="true"></activation_code>
  <billing_plan_id type="integer">22</billing_plan_id>
  <group_id type="integer" nil="true"></group_id>
  <id type="integer">109</id>
  <user_group_id type="integer">12</user_group_id>
  <last_name>Lastname</last_name>
  <remember_token nil="true"></remember_token>
  <image_template_group_id type="integer" nil="true"></image_template_group_id>
  <time_zone>Dublin</time_zone>
  <login>apidoc</login>
  <status>active</status>
```

```

<email>example@onapp.com</email>
<first_name>Name</first_name>
<outstanding_amount type="float">0.0</outstanding_amount>
<payment_amount type="decimal">0.0</payment_amount>
<total_amount type="float">0.0</total_amount>
<roles type="array">
  <role>
    <label>User</label>
    <created_at type="datetime">2011-02-11T12:35:16+02:00</created_at>
    <updated_at type="datetime">2011-04-12T12:16:24+03:00</updated_at>
    <id type="integer">2</id>
    <identifier>user</identifier>
  </role>
</roles>
<used_cpus type="integer">0</used_cpus>
<used_memory type="integer">0</used_memory>
<used_cpu_shares type="integer">0</used_cpu_shares>
<used_disk_size type="integer">0</used_disk_size>
<used_ip_addresses type="array"/>
<memory_available type="integer">1374</memory_available>
<disk_space_available type="integer">56</disk_space_available>
</user>

```

Where:

<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>activated_at</i>	the date when the User was activated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the User was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>suspend_at</i>	the date when the system will suspend a user
<i>deleted_at</i>	the date when a user was deleted. Empty, if the user is not deleted
<i>remember_token</i>	Set true to let the system remember user login and password combination until the date specified by <i>remember_token_expires_at</i> parameter
<i>remember_token_expires_at</i>	The date when expires <i>remember_token</i> parameter
<i>billing_plan_id</i>	the ID of a billing plan assigned to this user
<i>user_group_id</i>	the ID of a user group assigned to this user
<i>image_template_group_id</i>	the ID of a template group assigned to this user
<i>email</i>	user email
<i>time_zone</i>	the time zone of this particular user account
<i>status</i>	the status of the user account (active, suspended, deleted)
<i>login</i>	the user account name used to access the system
<i>outstanding_amount</i>	the amount of money that user is due to pay
<i>payment_amount</i>	the amount of money that user actually paid
<i>total_amount</i>	the total of outstanding and payment amounts

<i>role</i>	the array of user roles to which this account is assigned to
<i>used_cpus</i>	the number of cpus used by VMs of this user account
<i>used_memory</i>	RAM used by this particular account in MB
<i>used_cpu_shares</i>	the number of CPU shares used by this particular account
<i>used_ip_addresses</i>	an array of IP addresses with their details used by this particular account
<i>memory_available</i>	the amount of RAM available to this user
<i>disk_space_available</i>	the amount of disk space available to this user

An HTTP 404 response will be returned if a user with the requested ID is not found.

5.3 Create a user

Use the POST method to create a new user account:

POST `onapp.com/users.xml`
POST `onapp.com/users.json`

Example:

```
curl -X POST -d "{user:{login:'login_testname',
email:'test1@test.test',password_confirmation:'password_test1', first_name:'First',
last_name:'Last',password:'password_test1',user_group_id:10, billing_plan_id:'1',
suspend_after_hours:'1', role_ids:[1,2,3]}}" -u admin:password
http://onapp.test/users.json -H 'Accept: application/json' -H 'Content-type:
application/json'
```

Returns HTTP 201 on successful creation, or HTTP 422 if a user with such a login/email already exists.

Response example:

```
{"user":{"total_amount":20.0,"activated_at":"2011-04-
19T14:53:49+03:00","created_at":"2011-04-
19T14:53:49+03:00","remember_token_expires_at":null,"suspend_at":null,"memory_availabl
e":60,"deleted_at":null,"updated_at":"2011-04-
19T14:53:49+03:00","used_ip_addresses":[],"used_disk_size":0,"used_cpus":0,"billing_pl
an_id":1,"used_cpu_shares":0,"group_id":null,"id":116,"used_memory":0,"payment_amount
":0.0,"user_group_id":null,"last_name":"Last","remember_token":null,"disk_space_avail
able":12,"image_template_group_id":null,"locale":"en","time_zone":null,"login":"login_
testname","status":"active","outstanding_amount":20.0,"roles":[],"email":"test1@test.te
st","first_name":"First"}}
```

Optional parameters: *billing_plan_id*, *role_ids*, *user_group_id*, *suspend_after_hours* or *suspend_at* .
Other parameters are required.

You can set a user's role at the same time by POSTing with xml:


```
<?xml version="1.0" encoding="UTF-8"?>
<hash>
  <user>
    <password-confirmation>H7YgiU6B</password-confirmation>
    <role-ids type="array">
      <role-id type="integer">1</role-id>
      <role-id type="integer">2</role-id>
      <role-id type="integer">3</role-id>
    </role-ids>
    <group-id type="integer">10</group-id>
    <last-name>Doe</last-name>
    <password>H7YgiU6B</password>
    <login>theone567</login>
    <first-name>Joe</first-name>
    <email>theone567@onapp.com</email>
  </user>
</hash>
```

5.4 Generate API key

Use the following request to generate a new API key:

```
POST onapp.com/users/:id/make_new_api_key.xml
POST onapp.com/users/:id/make_new_api_key.json
```

5.5 Suspend a user

To suspend a user account, use the following method:

```
GET onapp.com/users/:id/suspend.xml
GET onapp.com/users/:id/suspend .json
```

5.6 Activate a user

To activate a suspended user account, use the following method:

```
GET onapp.com/users/:id/activate_user.xml
GET onapp.com/users/:id/activate_user.json
```

5.7 Delete a user

Use the DELETE method to remove a user account from the cloud:

```
DELETE onapp.com/users/{ID}.xml  
DELETE onapp.com/users/{ID}.json
```

Example:

```
curl -X DELETE -H 'Accept: application/json' -H 'Content-type: application/json' -u  
user:pass http://demo.onapp.com/users/101.json
```

Returns HTTP 200 response on successful deletion, or HTTP 404 when a user with the ID specified is not found.

i When you delete a user their status becomes DELETED, so they cannot perform any actions on their VMs: however, statistics, backups and billing details are still available for Administrator. To completely erase a user from the system, run `DELETE onapp.com/users/{ID}.(format) again`.

5.8 Edit a user's role assignment

You can change a user's role assignment by setting the list of role IDs for that user.

Json request example:

```
curl -X PUT -H 'Accept: application/json' -H 'Content-type: application/json' -u  
user:pass http://onapp.test/users/9.json -d '{"user":{"role_ids:[2,3]}}'
```

XML request example:

```
<?xml version="1.0" encoding="UTF-8"?>  
<hash>  
  <user>  
    <password-confirmation>H7YgiU6B</password-confirmation>  
    <role-ids type="array">  
      <role-id type="integer">1</role-id>  
      <role-id type="integer">2</role-id>  
      <role-id type="integer">3</role-id>  
    </role-ids>  
    <group-id type="integer">10</group-id>  
    <last-name>Doe</last-name>  
    <password>H7YgiU6B</password>  
    <login>theone567</login>  
    <first-name>Joe</first-name>  
    <email>theone567@onapp.com</email>  
  </user>  
</hash>
```

This returns an HTTP 200 response if roles are changed, or HTTP 404 if the specified role ID isn't found.

5.9 View billing statistics for a user

To view billing statistics for a particular user, use the following method:

```
GET    onapp.com/users/:user_id/vm_stats.xml
GET    onapp.com/users/:user_id/vm_stats.json
```

XML output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<vm_stats type="array">
<vm_stat>
<created_at type="datetime">2011-04-01T07:00:06+07:00</created_at>
<updated_at type="datetime">2011-04-01T07:00:06+07:00</updated_at>
<stat_time type="datetime">2011-04-01T07:00:00+07:00</stat_time>
<id type="integer">17474</id>
<user_id type="integer">1</user_id>
<vm_billing_stat_id type="integer">16973</vm_billing_stat_id>
<currency_code>USD</currency_code>
<virtual_machine_id type="integer">364</virtual_machine_id>
<billing_stats>
<virtual_machines type="array">
<virtual_machine>
<label>VM_VG_KVM_Ub</label>
<costs type="array">
<cost>
<value type="integer">120</value>
<resource_name>cpu_shares</resource_name>
<cost type="float">1.19000005722046</cost>
</cost>
</costs>
<id type="integer">364</id>
</virtual_machine>
</virtual_machines>
<network_interfaces type="array">
<network_interface>
<label>eth0</label>
<costs type="array">
<cost>
<value type="integer">1</value>
<resource_name>ip_addresses</resource_name>
<cost type="float">0.0</cost>
</cost>
</costs>
<id type="integer">349</id>
</network_interface>
</network_interfaces>
<disks type="array">
<disk>
<label>#638</label>
<costs type="array">
<cost>
<value type="integer">5</value>
<resource_name>disk_size</resource_name>
<cost type="float">10.0</cost>
</cost>
</disks>
</billing_stats>
<total_cost type="float">15.2002</total_cost>
<vm_resources_cost type="float">15.2002</vm_resources_cost>
<usage_cost type="float">0.0</usage_cost>
</vm_stats>
```

Where:

<i>created_at</i>	The timestamp in DB when this record was created
<i>updated_at</i>	The date when these statistics were updated
<i>cost</i>	The total amount of money owed by this particular VM for the resources spent at <i>stat_time</i>
<i>updated_at</i>	The timestamp in DB when this record was updated
<i>stat_time</i>	The particular hour for which these statistics were generated <i>id</i> - the ID of these statistics
<i>id</i>	The ID of these statistics
<i>user_id</i>	The ID of VM owner
<i>currency_code</i>	Currency in which this virtual machine is charged within the billing plan
<i>billing_stats</i>	An array of billing details for the resources used by this VM
<i>virtual_machine</i>	An array of virtual machine billing details: <ul style="list-style-type: none"> • <i>label</i> - VM name • <i>costs</i> - An array of VM resources with their total prices for the period specified in the <i>stat-time</i> parameter, where: <ul style="list-style-type: none"> ○ <i>resource_name</i> - the resource in question. This can be <i>cpu_shares</i>, <i>cpus</i>, <i>memory</i> and <i>template</i> ○ <i>value</i> - the amount of resources allocated to this VM. For the <i>templates</i> resource, this parameter means a <i>teplate ID</i> in database. ○ <i>cost</i> - the total due for this resource • <i>id</i> - Virtual machine ID
<i>network_interfaces</i>	An array of network interfaces used by this VM with their billing statistics: <ul style="list-style-type: none"> • <i>label</i> - network interface name • <i>id</i> - network interface ID • <i>costs</i> - an array of network interface related resources with their total prices for the period specified in the <i>stat-time</i> parameter, where: <ul style="list-style-type: none"> ○ <i>resource_name</i> - the resource in question. This can be <i>ip_addresses</i>, <i>rate</i>, <i>data_received</i> and <i>data_sent</i> ○ <i>value</i> - the amount of resources used by this network

- interface (the number of IPs, the port speed in Mb per second, the Data sent and received in Gb)
- cost - the total due for the resource

<i>disks</i>	<p>An array of disks used by this VM with their billing details:</p> <ul style="list-style-type: none"> • <i>label</i> - disk name used in UI • <i>id</i> - disk ID used in database • <i>costs</i> - an array of disk related resources with their total prices for the period specified in the <i>stat-time</i> parameter, where: <ul style="list-style-type: none"> ○ <i>resource_name</i> - the resource in question. This can be <i>disk_size</i>, <i>data_read</i>, <i>data_written</i>, <i>reads_completed</i> and <i>writes_completed</i> ○ <i>value</i> - the amount of resources used (Gbs of disk size, Gbs of data read/written, the number of reads/writes) ○ <i>cost</i> - the total due for the resource
<i>total_cost</i>	<p>The total amount of money owed for the VM specified by <i>id</i> parameter for a particular hour specified by <i>stat_time</i> parameter ($total_cost = vm_resources_cost + usage_cost$)</p>
<i>vm_resources_cost</i>	<p>The amount of money due for the VM resources for the particular hour specified by <i>stat_time</i> parameter (memory, disks, templates)</p>
<i>usage_cost</i>	<p>The total due for VM usage for this particular hour specified by <i>stat_time</i> parameter (data sent/received, bandwidth, CPU usage)</p>

5.10 See VMs of a particular user

To see the virtual machines owned by a particular user:

```
GET onapp.com/users/:user_id/virtual_machines.xml
GET onapp.com/users/:user_id/virtual_machines.xml
```

An array of virtual machines will be returned.

XML output example:

```

<?xml version="1.0" encoding="UTF-8"?>
<virtual-machines type="array">
  <virtual-machine>
    <cpus type="integer">1</cpus>
    <label>testdataread</label>
    <created_at type="datetime">2011-02-22T15:04:46Z</created_at>
    <operating_system_distro>rhel</operating_system_distro>
    <cpu_shares type="integer">1</cpu_shares>
    <operating_system>linux</operating_system>
    <template_id type="integer">1</template_id>
    <allowed_swap type="boolean">true</allowed_swap>
    <local_remote_access_port type="integer">5900</local_remote_access_port>
    <memory type="integer">212</memory>
    <updated_at type="datetime">2011-02-23T10:58:16Z</updated_at>
    <allow_resize_without_reboot type="boolean">true</allow_resize_without_reboot>
    <recovery_mode type="boolean">false</recovery_mode>
    <hypervisor_id type="integer">1</hypervisor_id>
    <id type="integer">109</id>
    <xen_id type="integer" nil="true"></xen_id>
    <admin_note nil="true"></admin_note>
    <allowed_hot_migrate type="boolean">true</allowed_hot_migrate>
    <user_id type="integer">13</user_id>
    <note></note>
    <strict_virtual_machine_id type="integer" nil="true"></strict_virtual_machine_id>
    <suspended type="boolean">false</suspended>
    <booted type="boolean">false</booted>
    <hostname>testdataread</hostname>
    <template_label>CentOS 5.5 x64</template_label>
    <identifier>t1nb31snqvw6gm</identifier>
    <initial_root_password>c2om4mgemb7r</initial_root_password>
    <min_disk_size type="integer">5</min_disk_size>
    <remote_access_password>9qwdg8</remote_access_password>
    <built type="boolean">true</built>
    <locked type="boolean">false</locked>
    <ip_addresses type="array">
    </ip_addresses>
    <monthly_bandwidth_used type="integer">747047</monthly_bandwidth_used>
    <total_disk_size type="integer">6</total_disk_size>
  </virtual-machine>
</virtual-machines>

```

6. Whitelist IPs

A white List is a list of IPs from which a particular user may access the control panel. Once an IP has been added to the white list, a user will not be able to access the control panel from any other IP. All methods are available to Whitelist IPs class.

6.1 Get the list of whitelist IPs

To get the list of IPs entered to the list:

```
GET    onapp.com/users/:user_id/user_white_lists.xml
GET    onapp.com/users/:user_id/user_white_lists.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<user_white_lists>
  <user_white_list>
    <created_at>2011-04-21T15:38:14+03:00</created_at>
    <updated_at>2011-04-21T15:38:14+03:00</updated_at>
    <id>2</id>
    <user_id>8</user_id>
    <ip>192.168.112.1</ip>
    <description>My IP</description>
  </user_white_list>
</user_white_lists>
```

Where:

created_at – the date when this record in DB was created

updated_at – the date when this record in DB was updated

id – the record ID

user_id – the ID of a user for whom this whitelist was created

ip – the IP from which this user can log in to CP

description – an optional description

6.2 Get whitelist IPs details

To get details for a particular whitelist, use the following request:

```
GET    onapp.com/users/:user_id/user_white_lists/:id.xml
GET    onapp.com/users/:user_id/user_white_lists/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<user_white_list>
  <created_at>2011-04-21T15:38:14+03:00</created_at>
  <updated_at>2011-04-21T15:38:14+03:00</updated_at>
  <id>2</id>
  <user_id>8</user_id>
  <ip>192.168.112.1</ip>
  <description>My IP</description>
</user_white_list>
```

Where:

created_at – the date when this record in DB was created

updated_at – the date when this record in DB was updated

id – the record ID

user_id – the ID of a user for whom this whitelist was created

ip – the IP from which this user can log in to CP

description – an optional description

6.3 Edit a whitelisted IP

To edit a whitelisted IP, use the following request:

```
PUT    onapp.com/users/:user_id/user_white_lists/:id.xml
PUT    onapp.com/users/:user_id/user_white_lists/:id.json
```

XML Request Example:

```
curl -i -X PUT -H 'Accept: application/xml' -H 'Content-type: application/xml' -u
login:password -d '
<user_white_list>
<ip>127.0.0.123</ip>
</user_white_list>'
http://onapp.test/users/9/user_white_lists/5.xml
```

6.4 Add a whitelisted IP

To add an IP to the list of whitelisted IPs:

```
POST    onapp.com/users/:user_id/user_white_lists.xml
POST    onapp.com/users/:user_id/user_white_lists.json
```

XML Request Example:

```
curl -i -X POST -H 'Accept: application/xml' -H 'Content-type: application/xml' -u
login:password -d '
```



```
<user_white_list>  
<ip>127.0.0.111</ip>  
</user_white_list>'  
http://onapp.test/users/9/user_white_lists.xml
```

6.5 Delete a whitelisted IP

To delete a whitelisted IP, use the following request:

```
DELETE onapp.com/users/:user_id/user_white_lists/:id.xml  
DELETE onapp.com/users/:user_id/user_white_lists/:id.json
```

XML Request Example:

```
curl -X DELETE -H 'Accept: application/xml' -H 'Content-type: application/xml' -u  
login:password http://onapp.test/users/9/user_white_lists/5.xml
```

7. Firewall Rules for VMs

Firewall rules are applied to the VMs of your cloud to prevent unauthorized or unwanted requests to their network interfaces. You can configure your firewall to Accept/Drop specific request types. All methods are available for this class.

7.1 Get the list of firewall rules

To get the list of firewall rules assigned to a VM, use the following request:

```
GET    onapp.com/virtual_machines/:virtual_machine_id/firewall_rules.xml
GET    onapp.com/virtual_machines/:virtual_machine_id/firewall_rules.json
```

```
<?xml version="1.0" encoding="UTF-8"?>
<firewall_rules>
  <firewall_rule>
    <position>1</position>
    <address>ALL</address>
    <created_at>2011-04-20T12:52:10+03:00</created_at>
    <command>ACCEPT</command>
    <updated_at>2011-04-20T12:52:10+03:00</updated_at>
    <port>21</port>
    <protocol>TCP</protocol>
    <id>1</id>
    <network_interface_id>5</network_interface_id>
  </firewall_rule>
</firewall_rules>
```

Where:

position – the rule priority

address – the IP address for which this rule is active. If none specified, All IPs will be subject to this rule.

created_at – the date when the record in DB was created

command – the action which will be performed with the IP specified by the *address* parameter

updated_at – the date when the record was updated in DB

port – the port for which this rule is active

protocol – the IP protocol (TCP or UDP) for which this rule is active

id – the ID of this record

network_interface_id – the ID of a network interface for which this rule is active

7.2 Edit a firewall rule

To edit a firewall rule, use the following request:

```
PUT onapp.com/virtual_machines/:virtual_machine_id/firewall_rules/:id.xml
PUT onapp.com/virtual_machines/:virtual_machine_id/firewall_rules/:id.json
```

Request example:

```
curl -i -X PUT -H 'Accept: application/xml' -H 'Content-type: application/xml' -u
login:password -d
'<firewall_rule><address>192.168.128.111</address><command>ACCEPT</command><port>70</p
ort><protocol>TCP</protocol><network_interface_id>40</network_interface_id</firewall_
rule>' http://onapp.test/virtual_machines/37/firewall_rules/3.xml
```

7.3 Add a firewall rule

To add a firewall rule, use the following request:

```
POST onapp.com/virtual_machines/:virtual_machine_id/firewall_rules.xml
POST onapp.com/virtual_machines/:virtual_machine_id/firewall_rules.json
```

XML Request example:

```
curl -i -X POST -H 'Accept: application/xml' -H 'Content-type: application/xml' -u
login:password -d
'<firewall_rule><address>192.168.128.114</address><command>ACCEPT</command><port>75</p
ort><protocol>TCP</protocol><network_interface_id>40</network_interface_id</firewall_
rule>' http://onapp.test/virtual_machines/37/firewall_rules.xml
```

Send the following parameters: *command*, *network_interface_id*, *address* and *port*.

7.4 Delete a firewall rule

To delete a firewall rule, use the following request:

```
DELETE onapp.com/virtual_machines/:virtual_machine_id/firewall_rules/:id.xml
DELETE onapp.com/virtual_machines/:virtual_machine_id/firewall_rules/:id.json
```

8. Data store zones

This class manages all the Data store zones created in the cloud. A data store zone consists of several data stores sharing the same permissions and assigned to the same billing plan. By setting up different zones, you can create different tiers of storage with different pricing and performance.

8.1 Get the list of data store zones

To get the list of available data store zones, use the following method:

```
GET onapp.com/data_store_zones.xml
GET onapp.com/data_store_zones.json
```

You will get an array of data store zones set up within your cloud.

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-store-groups type="array">
  <data-store-group>
    <label>DSZ_1</label>
    <created_at type="datetime">2011-01-11T11:11:15Z</created_at>
    <updated_at type="datetime">2011-01-17T12:56:41Z</updated_at>
    <id type="integer">5</id>
  </data-store-group>
```

Where:

<i>label</i>	The Data store zone title
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the Data store zone was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	The Data store zone ID

8.2 Add a data store zone

Use the following methods to create a new Data store zone:

```
POST onapp.com/data_store_zones.xml
POST onapp.com/data_store_zones.json
```

Request example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-store-groups type="array">
  <data-store-group>
    <label>[DS_ZONE_TITLE]</label>
    <id type="integer">[ID]</id>
  </data-store-group>
</data-store-groups>
```

8.3 Get data store zone details

```
GET onapp.com/data_store_zones/:id.xml
GET onapp.com/data_store_zones/:id.json
```

This method returns details of a particular Data store zone.

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-store-groups>
  <data-store-group>
    <label>DSZ_2</label>
    <created_at type="datetime">2011-01-11T11:55:00Z</created_at>
    <updated_at type="datetime">2011-01-17T12:56:27Z</updated_at>
    <id type="integer">8</id>
  </data-store-group>
</data-store-groups>
```

Where:

<i>Label</i>	The Data store zone title
<i>Created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>Updated_at</i>	the date when the Data store zone was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	The Data store zone ID

8.4 Edit a data store zone

To edit a particular data store zone label:

```
PUT onapp.com/data_store_zones/:id.xml
PUT onapp.com/data_store_zones/:id.json
```

8.5 Delete a data store zone

To delete a particular data store zone:

```
DELETE onapp.com/data_store_zones/:id.xml
DELETE onapp.com/data_store_zones/:id.json
```

You will get a 200 status response on success, and 404 if there is no such a data store zone with a requested ID or you entered incorrect URL.

8.6 Get the list of data stores attached to a data store zone

```
GET onapp.com/data_store_zones/:data_store_group_id/data_stores.xml
GET onapp.com/data_store_zones/:data_store_group_id/data_stores.json
```

On success, an array of data stores is returned.

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-stores type="array">
  <data-store>
    <label>ds1</label>
    <created_at type="datetime">2011-01-06T10:54:30Z</created_at>
    <updated_at type="datetime">2011-02-07T12:27:32Z</updated_at>
    <data_store_group_id type="integer">5</data_store_group_id>
    <enabled type="boolean">>false</enabled>
    <id type="integer">1</id>
    <zombie_disks_size type="integer">110</zombie_disks_size>
    <ip></ip>
    <local_hypervisor_id type="integer" nil="true"></local_hypervisor_id>
    <data_store_size type="integer">465</data_store_size>
    <identifier>onapp-ojgg2jkk75zfmw</identifier>
  </data-store>
```

Explanation of the data returned:

<i>label</i>	The name of the data store attached to this data store zone
<i>created_at</i>	Timestamp the DB record was created
<i>updated_at</i>	Timestamp the DB record was updated
<i>data_store_group_id</i>	The ID of a data store zone to which this data store is attached

<i>enabled</i>	True if the data store is enabled and you can create VMs on it. Otherwise, false
<i>id</i>	The data store ID
<i>zombie_disks_size</i>	The disk space in GB allocated to zombie disks
<i>ip</i>	The data store IP address
<i>local_hypervisor_id</i>	The ID of the hypervisor to which this data store is assigned
<i>data_store_size</i>	The data store disk capacity in GB
<i>identifier</i>	The data store identifier in DB

8.7 Attach a data store to a data store zone

```
POST
onapp.com/data_store_zones/:data_store_group_id/data_stores/:id/attach.xml
POST
onapp.com/data_store_zones/:data_store_group_id/data_stores/:id/attach.json
```

Request example:

```
curl -i -X POST http://onapp.test/data_store_zones/2/data_stores/2/attach.xml -u
admin:password
```

8.8 Detach a data store from a data store zone

```
POST onapp.com/data_store_zones/:data_store_group_id/data_stores/:id/detach.x
ml
POST onapp.com/data_store_zones/:data_store_group_id/data_stores/:id/detach.j
son
```

Request example:

```
curl -i -X POST http://onapp.test/data_store_zones/2/data_stores/2/detach.xml -u
admin:password
```

9. Network zones

A network zone consists of several networks sharing the same permissions and assigned to the same billing plan. Network zones can be attached to hypervisor zones, enabling you to create different tiers of service within your cloud. All API calls are available to this class.

9.1 Get the list of network zones

This method lists an array of all the network zones available in your cloud.

```
GET onapp.com/network_zones.xml
GET onapp.com/network_zones.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<network-groups type="array">
  <network-group>
    <label>net_p</label>
    <created_at type="datetime">2011-01-06T11:18:45Z</created_at>
    <updated_at type="datetime">2011-01-06T11:18:45Z</updated_at>
    <id type="integer">3</id>
  </network-group>
```

Where:

<i>label</i>	The Network zone title
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the Network zone was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	The Network zone ID

9.2 Add a network zone

You can add a new network zone using the following method:

```
POST onapp.com/network_zones.xml
POST onapp.com/network_zones.json
```

Request Example:


```
<?xml version="1.0" encoding="UTF-8"?>
<network-groups type="array">
  <network-group>
    <label>[NZ TITLE]</label>
    <id type="integer">[ID]</id>
  </network-group>
</network-groups>
```

9.3 Get network zone details

To get a particular network zone details:

```
GET onapp.com/network_zones/:id.xml
GET onapp.com/network_zones/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<network-groups type="array">
  <network-group>
    <label>network_zone</label>
    <created_at type="datetime">2011-01-06T11:18:45Z</created_at>
    <updated_at type="datetime">2011-01-06T11:18:45Z</updated_at>
    <id type="integer">8</id>
  </network-group>
</network-groups>
```

Where:

<i>label</i>	The Network zone title
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	the date when the Network zone was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	The Network zone ID

9.4 Edit a network zone

You can edit a label and an ID of a particular network zone using the PUT method:

```
PUT onapp.com/network_zones/:id.xml
PUT onapp.com/network_zones/:id.json
```

9.5 Delete a network zone

To delete a network zone, use the following API call:

```
DELETE onapp.com/network_zones/:id.xml
DELETE onapp.com/network_zones/:id.json
```

You will get a 200 status response on success, and 404 if there is no such a network zone with a requested ID or you entered incorrect URL.

9.6 Attach a network to a network zone

```
POST onapp.com/network_zones/:network_group_id/networks/:id/attach.xml
POST onapp.com/network_zones/:network_group_id/networks/:id/attach.json
```

Request example:

```
curl -i -X POST http://onapp.test/network_zones/3/networks/2/attach.xml -u
admin:password
```

9.7 Remove a network from a network zone

```
POST onapp.com/network_zones/:network_group_id/networks/:id/detach.xml
POST onapp.com/network_zones/:network_group_id/networks/:id/detach.json
```

Request example:

```
curl -i -X POST http://onapp.test/network_zones/3/networks/2/detach.xml -u
admin:password
```

10. Hypervisor zones

Hypervisor zone consists of several hypervisors sharing the same permissions and assigned to the same billing plan. This class manages all the hypervisor zones created in the cloud. Hypervisor zones can have data stores and networks attached to them. The combination of hypervisor, data store and network zones can be used to create private clouds and tiered services for customers. All API calls are available to this class.

10.1 Get the list of hypervisor zones

To get an array of hypervisor zones set up within your cloud, use the following request:

```
GET onapp.com/settings/hypervisor_zones.xml
GET onapp.com/settings/hypervisor_zones.json
```

Output example:

```
<hypervisor-groups type="array">
  <hypervisor-group>
    <label>HV_1</label>
    <created_at type="datetime">2011-01-11T11:11:15Z</created_at>
    <updated_at type="datetime">2011-01-17T12:56:41Z</updated_at>
    <id type="integer">5</id>
  </hypervisor-group>
```

Where:

<i>label</i>	The hypervisor zone title
<i>created_at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	The date when the hypervisor zone was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	The hypervisor zone ID

10.2 Add a hypervisor zone

To add a new hypervisor zone, send the following request:

```
POST onapp.com/settings/hypervisor_zones.xml
POST onapp.com/settings/hypervisor_zones.json
```

Request example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-store-groups type="array">
  <data-store-group>
    <label>[DS_ZONE_TITLE]</label>
  </data-store-group>
</data-store-groups>
```

10.3 Get hypervisor zone details

The following method returns details for a particular hypervisor zone:

```
GET /settings/hypervisor_zones/:id.xml
GET /settings/hypervisor_zones/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<hypervisor-groups type="array">
  <hypervisor-group>
    <label>HV_1</label>
    <created_at type="datetime">2011-01-17T14:11:15Z</created_at>
    <updated_at type="datetime">2011-01-27T16:56:41Z</updated_at>
    <id type="integer">6</id>
  </hypervisor-group>
</hypervisor-groups>
```

Where:

<i>label</i>	The hypervisor zone title
<i>created_at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>updated_at</i>	The date when the hypervisor zone was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	The hypervisor zone ID

10.4 Edit a hypervisor zone

Use the following method to edit an existing hypervisor zone:

```
PUT onapp.com/settings/hypervisor_zones/:id.xml
PUT onapp.com/settings/hypervisor_zones/:id.json
```

You can edit a particular hypervisor zone's label.

10.5 Delete a hypervisor zone

To delete a hypervisor zone, use the following API call:

```
DELETE /settings/hypervisor_zones/:id.xml
DELETE /settings/hypervisor_zones/:id.json
```

You will get a 200 status response on success, and 404 if there is no such a hypervisor zone with a requested ID or you entered incorrect URL.

10.6 Get the list of data stores attached to a hypervisor zone

```
GET onapp.com/settings/hypervisor_zones/:hypervisor_group_id/data_stores.xml
GET onapp.com/settings/hypervisor_zones/:hypervisor_group_id/data_stores.json
```

An array of data stores with their details is returned on success.

XML output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-stores type="array">
  <data-store>
    <label>DS2</label>
    <created_at type="datetime">2011-01-17T12:51:15Z</created_at>
    <updated_at type="datetime">2011-01-17T12:54:36Z</updated_at>
    <data_store_group_id type="integer">8</data_store_group_id>
    <enabled type="boolean">true</enabled>
    <id type="integer">2</id>
    <zombie_disks_size type="integer">0</zombie_disks_size>
    <ip></ip>
    <local_hypervisor_id type="integer" nil="true"></local_hypervisor_id>
    <data_store_size type="integer">50</data_store_size>
    <identifier>onapp-b15ngxzqiyyv18</identifier>
  </data-store>
</data-stores>
```

Explanation of the data returned:

<i>label</i>	The name of the data store attached to this hypervisor zone
<i>created_at</i>	Timestamp the DB record was created
<i>updated_at</i>	Timestamp the DB record was updated
<i>data_store_group_id</i>	The ID of a data store zone to which this data store is attached
<i>enabled</i>	True if the data store is enabled and you can create VMs on it.

	Otherwise, false
<i>id</i>	The data store ID
<i>zombie_disks_size</i>	The disk space in GB allocated to zombie disks
<i>ip</i>	The data store IP address
<i>local_hypervisor_id</i>	The ID of the hypervisor to which this data store is assigned
<i>data_store_size</i>	The data store disk capacity in GB
<i>identifier</i>	The data store identifier in DB

10.7 Get the list of data store joins attached to a hypervisor zone

```
GET /settings/hypervisor_zones/:hypervisor_group_id/data_store_joins.xml
GET /settings/hypervisor_zones/:hypervisor_group_id/data_store_joins.json
```

XML output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-store-joins type="array">
  <data-store-join>
    <created_at type="datetime">2011-01-17T13:16:31Z</created_at>
    <target_join_type>HypervisorGroup</target_join_type>
    <updated_at type="datetime">2011-01-17T13:16:31Z</updated_at>
    <data_store_id type="integer">2</data_store_id>
    <hypervisor_id type="integer" nil="true"></hypervisor_id>
    <id type="integer">7</id>
    <target_join_id type="integer">9</target_join_id>
  </data-store-join>
</data-store-joins>
```

Where:

<i>created_at</i>	Timestamp in DB when the record was created
<i>target_join_type</i>	HypervisorGroup for data store joins
<i>updated_at</i>	Timesamp in DB when the record was updated
<i>data_store_id</i>	The ID of a data store attached to a hypervisor zone
<i>hypervisor_id</i>	The ID of a hypervisor to which a data store is attached

id The data store join ID

target_join_id The ID of a hypervisor zone for which a join is created

10.8 Add a data store join to a hypervisor zone

POST
onapp.com/settings/hypervisor_zones/:hypervisor_group_id/data_store_joins.xml
POST
onapp.com/settings/hypervisor_zones/:hypervisor_group_id/data_store_joins.js
on

Request example:

```
curl -i -X POST http://onapp.test/settings/hypervisor_zones/1/data_store_joins.json -d '{"data_store_id":"2"}' -u admin:password -H 'Accept: application/json' -H 'Content-type: application/json'
```

10.9 Remove a data store join from a hypervisor zone

DELETE
onapp.com/settings/hypervisor_zones/:hypervisor_group_id/data_store_joins/:id.xml
DELETE
onapp.com/settings/hypervisor_zones/:hypervisor_group_id/data_store_joins/:id.json

Request example:

```
curl -i -X DELETE http://onapp.test/settings/hypervisor_zones/1/data_store_joins/5.json -u admin:passwd -H 'Accept: application/json' -H 'Content-type: application/json'
```

10.10 Get the list of networks attached to this hypervisor zone

GET /settings/hypervisor_zones/:hypervisor_group_id/networks.xml
GET /settings/hypervisor_zones/:hypervisor_group_id/networks.json

On successful request, an array of networks will be returned.

XML output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<networks type="array">
  <network>
    <label>public</label>
    <created_at type="datetime">2011-01-06T10:54:57Z</created_at>
    <network_group_id type="integer">3</network_group_id>
    <updated_at type="datetime">2011-01-06T11:18:48Z</updated_at>
    <id type="integer">1</id>
    <vlan type="integer" nil="true"></vlan>
    <identifier>8j4xflufibj2mb</identifier>
  </network>
</networks>
```

Where:

<i>label</i>	The name of the network attached to this hypervisor zone
<i>created_at</i>	The timestamp in DB when the record was created
<i>network_group_id</i>	The ID of the network zone to which this network is attached
<i>updated_at</i>	The timestamp in DB when the record was updated
<i>id</i>	The network ID
<i>vlan</i>	The vlan of this network
<i>identifier</i>	The identifier of this network in DB

10.11 Get the list of network joins attached to this hypervisor zone

```
GET /settings/hypervisor_zones/:hypervisor_group_id/network_joins.xml
GET /settings/hypervisor_zones/:hypervisor_group_id/network_joins.json
```

An array of network joins is returned on successful request.

XML output example:


```
<?xml version="1.0" encoding="UTF-8"?>
<network-joins type="array">
  <network-join>
    <created_at type="datetime">2011-02-01T12:27:52Z</created_at>
    <network_id type="integer">1</network_id>
    <target_join_type>HypervisorGroup</target_join_type>
    <updated_at type="datetime">2011-02-01T12:27:52Z</updated_at>
    <hypervisor_id type="integer" nil="true"></hypervisor_id>
    <id type="integer">6</id>
    <interface>eth2</interface>
    <target_join_id type="integer">1</target_join_id>
  </network-join>
</network-joins>
```

Where:

<i>created_at</i>	The timestamp when the record was created
<i>network_id</i>	The ID of a network attached to this zone
<i>target_join_type</i>	HypervisorGroup for a network join
<i>updated_at</i>	The timestamp when the record was updated
<i>hypervisor_id</i>	The ID of a hypervisor to which this network is assigned
<i>id</i>	The network join ID
<i>interface</i>	The network join interface
<i>target_join_id</i>	The ID of a HV zone to which this network join is attached

10.12 Attach a new network join to a hypervisor zone

```
POST /settings/hypervisor_zones/:hypervisor_group_id/network_joins.xml
POST /settings/hypervisor_zones/:hypervisor_group_id/network_joins.json
```

Json request example:

```
curl -i -X POST http://onapp.test/settings/hypervisor_zones/1/network_joins.json -d
 '{"network_id": "1", "interface": "eth2"}' -u admin:password -H 'Accept:
 application/json' -H 'Content-type: application/json'
```

Send the following parameters:

network_id - ID of the network you wish to attach

interface - the name of the appropriate network interface

10.13 Remove a network join from a hypervisor zone

DELETE

```
onapp.com/settings/hypervisor_zones/:hypervisor_group_id/network_joins/:id.xml  
1
```

DELETE

```
onapp.com/settings/hypervisor_zones/:hypervisor_group_id/network_joins/:id.js  
on
```

Json request example:

```
curl -i -X DELETE http://onapp.test/settings/hypervisor_zones/1/network_joins/6.json  
-u admin:password -H 'Accept: application/json' -H 'Content-type: application/json'
```

XML request example:

```
curl -i -X DELETE http://onapp.test/settings/hypervisor_zones/1/network_joins/10.xml  
-u admin:password -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

11. Hypervisors

Hypervisors provide hardware resources for virtual machines. A specific physical hypervisor server supplies the CPU, RAM and storage capacity from the Data Stores attached to that hypervisor. All API calls are available to this class.

11.1 Get the list of hypervisors

GET onapp.com/settings/hypervisors.xml
 GET onapp.com/settings/hypervisors.json

Returns the array of available hypervisors.

11.2 Get hypervisor details

GET onapp.com/settings/hypervisors/{ID}.xml
 GET onapp.com/settings/hypervisors/{ID}.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<hypervisor>
  <called_in_at type="datetime">2010-08-09T12:55:01Z</called_in_at>
  <label>HV1</label>
  <created_at type="datetime">2010-04-27T15:34:11Z</created_at>
  <hypervisor_type>xen</hypervisor_type>
  <spare type="boolean">>false</spare>
  <enabled type="boolean">>true</enabled>
  <updated_at type="datetime">2010-08-09T12:55:04Z</updated_at>
  <id type="integer">1</id>
  <xen-info type="yaml" nil="true"></xen_info>
  <failure-count type="integer">0</failure_count>
  <health>
    <xm_info>{XM Info}</xm_info>
    <xm_list>{XM List}</xm_list>
    <vgdisplay>{VG Display}</vgdisplay>
    <uptime>13:54:55 up 32 days, 23:56, 1 user, load average: 0.01, 0.45,
0.58</uptime>
  </health>
  <memory-overhead type="integer">800</memory_overhead>
  <ip_address>{IP Address}</ip_address>
  <locked type="boolean">>false</locked>
  <online type="boolean">>true</online>
</hypervisor>
```

Where:

<i>called_in_at</i>	the date when the hypervisor was called in the [YYYY][MM][DD]T[hh][mm]Z format
<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>failure_count</i>	the number of failures

<i>health</i>	the array of the xm_info, disk, memory, and xm_list variables
<i>id</i>	the Hypervisor ID
<i>ip_address</i>	the Hypervisor IP address
<i>label</i>	the Hypervisor Label
<i>locked</i>	true if the Hypervisor is locked, otherwise false
<i>memory_overhead</i>	shows the total memory overhead
<i>online</i>	true if online, otherwise false
<i>spare</i>	true if spare, otherwise false
<i>updated_at</i>	the date when the Group was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>xen_info</i>	the info on the Xen
<i>enabled</i>	true if hypervisor is enabled and you can run VMs on it, otherwise false
<i>hypervisor_type</i>	the type of hypervisor (currently XEN or KVM)
<i>hypervisor_group_id</i>	the ID of a hypervisor zone to which this hypervisor is attached

11.3 Add a new hypervisor

POST onapp.com/settings/hypervisors.xml
 POST onapp.com/settings/hypervisors.json

To add a new hypervisor, send the following parameters:

<i>ip_address</i>	the Hypervisor IP address
<i>label</i>	the name of the Hypervisor
<i>hypervisor_type</i>	specify if this is Xen or KVM hypervisor
<i>Memory_overhead</i>	Optional parameter which sets memory overhead dedicated for functional need of a hypervisor
<i>enabled</i>	Optional parameter, set True to enable a hypervisor.

Request example:

```
curl -X POST -d "{hypervisor: {label:'HV_test', ip_address:'127.0.0.1', memory_overhead:'20', hypervisor_type:'kvm', enabled:'true'}}" -u admin:password http://onapp.test/settings/hypervisors.json -H 'Accept: application/json' -H 'Content-type: application/json'
```

XML Output Example:

```
{"hypervisor":{"called_in_at":null,"label":"HV_test","created_at":"2011-04-19T15:24:41+03:00","spare":false,"hypervisor_type":"kvm","updated_at":"2011-04-19T15:24:41+03:00","enabled":true,"hypervisor_group_id":null,"id":9,"xen_info":null,"failure_count":0,"health":null,"memory_overhead":20,"ip_address":"127.0.0.1","locked":false,"online":false}}
```

11.4 Edit a hypervisor

```
PUT onapp.com/settings/hypervisors/{ID}.xml  
PUT onapp.com/settings/hypervisors/{ID}.json
```

You can edit the following parameters:

ip_address	the Hypervisor IP address
label	the Hypervisor name

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>  
<hypervisor>  
  <ip_address>{IP}</ip_address>  
  <label>{LABEL}</label>  
</hypervisor>
```

11.5 Reboot a hypervisor

```
POST onapp.com/settings/hypervisors/{ID}/reboot.xml  
POST onapp.com/settings/hypervisors/{ID}/reboot.json
```

Json request example:

```
curl -X POST http://onapp.test/settings/hypervisors/1/reboot.json -d '{"confirm":1,  
"force_reboot":1}' -H 'Accept: application/json' -H 'Content-type: application/json' -  
u admin:password
```

An HTTP 201 response is returned on a successful reboot. Unsuccessful reboot responses include HTTP 404 (resource not found – e.g. if the Hypervisor isn't online) and HTTP 422 (request cannot be processed – eg if parameters were incorrect).

11.6 Delete a hypervisor

```
DELETE onapp.com/settings/hypervisors/{ID}.xml  
DELETE onapp.com/settings/hypervisors/{ID}.json
```

12. Networks

The class enables you to modify network configurations. The network resources available to the entire cloud can be configured in OnApp Control Panel or via API. Specific network resources can be set up manually, and automatically on VM creation.

12.1 Get the list of networks

GET onapp.com/settings/networks.xml
GET onapp.com/settings/networks.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<networks type="array">
<network>
<label>Public Network</label>
<created_at type="datetime">2011-02-11T12:46:09+02:00</created_at>
<network_group_id type="integer">3</network_group_id>
<updated_at type="datetime">2011-02-11T13:20:09+02:00</updated_at>
<id type="integer">1</id>
<vlan type="integer" nil="true"/>
<identifier>4ikgi2ges03kma</identifier>
</network>
</networks>
```

Where:

<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>id</i>	the network
<i>label</i>	the optional Network label
<i>updated_at</i>	the date when the Network was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>vlan</i>	the VLAN this network belongs to
<i>network_group_id</i>	the ID of the network zone to which this network is attached

12.2 Edit a network

PUT onapp.com/settings/networks/{ID}.xml
PUT onapp.com/settings/networks/{ID}.json

XML Request Example:

```
curl -X PUT -d "{hypervisor: {label:'HV_test_edit', ip_address:'127.0.0.199',  
memory_overhead:'0', hypervisor_type:'kvm', enabled:'true'}}" -u admin:password  
http://onapp.test/settings/hypervisors/9.json -H 'Accept: application/json' -H  
'Content-type: application/json'
```

12.3 Add a network

POST onapp.com/settings/networks.xml
POST onapp.com/settings/networks.json

Request example:

```
curl -X POST -d "{network: {label:'Network_test1'}}" -u admin:password  
http://onapp.test/settings/networks.json -H 'Accept: application/json' -H 'Content-  
type: application/json'
```

Optional parameters: *vlan*, *network_group_id*

Response Example:

```
{"network":{"label":"Network_test1","created_at":"2011-04-  
19T15:28:58+03:00","network_group_id":null,"updated_at":"2011-04-  
19T15:28:58+03:00","id":52,"vlan":null,"identifier":"fcusq3b7pbu80"}}
```

12.4 Delete a network

DELETE onapp.com/settings/networks/{ID}.xml
DELETE onapp.com/settings/networks/{ID}.json

13. Network Interfaces

This class represents the methods required to manage Network Interfaces. Network interfaces connect VMs with the network. You can allocate several network interfaces to a VM.

13.1 Get the list of VM network interfaces

To get the list of network interfaces allocated to this particular VM:

```
GET    onapp.com /virtual_machines/:virtual_machine_id/network_interfaces.xml
GET    onapp.com /virtual_machines/:virtual_machine_id/network_interfaces.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<network_interfaces type="array">
  <network_interface>
    <label>eth0</label>
    <usage nil="true"></usage>
    <created_at type="datetime">2011-03-18T17:45:07+07:00</created_at>
    <updated_at type="datetime">2011-04-08T18:57:20+07:00</updated_at>
    <primary type="boolean">true</primary>
    <usage_month_rolled_at nil="true"></usage_month_rolled_at>
    <id type="integer">502</id>
    <mac_address>00:16:3e:50:35:52</mac_address>
    <usage_last_reset_at nil="true"></usage_last_reset_at>
    <default_firewall_rule>DROP</default_firewall_rule>
    <rate_limit type="integer">0</rate_limit>
    <virtual_machine_id type="integer">518</virtual_machine_id>
    <network_join_id type="integer">4</network_join_id>
    <identifier>pdfjrtpkday9e1</identifier>
  </network_interface>
</network_interfaces>
```

Where:

label - network interface name

created_at - the timestamp in the database when this network interface was created

updated_at - the timestamp in the database when this network interface was updated

primary - True if this network interface is primary, otherwise false

id - the ID of this network interface

mac_address – network interface mac address

rate_limit - port speed in Mbps

identifier - the identifier in the database of this network interface

network_join_id - the ID of the network join to which this network interface belongs

virtual_machine_id - the ID of a virtual machine to which this network interface is attached

13.2 Get network interface details

To get a particular network interface details:

GET

`onapp.com/virtual_machines/:virtual_machine_id/network_interfaces/:id.xml`

GET

`onapp.com/virtual_machines/:virtual_machine_id/network_interfaces/:id.json`

This request will output details for a network interface. The explanation of the fields is the same as for Get the list of network interfaces for a VM method.

13.3 Edit a network interface

To edit network interface details:

PUT

`onapp.com/virtual_machines/:virtual_machine_id/network_interfaces/:id.xml`

PUT

`onapp.com/virtual_machines/:virtual_machine_id/network_interfaces/:id.json`

Request example:

```
curl -i -X PUT -u admin:dev6dot162 --url
http://onapp.test/virtual_machines/134/network_interfaces/135.json -d
'{"network_interface":{"rate_limit":"12", "label":"qweqweqwqe"}}' -H 'Accept:
application/json' -H 'Content-type: application/json'
```

You can change *rate_limit* and *label* parameters.

13.4 Add a network interface to a VM

To add a new network interface:

POST `onapp.com/virtual_machines/:virtual_machine_id/network_interfaces.xml`

POST `onapp.com/virtual_machines/:virtual_machine_id/network_interfaces.json`

Request example :

```
curl -i -X POST -u admin:password --url  
http://onapp.test/virtual_machines/125/network_interfaces.xml -d '<network-  
interface><label>NEW</label><rate_limit>1</rate_limit><network_join_id>2</network_join  
_id></network-interface>' -H 'Accept: application/xml' -H 'Content-type:  
application/xml'
```

Where:

label - give the label of a network interface you wish to attach

rate_limit - set the port speed of a network interface you wish to attach

network_join_id - set the ID of a physical network used to attach this network interface

13.5 Delete a network interface

To delete a network interface from a virtual machine:

DELETE

`onapp.com/virtual_machines/:virtual_machine_id/network_interfaces/:id.xml`

DELETE

`onapp.com/virtual_machines/:virtual_machine_id/network_interfaces/:id.json`

This returns an HTTP 200 response if the network interface is deleted, or HTTP 404 if the network interface with the specified ID isn't found or the requested URL is incorrect.

14. IP Addresses

This class represents all the IP addresses in your installation. Use the following methods to edit, create new and delete an existing IP addresses in your cloud.

14.1 Edit an IP address

PUT `onapp.com/settings/networks/{NETWORK_ID}/ip_addresses/{ID}.xml`
PUT `onapp.com/settings/networks/{NETWORK_ID}/ip_addresses/{ID}.json`

The following parameters can be passed to be changed:

address, netmask, broadcast, network_address, gateway (all strings)

Example XML Output:

```
<?xml version="1.0" encoding="UTF-8"?>
<ip_address>
  <address>109.123.91.66</address>
  <netmask>255.255.255.192</netmask>
  <created_at type="datetime">2010-04-27T16:58:01Z</created_at>
  <broadcast>109.123.91.127</broadcast>
  <network_address>109.123.91.64</network_address>
  <network-id type="integer">1</network_id>
  <updated_at type="datetime">2010-04-27T16:58:01Z</updated_at>
  <id type="integer">1</id>
  <gateway>109.123.91.65</gateway>
</ip_address>
```

Returns HTTP 200 on success.

 You can get the list of IPs assigned to a VM with `GET /virtual_machines/{ID}` request.

14.2 Create an IP address record

POST `onapp.com/settings/networks/{NETWORK_ID}/ip_addresses.xml`
POST `onapp.com/settings/networks/{NETWORK_ID}/ip_addresses.json`

Parameters are: *address, netmask, broadcast, network_address, gateway* (all required)

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<ip_addresses type="array">
  <ip_address>
    <address>109.123.91.66</address>
    <netmask>255.255.255.192</netmask>
    <created_at type="datetime">2010-04-27T16:58:01Z</created_at>
    <broadcast>109.123.91.127</broadcast>
    <network_address>109.123.91.64</network_address>
    <network-id type="integer">1</network_id>
    <updated_at type="datetime">2010-04-27T16:58:01Z</updated_at>
    <id type="integer">1</id>
    <gateway>109.123.91.65</gateway>
  </ip_address>
</ip_addresses>
```

14.3 Delete an IP address

```
DELETE onapp.com/settings/networks/{NETWORK_ID}/ip_addresses/{ID}.xml
DELETE onapp.com/settings/networks/{NETWORK_ID}/ip_addresses/{ID}.json
```

15. IP address joins

An IP address allocated to a VM is an IP address join. Use the following methods to view, assign and delete an existing IP address joins in your cloud.

15.1 Get the list of IP address joins

To get the list of IP address assignments for a particular VM:

```
GET    onapp.com/virtual_machines/:virtual_machine_id/ip_addresses.xml
GET    onapp.com/virtual_machines/:virtual_machine_id/ip_addresses.xml
```

An array of IP addresses is returned:

```
<?xml version="1.0" encoding="UTF-8"?>
<ip-address-joins type="array">
  <ip-address-join>
    <created_at type="datetime">2011-02-24T12:07:37Z</created_at>
    <ip_address_id type="integer">5</ip_address_id>
    <updated_at type="datetime">2011-02-24T12:07:37Z</updated_at>
    <id type="integer">137</id>
    <network_interface_id type="integer">126</network_interface_id>
  </ip-address-join>
</ip-address-joins>
```

Where:

<i>created_at</i>	the timestamp in DB when this record was created
<i>ip_address_id</i>	the ID of IP address which should be assigned to a VM
<i>updated_at</i>	the timestamp in DB when this record was updated
<i>id</i>	the ID of this IP address join
<i>network_interface_id</i>	the ID of the network interface to which this IP address should be assigned to

15.2 Assign an IP address join to a VM

Use the following class to assign an IP Address to a virtual machine:

```
POST   onapp.com/virtual_machines/:virtual_machine_id/ip_addresses.xml
POST   onapp.com/virtual_machines/:virtual_machine_id/ip_addresses.json
```

Json request example:

```
curl -X POST -d "{ip_address_join: {network_interface_id:'etho',  
ip_address:{ip_address:{netmask:'255.255.255.240', disallowed_primary:'false',  
address:'109.123.105.178', network_id:'1', network_address:'109.123.105.176',  
broadcast:'109.123.105.191', id:'1', free:'false', gateway:'109.123.105.177'}}}}" -u  
admin:password http://onapp.test/virtual_machines/458/ip_addresses.json -H 'Accept:  
application/json' -H 'Content-type: application/json'
```

Where:

`ip_address_id` enter the ID of the IP you wish to attach to this VM
`network_interface_id` specify the ID of network interface this IP address should be assigned to

Output example:

```
{"ip_address_join":{"ip_address_id":33444,"created_at":"2011-03-  
08T22:19:22+02:00","ip_address":{"ip_address":{"netmask":"255.255.255.224","disallowed  
_primary":false,"address":"83.170.67.227","created_at":"2011-01-  
20T13:23:30+02:00","updated_at":"2011-01-  
20T13:23:30+02:00","network_id":1,"network_address":"83.170.67.224","broadcast":"83.17  
0.67.255","id":33444,"gateway":"83.170.67.225"}}},"updated_at":"2011-03-  
08T22:19:22+02:00","id":468,"network_interface_id":243,"virtual_machine_id":242}}
```

For parameters description refer to *Get the list of IP address joins* section.

15.3 Delete an IP address join

To delete an IP address assignment from a particular VM:

```
DELETE onapp.com/virtual_machines/:virtual_machine_id/ip_addresses/:id.xml  
DELETE onapp.com/virtual_machines/:virtual_machine_id/ip_addresses/:id.json
```

This returns an HTTP 200 response if the IP address join is deleted, or HTTP 404 if the IP address join with the specified ID isn't found.

16. Data stores

Data stores provide disk space for your virtual machines and operating systems. Data stores are attached to hypervisors, and may also form part of a data store zone. All CRUD operations are available to data stores.

16.1 Get the list of data stores

GET onapp.com/settings/data_stores.xml

GET onapp.com/settings/data_stores.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data-stores type="array">
  <data_store>
    <label>SAN1</label>
    <created_at type="datetime">2010-04-27T15:55:08Z</created_at>
    <updated_at type="datetime">2010-08-04T09:02:15Z</updated_at>
    <id type="integer">1</id>
    <local_hypervisor_id type="integer" nil="true"></local_hypervisor_id>
    <data_store_size type="integer">890</data_store_size>
    <identifier>radar-san1</identifier>
  </data_store>
</data_stores>
```

Where:

<i>created_at</i>	the date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>data_store_size</i>	the size of your data store shown in GB
<i>id</i>	the data store ID
<i>label</i>	the data store label
<i>local_hypervisor_id</i>	the ID of the Hypervisors using this Data Store
<i>updated_at</i>	the date when the Data Store was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>data_store_group_id</i>	the ID of a data store zone to which a particular data store is attached
<i>zombie_disk_size</i>	the size of zombie disks attached to this data store in GB.
<i>enabled</i>	True if a data store is enabled and you can attach disks to it. Otherwise, false.

16.2 Add a new data store

POST onapp.com/settings/data_stores.xml
POST onapp.com/settings/data_stores.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data_store>
  <data_store_size>{SIZE}</data_store_size>
  <label>{LABEL}</label>
</data_store>
```

16.3 Get data store details

GET onapp.com/settings/data_stores/{ID}.xml
GET onapp.com/settings/data_stores/{ID}.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data_store>
  <label>SAN1</label>
  <created_at type="datetime">2010-04-27T15:55:08Z</created_at>
  <updated_at type="datetime">2010-08-04T09:02:15Z</updated_at>
  <id type="integer">1</id>
  <local_hypervisor_id type="integer" nil="true"></local_hypervisor_id>
  <data_store_size type="integer">890</data_store_size>
  <identifier>radar-san1</identifier>
</data_store>
```

16.4 Edit a data store

PUT onapp.com/settings/data_stores/{ID}.xml
PUT onapp.com/settings/data_stores/{ID}.json

You can edit the data store disk capacity and label.

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<data_store>
  <data_store_size>{SIZE}</data_store_size>
  <label>{LABEL}</label>
</data_store>
```

16.5 Delete a data store

```
DELETE onapp.com/settings/data_stores/{ID}.xml  
DELETE onapp.com/settings/data_stores/{ID}.json
```

17. Disks

Disks provide space for virtual machine data. A disk is a partition of a data store that is allocated to a specific virtual machine. All CRUD operations are available for Disks.

17.1 Get the list of disks

GET onapp.com/settings/disks.xml
 GET onapp.com/settings/disks.json

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<disks type="array">
  <disk>
    <created_at type="datetime">2010-06-21T10:36:54Z</created_at>
    <add_to_linux_fstab type="boolean" nil="true"></add_to_linux_fstab>
    <disk-size type="integer">20</disk size>
    <updated_at type="datetime">2010-08-03T14:40:03Z</updated_at>
    <primary type="boolean">true</primary>
    <required_automatic_backup type="boolean">true</required_automatic_backup>
    <data_store_id type="integer">2</data_store_id>
    <id type="integer">198</id>
    <disk_vm_number type="integer">1</disk_vm_number>
    <is-swap type="boolean">false</is_swap>
    <mount-point nil="true"></mount_point>
    <identifier>hflgp0gcjhfdt</identifier>
    <virtual_machine_id type="integer">70</virtual_machine_id>
    <built type="boolean">true</built>
    <locked type="boolean">false</locked>
  </disk>
</disks>
```

Where:

<i>created_at</i>	the date when the disk was created in the [YYYY][MM][DD]T[hh][mm]Z format
<i>disk-size</i>	the size of a disk
<i>updated_at</i>	the date when the disk was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>primary</i>	true if the disk is primary. Otherwise false.
<i>required-automatic-backup</i>	true if automatic backup is scheduled. Otherwise false.
<i>data-store-id</i>	the ID of the data store this disk is located
<i>id</i>	the disk ID
<i>disk-vm-number</i>	the number of virtual machines using this disk
<i>is-swap</i>	true if this is a swap disk. Otherwise false.
<i>virtual-machine-id</i>	the ID of the virtual machine using this disk.
<i>built</i>	true if the disk is built. Otherwise false.

<i>locked</i>	true if the disk is locked. Otherwise false.
<i>has_autobackups</i>	true if the disk has automatic backups set up. Otherwise false.

17.2 Get the list of VM disks

To get the list of disks available for a particular VM, use the following request:

```
GET onapp.com/virtual_machines/{VM_ID}/disks.xml
GET onapp.com/virtual_machines/{VM_ID}/disks.json
```

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<disks type="array">
  <disk>
    <created_at type="datetime">2010-07-12T09:31:42Z</created_at>
    <add_to_linux_fstab type="boolean" nil="true"></add_to_linux_fstab>
    <disk-size type="integer">10</disk_size>
    <updated_at type="datetime">2010-08-03T14:40:03Z</updated_at>
    <primary type="boolean">true</primary>
    <required_automatic_backup type="boolean">true</required_automatic_backup>
    <data_store_id type="integer">2</data_store_id>
    <id type="integer">437</id>
    <disk_vm_number type="integer">1</disk_vm_number>
    <is-swap type="boolean">false</is_swap>
    <mount-point nil="true"></mount_point>
    <identifier>0gdnd4bcxzwsrk</identifier>
    <virtual_machine_id type="integer">206</virtual_machine_id>
    <built type="boolean">true</built>
    <locked type="boolean">false</locked>
  </disk>
</disks>
```

17.3 Edit a disk

```
PUT onapp.com/settings/disks/{ID}.xml
PUT onapp.com/settings/disks/{ID}.json
```

Currently you can edit the *Size* parameter.

17.4 Add a new disk

```
POST onapp.com/virtual_machines/{VM_ID}/disks.xml
```

POST onapp.com/virtual_machines/{VM_ID}/disks.json

To add a new disk, send the following required parameters:

data_store_id The ID of a data store where this disk is located

disk-size The disk space in GB

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<disk>
  <disk-size type="integer">0</disk-size>
  <primary type="boolean">>false</primary>
  <required_automatic_backup type="boolean">>false</required_automatic_backup>
  <data_store_id type="integer" nil="true"></data_store_id>
  <disk_vm_number type="integer" nil="true"></disk_vm_number>
  <is-swap type="boolean">>false</is-swap>
  <virtual_machine_id type="integer" nil="true"></virtual_machine_id>
  <built type="boolean">>false</built>
  <locked type="boolean">>false</locked>
</disk>
```

17.5 Delete a disk

DELETE onapp.com/settings/disks/{ID}.xml
DELETE onapp.com/settings/disks/{ID}.json

17.6 View disk IOPS

To view Input/Output statistics for your disks, use the following method:

GET onapp.com/settings/disks/:id/usage.xml
GET onapp.com/settings/disks/:id/usage.json

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<disk-hourly-stats type="array">
  <disk-hourly-stat>
    <disk-id type="integer">106</disk-id>
    <created-at type="datetime">2011-02-07T12:57:11Z</created-at>
    <updated-at type="datetime" nil="true"></updated-at>
    <data-read type="integer">28736</data-read>
    <data-written type="integer">0</data-written>
    <stat-time type="datetime">2011-02-07T12:57:11Z</stat-time>
    <writes-completed type="integer">0</writes-completed>
    <reads-completed type="integer">898</reads-completed>
  </disk-hourly-stat>
</disk-hourly-stats>
```

Where:

<i>disk_id</i>	The ID of a disk
<i>created_at</i>	The timestamp in DB when the record was created
<i>updated_at</i>	The timestamp in DB when the record was updated
<i>data_read</i>	The amount of data read from this disk
<i>data_written</i>	The amount of data written to the disk
<i>stat_time</i>	The time when statistics were generated
<i>writes_completed</i>	The number of completed write operations
<i>reads_completed</i>	The number of completed read operations

17.7 Build a disk

To build a disk, use the following methods:

```
POST onapp.com/settings/disks/:id/build.xml
POST onapp.com/settings/disks/:id/build.json
```

Request example:

```
curl -i -X POST http://onapp.test/settings/disks/173/build.xml -u admin:password -H
'Accept: application/xml' -H 'Content-type: application/xml'
```

17.8 Unlock a disk

To unlock a disk, use the following methods:

```
POST onapp.com/settings/disks/:id/unlock.xml
POST onapp.com/settings/disks/:id/unlock.json
```

17.9 Enable autobackups for a disk

You can enable autobackups for a disk using the following methods:

```
POST onapp.com/settings/disks/:id/autobackup_enable.xml
POST onapp.com/settings/disks/:id/autobackup_enable.json
```

Request example:

```
curl -i -X POST http://onapp.test/settings/disks/180/autobackup_enable.xml -u
admin:password -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

17.10 Disable autobackups for a disk

To disable autobackups for a disk, use the following method:

```
POST onapp.com/settings/disks/:id/autobackup_disable.xml
POST onapp.com/settings/disks/:id/autobackup_disable.json
```

Request example:

```
curl -i -X POST http://onapp.test/settings/disks/180/autobackup_disable.xml -u
admin:password -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

17.11 Get the list of schedules for a disk

To get a list of schedules for a particular disk, use the following methods:

```
GET /settings/disks/:disk_id/schedules.xml
GET /settings/disks/:disk_id/schedules.json
```

17.12 Add a schedule to a disk

You can add a schedule to a disk using the following method:

```
POST onapp.com/settings/disks/:disk_id/schedules.xml  
POST onapp.com/settings/disks/:disk_id/schedules.json
```

Json request example:

```
curl -i -X POST http://onapp.test/settings/disks/133/schedules.json -d  
'{"schedule":{"action":"autobackup", "duration":2, "period":"days"}}' -u  
admin:password -H 'Accept: application/json' -H 'Content-type: application/json'
```

Where:

action Set Autobackup to add a backup schedule
duration Specify duration
period Set the period (days/weeks/months)

17.13 Get the list of backups available for a disk

To get the list of backups available to a particular disk, use the following method:

```
GET /settings/disks/:disk_id/backups.xml  
GET /settings/disks/:disk_id/backups.json
```

An array of backups with their details is returned on success.

XML output example:


```
<?xml version="1.0" encoding="UTF-8"?>
<backups type="array">
  <backup>
    <built_at type="datetime">2011-02-18T23:38:51Z</built_at>
    <disk_id type="integer">38</disk_id>
    <created_at type="datetime">2011-02-18T23:35:54Z</created_at>
    <operating_system_distro>rhel</operating_system_distro>
    <operating_system>linux</operating_system>
    <template_id type="integer">19</template_id>
    <allowed_swap type="boolean">true</allowed_swap>
    <backup_type>normal</backup_type>
    <updated_at type="datetime">2011-02-18T23:38:51Z</updated_at>
    <allow_resize_without_reboot type="boolean">true</allow_resize_without_reboot>
    <id type="integer">15</id>
    <allowed_hot_migrate type="boolean">true</allowed_hot_migrate>
    <backup_size>442788</backup_size>
    <identifier>c4th2akcgyse7</identifier>
    <min_disk_size type="integer">0</min_disk_size>
    <built type="boolean">true</built>
    <locked type="boolean">false</locked>
  </backup>
</backups>
```

18. Templates

A template is a pre-configured operating system image that contains the root directory of an operating system. There are two different kinds of template: system templates and custom templates. System templates are downloaded from the online library. Custom templates are created by backing up an existing virtual machine, and converting that backup to a template.

18.1 Get the list of templates

```
GET onapp.com/templates.xml  
GET onapp.com/templates.json
```

An array of templates is returned. If there are no templates, an empty array is returned.

18.2 Make a template public

```
POST onapp.com/templates/{ID}/make_public.xml  
POST onapp.com/templates/{ID}/make_public.json
```

If a template is queued to be moved to a public list successfully, an HTTP 201 response is returned.

19. Template Groups

Template Groups is the class that organizes all VM templates into separate groups. Each template group can be associated with a billing plan, in order to control which templates are available to different users.

19.1 See the list of template groups

To get the list of all template groups created on the system:

```
GET    onapp.com/settings/image_template_groups.xml
GET    onapp.com/settings/image_template_groups.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<image_template_groups type="array">
  <image_template_group>
    <label>Test</label>
    <created_at type="datetime">2011-04-20T15:56:00+03:00</created_at>
    <updated_at type="datetime">2011-04-20T15:56:00+03:00</updated_at>
    <id type="integer">4</id>
  </image_template_group>
</image_template_groups>
```

Where:

label – the group name

created_at – the date when this record was created in database

updated_at – the date when this record was updated in database

ID – the group ID

19.2 Get template group details

To get details of a particular template group, use the following request:

```
GET    onapp.com/settings/image_template_groups/:id.xml
GET    onapp.com/settings/image_template_groups/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<image_template_groups type="array">
  <image_template_group>
    <label>Test</label>
```

```
<created_at type="datetime">2011-04-20T15:56:00+03:00</created_at>  
<updated_at type="datetime">2011-04-20T15:56:00+03:00</updated_at>  
<id type="integer">4</id>  
</image_template_group>  
</image_template_groups>
```

Where:

label – the group name

created_at – the date when this record was created in database

updated_at – the date when this record was updated in database

ID – the group ID

19.3 Edit a template group

To edit details of a template group:

```
PUT    onapp.com/settings/image_template_groups/:id.xml  
PUT    onapp.com/settings/image_template_groups/:id.json
```

19.4 Add a template group

To add a template group, use the following request:

```
POST   onapp.com/settings/image_template_groups.xml  
POST   onapp.com/settings/image_template_groups.json
```

19.5 Get the list of templates attached to a group

To get the list of templates attached to a template group, use the following request:

```
GET  
onapp.com/settings/image_template_groups/:image_template_group_id/relation_group_templates.xml  
GET  
onapp.com/settings/image_template_groups/:image_template_group_id/relation_group_templates.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>  
<relation_group_templates type="array">  
  <relation_group_template>  
    <price type="decimal">10.0</price>  
    <created_at type="datetime">2011-04-21T15:06:08+03:00</created_at>  
    <template_id type="integer">1</template_id>
```

```
<updated_at type="datetime">2011-04-21T15:06:08+03:00</updated_at>  
<id type="integer">2</id>  
<image_template_group_id type="integer">4</image_template_group_id>  
</relation_group_template>  
</relation_group_templates>
```

Where:

price – the price for the template attached to this template group

created_at – the date when this record was created in DB

template_id – the ID of a template attached to this template group

updated_at – the date when this record was updated in DB

id – the ID of this relationi

image_template_group – the ID of template group to which this template is attached

19.6 Attach a template to a group

To attach a template to a group, use the following request:

POST

onapp.com/settings/image_template_groups/:image_template_group_id/relation_group_templates.xml

POST

onapp.com/settings/image_template_groups/:image_template_group_id/relation_group_templates.json

19.7 Detach a template from a group

To detach a template attached to a template group:

DELETE

onapp.com/settings/image_template_groups/:image_template_group_id/relation_group_templates/:id.xml

DELETE

onapp.com/settings/image_template_groups/:image_template_group_id/relation_group_templates/:id.json

20. Software Licences

When you create a virtual machine from a template based on a licensed Operating System, or other licensed software, you need to add a valid license to the system. Use the `software_licenses` API class to manage licenses. All methods are available to this class.

20.1 Get the list of software licenses

To get the list of available software licenses, use the following requests:

```
GET    onapp.com/software_licenses.xml
GET    onapp.com/software_licenses.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<software_licenses type="array">
  <software_license>
    <created_at type="datetime">2011-02-18T01:34:33+02:00</created_at>
    <updated_at type="datetime">2011-03-16T00:31:08+02:00</updated_at>
    <license>TZXTTC-R4GGG-9TT3V-DYDY4-T628B</license>
    <total type="integer">20</total>
    <arch>x64</arch>
    <id type="integer">3</id>
    <distro>2008</distro>
    <count type="integer">7</count>
    <tail> </tail>
    <edition>ENT</edition>
  </software_license>
```

Where:

created_at – the date when the record in DB was created

updated_at - the date when the record in DB was updated

license – the license for the software on which the template will be based

total – the total number of machines allowed by the license

arch – Windows OS architecture (x64 or x86)

id – the ID of the record

distro – Windows OS distribution (2003, 2008, Windows 7)

count – the number of licenses used of a total allowed

tail – parameter specifies the updated release of Windows OS distribution. If updated, than parameter is R2, otherwise – empty.

edition – Windows OS edition or an array of editions if allowed by the license (STD – Standard, ENT – Enterprise, WEB – web and DC – Data center)

20.2 Get software license details

To get details for a particular software license, use the following method:

```
GET    onapp.com/software_licenses/:id.xml
GET    onapp.com/software_licenses/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<software_license>
  <created_at type="datetime">2011-03-01T12:42:03+02:00</created_at>
  <updated_at type="datetime">2011-03-08T13:54:17+02:00</updated_at>
  <license>TTXTC-R6FFF-9FF3V-DYDY4-T628B</license>
  <total type="integer">100</total>
  <arch>x86</arch>
  <id type="integer">11</id>
  <distro>2003</distro>
  <count type="integer">2</count>
  <tail></tail>
  <edition type="array">
    <string>STD</string>
  </edition>
</software_license>
```

Where:

created_at – the date when the record in DB was created

updated_at - the date when the record in DB was updated

license – the license for the software on which the template will be based

total – the total number of machines allowed by the license

arch – Windows OS architecture (x64 or x86)

id – the ID of the record

distro – Windows OS distribution (2003, 2008, Windows 7)

count – the number of licenses used of a total allowed

tail – parameter specifies the updated release of Windows OS distribution. If updated, than parameter is R2, otherwise – empty.

edition – Windows OS edition or an array of editions if allowed by the license (STD – Standard, ENT – Enterprise, WEB – web and DC – Data center)

20.3 Edit a software license

To edit a software license details:

```
PUT    onapp.com/software_licenses/:id.xml
PUT    onapp.com/software_licenses/:id.json
```

20.4 Add a software license

You can add a software license using the following request:

```
POST   onapp.com/software_licenses.xml
POST   onapp.com/software_licenses.json
```

20.5 Delete a software license

To delete a software license, use the following request:

```
DELETE onapp.com/software_licenses/:id.xml
DELETE onapp.com/software_licenses/:id.json
```


21. Resolvers

Resolvers translate hostnames to IP addresses. At least two resolvers should be specified for each network in the system. View, edit and delete commands are available for existing resolvers.

Resolvers are known as name servers in the API.

21.1 Get the list of resolvers

Use the following method to get the list of all available resolvers in your cloud:

```
GET    onapp.com/settings/nameservers.json
GET    onapp.com/settings/nameservers.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<nameservers type="array">
  <nameserver>
    <address>8.8.8.8</address>
    <created_at type="datetime">2011-02-14T15:55:44+02:00</created_at>
    <network_id type="integer">1</network_id>
    <updated_at type="datetime">2011-02-14T15:55:44+02:00</updated_at>
    <id type="integer">1</id>
  </nameserver>
</nameservers>
```

Where:

address - the resolver IP address

created_at - the timestamp in database when this record was created

network_id - the ID of the network to which this resolver belongs

updated_at - the timestamp in database to which this resolver belongs

id - the ID of this resolver

21.2 Get resolver details

To get details for a particular resolver:

```
GET onapp.com/settings/nameservers/:id.xml
```

```
GET onapp.com/settings/nameservers/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<nameserver>
  <address>8.8.8.8</address>
  <created_at type="datetime">2011-02-14T15:55:44+02:00</created_at>
  <network_id type="integer">1</network_id>
  <updated_at type="datetime">2011-02-14T15:55:44+02:00</updated_at>
  <id type="integer">1</id>
</nameserver>
```

The parameters are the same as for Get the list of available resolvers section.

21.3 Edit a resolver

Use the following method to edit a resolver:

```
PUT onapp.com/settings/nameservers/:id.xml
```

```
PUT onapp.com/settings/nameservers/:id.json
```

Request example:

```
curl -i -X PUT -u admin:password --url http://onapp.test/settings/nameservers/3.xml -d
'<nameserver><address>124.123.123.127</address><network_id>2</network_id></nameserver>
' -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

You can edit the *address* and *network_id* parameters.

21.4 Add a resolver

To add a new resolver, use the following method:

```
POST onapp.com/settings/nameservers.xml
```

```
POST onapp.com/settings/nameservers.json
```

Request Example:

```
curl -i -X POST -u admin:password --url http://onapp.test/settings/nameservers.xml -d '<nameserver><address>124.123.123.123</address><network_id>1</network_id></nameserver>' -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

Set the following parameters:

address - the resolver IP address

network_id - the ID of the network to which this resolver should belong

21.5 Delete a resolver

To delete a resolver:

```
DELETE onapp.com/settings/nameservers/:id.xml
```

```
DELETE onapp.com/settings/nameservers/:id.json
```

Request example:

```
curl -i -X DELETE -u admin:password --url http://onapp.test/settings/nameservers/2.xml -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

Returns HTTP 200 response on successful deletion, or HTTP 404 when a resolver with the ID specified is not found, or the URL requested is incorrect.

22. Virtual Machines

Virtual machines in OnApp are based on templates and deployed on hypervisors. VMs have their own root accounts, so that VM owners can fully control, configure and manage their machines. All CRUD operations are possible for the Virtual Machines class.

22.1 Get the list of VMs

```
GET onapp.com/virtual_machines.xml
GET -H 'Accept: application/json' -H 'Content-type: application/json'
onapp.com/virtual_machines.json
```

Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<virtual_machines type="array">
  <virtual_machine>
    <cpus>2</cpus>
    <label>centos-5.5-x64</label>
    <created_at>2010-07-12T12:31:41+03:00</created_at>
    <operating_system_distro>rhel</operating_system_distro>
    <cpu_shares>100</cpu_shares>
    <operating_system>linux</operating_system>
    <template_id>14</template_id>
    <allowed_swap>true</allowed_swap>
    <local_remote_access_port>5917</local_remote_access_port>
    <memory>256</memory>
    <updated_at>2010-08-19T15:51:47+03:00</updated_at>
    <allow_resize_without_reboot>true</allow_resize_without_reboot>
    <recovery_mode nil="true"></recovery_mode>
    <hypervisor_id>1</hypervisor_id>
    <id>206</id>
    <xen_id>292</xen_id>
    <user_id>1</user_id>
    <booted>true</booted>
    <hostname>centos-5-5-x64</hostname>
    <template_label>CentOS 5.5 x64</template_label>
    <identifier>qlzurxiu5e6hd7</identifier>
    <initial_root_password>6omu54lvvi6i</initial_root_password>
    <min_disk_size>5</min disk size>
    <remote_access_password>zm9cal</remote_access_password>
    <built>true</built>
    <locked>false</locked>
    <ip_addresses>
      <ip_address>
        <address>109.123.91.94</address>
        <netmask>255.255.255.192</netmask>
        <created_at>2010-04-27T19:58:01+03:00</created_at>
        <broadcast>109.123.91.127</broadcast>
        <network_address>109.123.91.64</network_address>
        <network_id>1</network_id>
        <updated_at>2010-04-27T19:58:01+03:00</updated_at>
        <id>29</id>
        <gateway>109.123.91.65</gateway>
      </ip_address>
    </ip_addresses>
    <monthly_bandwidth_used>0</monthly_bandwidth_used>
  </virtual_machine>
</virtual-machines>
```

Where:

<i>admin_note</i>	An optional reminder for this VM created by an administrator
<i>allowed_swap</i>	True if you can add a swap disk. Otherwise false
<i>allow_resize_without_reboot</i>	True if you can resize this VM's CPU & RAM without restarting it. Otherwise false.
<i>allowed_hot_migrate</i>	True if you can perform hot migration with this VM
<i>booted</i>	True if booted. Otherwise false
<i>built</i>	True if built. Otherwise false
<i>cpus</i>	The number of CPUs

<i>cpu_shares</i>	The number of CPU Shares
<i>created_at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>enable_autoscale</i>	True if autoscaling is allowed for this VM
<i>hostname</i>	The name of your host
<i>hypervisor_id</i>	The ID of the hypervisor used by this VM
<i>id</i>	The VM ID
<i>identifier</i>	The VM identifier
<i>initial_root_password</i>	The VM root password
<i>ip_addresses</i>	An array of ip addresses with their details assigned to this VM
<i>label</i>	The VM label
<i>local_remote_access_port</i>	The port ID used for console access
<i>locked</i>	True if the VM is locked. Otherwise false
<i>memory</i>	The memory size
<i>min_disk_size</i>	The minimum disk size required to build a VM from a specified template
<i>monthly_bandwidth_used</i>	The bandwidth used this month
<i>note</i>	An optional reminder for ths VM made by a user account
<i>operating_system_distro</i>	The distribution of the OS from which this VM is built
<i>primary_disk_size</i>	The size of the primary disk
<i>recovery_mode</i>	True if recovery mode allowed. Otherwise false
<i>remote_access_password</i>	The password for the remote access
<i>strict_virtual_machine_id</i>	The ID of a virtual machine that will never reside on the same HV with this VM
<i>suspended</i>	True if VM is suspended, otherwise false
<i>swap_disk_size</i>	The size of the swap disk
<i>template_id</i>	The ID of the template the VM is based on
<i>template_label</i>	The name of the template from which this VM is built
<i>total_disk_size</i>	The total disk size allocated to this VM in GB
<i>updated_at</i>	The date when the VM was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>user_id</i>	The ID of a user assigned to this VM
<i>xen_id</i>	The VM ID set by the virtualization engine

22.2 Get VM details

GET onapp.com/virtual_machines/{ID}.xml
GET onapp.com/virtual_machines/{ID}.json

Shows the same attributes of the VM described in 'Get the list of VMs' request.

22.3 Create a VM

```
POST onapp.com/virtual_machines.xml
POST -H 'Accept: application/json' -H 'Content-type: application/json'
onapp.com/virtual_machines.json
```

The following parameters should be sent:

<i>memory</i>	Amount of RAM assigned to the VM.
<i>cpus</i>	Number of CPUs assigned to the VM.
<i>cpu_shares</i>	Set CPU priority for this VM.
<i>hostname</i>	Set the host name for this VM.
<i>label</i>	User-friendly VM description.
<i>primary_disk_size</i>	Set the disk space for this VM.
<i>swap_disk_size</i>	Set swap space. There is no swap disk for Windows-based VMs.
<i>primary_network_id</i>	The ID of the primary network. Optional parameter.
<i>required_automatic_backup</i>	Set 1 if you need automatic backups.
<i>rate_limit</i>	Set max port speed. Optional parameter: if none set, the system sets port speed to unlimited.
<i>required_ip_address_assignment</i>	Set 1 if you wish the system to assign an IP automatically
<i>required_virtual_machine_build</i>	Set 1 to build VM automatically
<i>admin_note</i>	Enter a brief comment for the VM. Optional parameter.
<i>note</i>	A brief comment a user can add to a VM.
<i>allowed_hot_migrate</i>	Set true to allow hot migration for a VM, otherwise false
<i>template_id</i>	The ID of a template from which a VM should be built
<i>hypervisor_group_id</i>	The ID of the hypervisor zone in which the VM will be created. Optional: if no hypervisor zone is set, the VM will be

built in any available hypervisor zone.

hypervisor_id

The ID of a hypervisor where the VM will be built. Optional: if no hypervisor ID is specified, the VM will be built on the hypervisor with the least available RAM (but sufficient RAM for the VM.)

initial_root_password

The root password for a VM. Optional, if none specified, the system will provide a random password.

XML Request Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<cpu_shares>1</cpu_shares>
<cpus>1</cpus>
<hostname>hostname</hostname>
<hypervisor_group_id />
<hypervisor_id />
<initial_root_password />
<label>label</label>
<memory>256</memory>
<template_id>2</template_id>
<primary_disk_size>20</primary_disk_size>
<swap_disk_size>0</swap_disk_size>
<primary_network_id />
<required_automatic_backup />
<rate_limit />
<required_ip_address_assignment />
<required_virtual_machine_build />
<admin_note>admin note</admin_note>
<allowed_hot_migrate>true</allowed_hot_migrate>
<note>note</note>
</virtual-machine>
```

Json Request Example:

```
curl -X POST -u admin:dfgfhghg -H 'Accept: application/json' -H 'Content-type: application/json' --url http://onapp.test/virtual_machines/29/build.json -d '{"virtual_machine": {'cpus': 1, 'label': 'VM1', 'cpu_shares': 1, 'template_id': 1, 'memory': 128, 'note': 'Optional text', 'allowed_hot_migrate': "1", 'primary_disk_size': 5, 'swap_disk_size': 1, 'hostname': 'whatever', 'initial_root_password': '', 'required_ip_address_assignment': "1", 'required_virtual_machine_build': "1", 'required_automatic_backup': "0", 'admin_note': ''}}'
```

22.4 Build a VM

To build or re-build a VM, use the following methods:

POST onapp.com/virtual_machines/:id/build.xml
 POST onapp.com/virtual_machines/:id/build.json

Json request example:


```
curl -X POST -u admin:dfgfhghg -H 'Accept: application/json' -H 'Content-type: application/json' --url http://onapp.test/virtual_machines/29/build.json -d '{"virtual_machine":{"template_id":"7", "required_startup":"1"}}'
```

Where:

- template_id* The ID of a template from which a VM should be built.
- required_startup* Set to 1 if you wish to start a VM after it is built. Otherwise set to 0.

22.5 Edit a VM

PUT onapp.com/virtual_machines/{ID}.xml

PUT onapp.com/virtual_machines/{ID}.json

Request example:

```
curl -i -X PUT -u login:password -H 'Accept: application/json'-H 'Content-type: application/json' -d '{"virtual_machine":{"memory":"256", "label":"ehdf_web", "cpus":"2", "cpu_shares":"7", "allow_migration":"1" }}' http://onapp.com/virtual_machines/{ID}.json
```

You can edit the following parameters:

label - the VM name

memory - the amount of RAM allocated to this VM in Mb

cpus - the number of CPUs of this VM

cpu_shares - cpu priority in %

allow_migration - set 1 to migrate a VM to a HV with sufficient resources if a hypervisor has insufficient space to resize. Otherwise, set 0. If the VM is modified successfully, an HTTP 200 response is returned.

22.6 Change a VM owner

Use the following request to reassign a VM to another user:

```
POST /virtual_machines/:id/change_owner.xml  
POST /virtual_machines/:id/change_owner.json
```

Json request example:

```
curl -X POST -u admin:password  
http://onapp.test:3000/virtual_machines/t8va15u46ta4xp/change_owner.json -H 'Accept:  
application/json' -H 'Content-type: application/json' -d '{"user_id': '2'}"
```

Required parameter: user_id

22.7 Reset root password

You can reset a VM password using the following method:

```
POST /virtual_machines/:id/reset_password  
POST /virtual_machines/:id/reset_password
```

Json request example:

```
curl -X POST -u admin:password http://onapp.test/virtual_machines/{ID}/reset_password  
-H 'Accept: application/json' -H 'Content-type: application/json'
```

Response example:

```
{"virtual_machine":  
{"monthly_bandwidth_used":13290,"cpus":1,"label":"cvbnm","created_at":"2011-05-  
23T15:50:24Z","operating_system_distro":"rhel","cpu_shares":1,"enable_autoscale":null,  
"operating_system":"linux","template_id":1,"allowed_swap":true,"local_remote_access_po  
rt":5901,"memory":460,"updated_at":"2011-05-  
26T14:56:18Z","allow_resize_without_reboot":true,"recovery_mode":false,"enable_monitis  
":false,"hypervisor_id":1,"id":7,"xen_id":4,"admin_note":null,"allowed_hot_migrate":tr  
ue,"user_id":1,"note":null,"strict_virtual_machine_id":null,"suspended":false,"booted"  
:true,"hostname":"cvbnm","template_label":"CentOS 5.5  
x64","total_disk_size":6,"identifier":"k77td6wdsr8c8q","initial_root_password":"ta9nsz  
dheq02","min_disk_size":5,"remote_access_password":"av4aow","built":true,"locked":fals  
e,"ip_addresses":[{"ip_address":{"netmask":"255.255.255.240","disallowed_primary":fals  
e,"address":"109.123.105.150","created_at":"2011-05-03T12:53:27Z","updated_at":"2011-  
05-03
```

22.8 Migrate a VM

You can migrate a VM to another hypervisor with the following method:

```
POST onapp.com/virtual_machines/:id/migrate.xml  
POST onapp.com/virtual_machines/:id/migrate.json
```

Json request example:

```
curl -X POST -i -u admin:password -d '{destination:2, cold_migrate_on_rollback:1}'  
123.156.157.112/virtual_machines/381/migrate.json -H 'Accept: application/json' -H  
'Content-type: application/json'
```

Where:

destination The ID of a target hypervisor where you migrate a VM

cold_migrate_on_rollback Set to 1 if you wish to switch to a cold migration if hot migration fails. Otherwise set to 0.

22.9 Destroy a VM

```
DELETE onapp.com/virtual_machines/{ID}.xml  
DELETE onapp.com/virtual_machines/{ID}.json
```

22.10 Resize a VM

To resize a VM:

```
POST onapp.com/virtual_machines/:id/resize.xml  
POST onapp.com/virtual_machines/:id/resize.json
```

Request example:

```
curl -i -X POST -u youlogin:youpassword -H 'Accept: application/json' -H 'Content-type: application/json' -d '{"virtual_machine":{"memory":"256", "label":"something", "cpus":"2", "cpu_shares":"7"}}' http://onapp.com/virtual_machines/{ID}/resize.json
```

You can change the following parameters:

memory - the amount of RAM allocated to your VM in MB

cpus - the number of CPUs

cpu_shares - cpu priority in %

You can also resize a VM using the PUT method (see Edit a VM section).

22.11 Suspend a VM

To suspend a VM:

```
POST onapp.com/virtual_machines/:id/suspend.xml
```

POST onapp.com/virtual_machines/:id/suspend.json

22.12 Unlock a VM

To unlock a VM:

POST onapp.com/virtual_machines/:id/unlock.xml
POST onapp.com/virtual_machines/:id/unlock.json

22.13 Start up a VM

To start up a VM:

POST onapp.com/virtual_machines/:id/startup.xml
POST onapp.com/virtual_machines/:id/startup.json

22.14 Shut down a VM

To shut down a VM:

POST onapp.com/virtual_machines/:id/shutdown.xml
POST onapp.com/virtual_machines/:id/shutdown.json

22.15 Stop a VM

To stop a VM:

POST onapp.com/virtual_machines/:id/stop.xml
POST onapp.com/virtual_machines/:id/stop.json

22.16 Reboot a VM

To reboot a VM:

POST onapp.com/virtual_machines/:id/reboot.xml
POST onapp.com/virtual_machines/:id/reboot.json

An HTTP 201 response is returned on a successful reboot. Unsuccessful reboot responses include HTTP 404 (resource not found – e.g. if the VM isn't online) and HTTP 422 (request cannot be processed – eg if parameters were incorrect).

22.17 Segregate a VM

To segregate a VM (that is, instruct it never to reside on the same hypervisor as another VM) use the following method:

```
POST onapp.com/virtual_machines/:id/strict_vm.xml
POST onapp.com/virtual_machines/:id/strict_vm.json
```

Request example:

```
curl -i -X POST -u admin:password --url
http://onapp.test/virtual_machines/125/strict_vm.xml -d
'<virtual_machine><strict_virtual_machine_id>135</strict_virtual_machine_id></virtual_
machine>' -H 'Accept: application/xml' -H 'Content-type: application/xml'
```

Where:

strict_virtual_machine_id the ID of virtual machine you wish to segregate from the given VM

22.18 Open a VM console

To open a VM console:

1. Run the following request:

```
GET virtual_machines:ID/console.xml
GET virtual_machines:ID/console.json
```

2. Find and copy the value for the *remote_key* parameter in the response output.
3. Open the following URL in the browser:

```
http://onapp_test/console_remote/[remote_key_parameter_value]
```

22.19 Billing statistics for a VM

You can view the billing statistics for a particular VM using the following request:

```
GET onapp.com/virtual_machines/:virtual_machine_id/vm_stats.xml
GET onapp.com/virtual_machines/:virtual_machine_id/vm_stats.json
```

```

<?xml version="1.0" encoding="UTF-8"?>
<vm_stats type="array">
<vm_stat>
<created_at type="datetime">2011-04-01T07:00:08+07:00</created_at>
<updated_at type="datetime">2011-04-01T07:00:08+07:00</updated_at>
<stat_time type="datetime">2011-04-01T07:00:00+07:00</stat_time>
<id type="integer">17483</id>
<user_id type="integer">4</user_id>
<vm_billing_stat_id type="integer">17138</vm_billing_stat_id>
<currency_code>EUR</currency_code>
<virtual_machine_id type="integer">566</virtual_machine_id>
<billing_stats>
<virtual_machines type="array">
<virtual_machine>
<costs type="array">
<cost>
<resource_name>cpu_shares</resource_name>
<value type="integer">1</value>
<cost type="float">1.0</cost>
</cost>
<cost>
<resource_name>cpus</resource_name>
<value type="integer">1</value>
<cost type="float">1.0</cost>
</cost>
<cost>
<resource_name>memory</resource_name>
<value type="integer">128</value>
<cost type="float">128.0</cost>
</cost>
<cost>
<resource_name>template</resource_name>
<value type="integer">26</value>
<cost type="float">5.0</cost>
</cost>
</costs>
<label>VG_user_VM</label>
<id type="integer">566</id>
</virtual_machine>
</virtual_machines>
<network_interfaces type="array">
<network_interface>
<costs type="array">
<cost>
<resource_name>ip_addresses</resource_name>
<value type="integer">1</value>
<cost type="float">2.0</cost>
</cost>
<cost>
<resource_name>rate</resource_name>
<value type="integer">1</value>
<cost type="float">1.0</cost>
</cost>
<cost>
<resource_name>data_received</resource_name>
<value type="integer">0</value>
<cost type="float">0.0</cost>
</cost>
<cost>
<resource_name>data_sent</resource_name>
<value type="integer">0</value>
<cost type="float">0.0</cost>
</cost>

```

```

</costs>
<label>eth0</label>
<id type="integer">558</id>
</network_interface>
</network_interfaces>
<disks type="array">
<disk>
<costs type="array">
<cost>
<resource_name>disk_size</resource_name>
<value type="integer">5</value>
<cost type="float">10.0</cost>
</cost>
<cost>
<resource_name>data_read</resource_name>
<value type="integer">0</value>
<cost type="float">0.0</cost>
</cost>
<cost>
<resource_name>data_written</resource_name>
<value type="integer">0</value>
<cost type="float">0.0</cost>
</cost>
<cost>
<resource_name>reads_completed</resource_name>
<value type="integer">0</value>
<cost type="float">0.0</cost>
</cost>
<cost>
<resource_name>writes_completed</resource_name>
<value type="integer">0</value>
<cost type="float">0.0</cost>
</cost>
</costs>
<label>#1040</label>
<id type="integer">1040</id>
</disk>
</costs>
<label>#1061</label>
<id type="integer">1061</id>
</disk>
</disks>
</billing_stats>
<total_cost type="float">154.0</total_cost>
<vm_resources_cost type="float">154.0</vm_resources_cost>
<usage_cost type="float">0.0</usage_cost>
</vm_stat>
</vm_stats>

```

Where:

<i>created_at</i>	The timestamp in DB when this record was created
<i>updated_at</i>	The date when these statistics were updated
<i>cost</i>	The total amount of money owed by this particular VM for the resources spent at stat_time
<i>updated_at</i>	The timestamp in DB when this record was updated

<i>stat_time</i>	The particular hour for which these statistics were generated <i>id</i> - the ID of these statistics
<i>id</i>	The ID of these statistics
<i>user_id</i>	The ID of VM owner
<i>currency_code</i>	Currency in which this virtual machine is charged within the billing plan
<i>billing_stats</i>	An array of billing details for the resources used by this VM
<i>virtual_machine</i>	An array of virtual machine billing details: <ul style="list-style-type: none">• <i>label</i> - VM name• <i>costs</i> - An array of VM resources with their total prices for the period specified in the stat-time parameter, where:<ul style="list-style-type: none">○ <i>resource_name</i> - the resource in question. This can be <i>cpu_shares</i>, <i>cpus</i>, <i>memory</i> and <i>template</i>○ <i>value</i> - the amount of resources allocated to this VM. For the templates resource, this parameter means a teplate ID in database.○ <i>cost</i> - the total due for this resource• <i>id</i> - Virtual machine ID
<i>network_interfaces</i>	An array of network interfaces used by this VM with their billing statistics: <ul style="list-style-type: none">• <i>label</i> - network interface name used in OnApp• <i>id</i> - network interface ID• <i>costs</i> - an array of network interface related resources with their total prices for the period specified in the stat-time parameter, where:<ul style="list-style-type: none">○ <i>resource_name</i> - the resource in question. This can be <i>ip_addresses</i>, <i>rate</i>, <i>data_received</i> and <i>data_sent</i>○ <i>value</i> - the amount of resources used by this network interface (the number of IPs, the port speed in Mb per second, the Data sent and received in Gb)○ <i>cost</i> - the total due for the resource
<i>disks</i>	An array of disks used by this VM with their billing details: <ul style="list-style-type: none">• <i>label</i> - disk name used in UI• <i>id</i> - disk ID used in database• <i>costs</i> - an array of disk related resources with their total prices for the period specified in the stat-time parameter, where:

- *resource_name* - the resource in question. This can be *disk_size*, *data_read*, *data_written*, *reads_completed* and *writes_completed*
- *value* - the amount of resources used (Gbs of disk size, Gbs of data read/written, the number of reads/writes)
- *cost* - the total due for the resource

total_cost The total amount of money owed for the VM specified by *id* parameter for a particular hour specified by *stat_time* parameter (total_cost = vm_resources_cost + usage_cost)

vm_resources_cost The amount of money due for the VM resources for the particular hour specified by *stat_time* parameter (memory, disks, templates)

usage_cost The total due for VM usage for this particular hour specified by *stat_time* parameter (data sent/received, bandwidth, CPU usage)

23. Load Balancers

Load balancers distribute requests evenly between clustered virtual machines, so that no Virtual Machine is overloaded. A load balancing cluster is made up of one or more load balancers and virtual machine nodes.

23.1 Get the list of load balancing clusters

To get the list of load balancing clusters, use the following request:

```
GET    onapp.com/load_balancing_clusters.xml
GET    onapp.com/load_balancing_clusters.json
```

```
<?xml version="1.0" encoding="UTF-8"?>
<load_balancing_clusters type="array">
  <load_balancing_cluster>
    <nodes type="array">
      <load_balancing_cluster_node>
        <cluster_id type="integer">9</cluster_id>
        <ip_address_id type="integer">9</ip_address_id>
        <created_at type="datetime">2011-04-22T14:18:55+03:00</created_at>

        <updated_at type="datetime">2011-04-22T14:18:55+03:00</updated_at>
        <id type="integer">11</id>
        <virtual_machine_id type="integer">39</virtual_machine_id>
      </load_balancing_cluster_node>
    </nodes>
    <name>sc_lb_very_last</name>

    <created_at type="datetime">2011-04-22T14:18:55+03:00</created_at>
    <load_balancer_id type="integer">41</load_balancer_id>
    <config>
      <port>80</port>
    </config>
    <updated_at type="datetime">2011-04-22T14:19:14+03:00</updated_at>
    <id type="integer">9</id>

    <user_id type="integer">1</user_id>
    <load_balancer>
      <total_disk_size type="integer">6</total_disk_size>
      <label>sc_lb_very_last</label>
      <cpus type="integer">1</cpus>
      <operating_system_distro>lbva</operating_system_distro>

      <created_at type="datetime">2011-04-22T14:18:54+03:00</created_at>
      <ip_addresses type="array">
        <ip_address>
          <netmask>255.255.255.240</netmask>
          <disallowed_primary type="boolean">false</disallowed_primary>
          <address>109.123.105.184</address>
          <created_at type="datetime">2011-04-19T20:48:03+03:00</created_at>

          <updated_at type="datetime">2011-04-19T20:48:03+03:00</updated_at>
          <network_id type="integer">1</network_id>
          <network_address>109.123.105.176</network_address>
          <broadcast>109.123.105.191</broadcast>
```

```

    <id type="integer">7</id>
    <gateway>109.123.105.177</gateway>

    <free type="boolean">>false</free>
  </ip_address>

</ip_addresses>
<template_id type="integer">23</template_id>
<operating_system>linux</operating_system>
<enable_autoscale nil="true"></enable_autoscale>
<cpu_shares type="integer">10</cpu_shares>

<updated_at type="datetime">2011-04-26T17:18:34+03:00</updated_at>
<memory type="integer">512</memory>
<local_remote_access_port type="integer">5901</local_remote_access_port>
<allowed_swap type="boolean">>true</allowed_swap>
<recovery_mode type="boolean">>false</recovery_mode>
<allow_resize_without_reboot type="boolean">>true</allow_resize_without_reboot>

<monthly_bandwidth_used type="integer">154109</monthly_bandwidth_used>
<xen_id type="integer">2</xen_id>
<id type="integer">41</id>
<hypervisor_id type="integer">2</hypervisor_id>
<user_id type="integer">1</user_id>
<allowed_hot_migrate type="boolean">>false</allowed_hot_migrate>

<suspended type="boolean">>false</suspended>
<strict_virtual_machine_id nil="true"></strict_virtual_machine_id>
<note nil="true"></note>
<template_label>CentOS 5.3 lbva_6.11 x64</template_label>
<hostname>sc_lb_very_last</hostname>
<booted type="boolean">>true</booted>
<remote_access_password>ysehls</remote_access_password>

<min_disk_size type="integer">5</min_disk_size>
<initial_root_password>wzqkrenpdkmm</initial_root_password>
<identifier>mlzxnmlu75ihzb</identifier>
<locked type="boolean">>false</locked>
<built type="boolean">>true</built>
</load_balancer>

<node_attributes nil="true"></node_attributes>
<image_template_id nil="true"></image_template_id>
</load_balancing_cluster>

```

Description:

Node – an array of load balancing cluster nodes with VMs details:

- *Cluster_id* – the ID of load balancing cluster to which this node belongs
- *Ip_address_id* – the ID of VM IP address added to a cluster
- *Created_at* – the date when the record in DB was created
- *Updated_at* – the date when the record in DB was updated
- *ID* – the ID of a node
- *Virtual_machine_id* – the ID of VM added to a cluster

Name – load balancing cluster name

Created_at - the date when the cluster was created

Load_balancer_id – the ID of a load balancer added to this cluster

Port – the cluster port

Updated_at – the date when the cluster was updated

Id – the cluster ID

User_id – the ID of a load balancing cluster owner

Load Balancer – an array of details of the load balancer (or several load balancers) added to a cluster

- *Total_disk_size* – the load balancer disk size
- *Label* – the load balancer name
- *Cpus* – the number of CPU cores allocated to this load balancer
- *Operating_system_distro* – the OS on which this load balancer is based
- *Created_at* – the date when this load balancer was created
- *Ip_address* – an array of IP addresses and their details allocated to this load balancer

Operating_system – the OS on which the load balancing cluster is based

Enable_autoscale – true if autoscaling is enabled, otherwise false

Cpu_shares – the number of CPU shares assigned to this load balancing cluster

Updated_at – the date when the load balancer was updated

Memory – the amount of memory allocated to this load balancing cluster

Local_remote_access_port - the port ID used for console access

Allowed_swap – true if swap disks are allowed, otherwise false

Recovery_mode - true if recovery mode allowed. Otherwise false

Allow_resize_without_reboot – true if you can resize a VM's CPU & RAM without rebooting it

monthly_bandwidth_used - the bandwidth used this month

xen_id - The VM ID set by the virtualization engine

hypervisor_id - the ID of the hypervisor used by this load balancing cluster

id – the load balancing cluster ID

user_id – the ID of a user who is the owner of this load balancing cluster

allowed_hot_migrate – true if hot migration is allowed

suspended – true if suspended. Otherwise false.

strict_virtual_machine_id – the ID of a VM that will never reside with this load balancing cluster

note – an optional text added as a note

template_label – the name of the template on which this load balancing cluster is based

hostname – the host name for this load balancer

booted - true if the machine is booted. Otherwise false.

remote_access_password – the password for the remote access

min_disk_size – the minimum disk size required to build a VM from a specified template

initial_root_password - The VM root password

identifier – identifier in DB

locked – true if load balancing cluster is locked. Otherwise false

built – true if load balancing cluster is built. Otherwise false

image_template_id – the ID of a template on which this load balancing cluster is based

23.2 Get load balancing cluster details

To get details for a particular load balancing cluster, use the following request:

```
GET    onapp.com/load_balancing_clusters/:id.xml
GET    onapp.com/load_balancing_clusters/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<load_balancing_cluster>
  <name>qqet</name>
  <created_at type="datetime">2011-04-27T19:22:02+03:00</created_at>
  <load_balancer>
    <label>qqet</label>
    <cpus type="integer">1</cpus>
    <operating_system_distro>lbva</operating_system_distro>
    <created_at type="datetime">2011-04-27T19:22:01+03:00</created_at>
    <template_id type="integer">23</template_id>
    <operating_system>linux</operating_system>
    <enable_autoscale nil="true"></enable_autoscale>
    <cpu_shares type="integer">10</cpu_shares>
```

```

<updated_at type="datetime">2011-04-27T19:28:38+03:00</updated_at>
<memory type="integer">512</memory>
<local_remote_access_port type="integer">5905</local_remote_access_port>
<allowed_swap type="boolean">true</allowed_swap>
<recovery_mode type="boolean">false</recovery_mode>
<allow_resize_without_reboot type="boolean">true</allow_resize_without_reboot>
<total_disk_size type="integer">6</total_disk_size>
<xen_id type="integer">29</xen_id>
<id type="integer">55</id>
<hypervisor_id type="integer">2</hypervisor_id>
<user_id type="integer">1</user_id>
<allowed_hot_migrate type="boolean">false</allowed_hot_migrate>
<admin_note nil="true"></admin_note>
<monthly_bandwidth_used type="integer">2176</monthly_bandwidth_used>
<ip_addresses type="array">
  <ip_address>
    <netmask>255.255.255.240</netmask>
    <disallowed_primary type="boolean">false</disallowed_primary>
    <address>109.123.105.182</address>
    <created_at type="datetime">2011-04-19T20:48:03+03:00</created_at>
    <updated_at type="datetime">2011-04-19T20:48:03+03:00</updated_at>
    <network_id type="integer">1</network_id>
    <network_address>109.123.105.176</network_address>
    <broadcast>109.123.105.191</broadcast>
    <free type="boolean">false</free>
    <id type="integer">5</id>
    <gateway>109.123.105.177</gateway>
  </ip_address>
</ip_addresses>
<suspended type="boolean">false</suspended>
<strict_virtual_machine_id nil="true"></strict_virtual_machine_id>
<note nil="true"></note>
<template_label>CentOS 5.3 lbva_6.11 x64</template_label>
<hostname>afd</hostname>
<booted type="boolean">true</booted>
<remote_access_password>srfcwo</remote_access_password>
<min_disk_size type="integer">5</min_disk_size>
<initial_root_password>rhcl5qcbxlmw</initial_root_password>
<identifier>xzb7cm6msu3ehw</identifier>
<locked type="boolean">false</locked>
<built type="boolean">true</built>
</load_balancer>
<load_balancer_id type="integer">55</load_balancer_id>
<config>
  <port>4001</port>
</config>
<nodes type="array"/>
<updated_at type="datetime">2011-04-27T19:22:02+03:00</updated_at>
<id type="integer">10</id>
<user_id type="integer">1</user_id>
<node_attributes nil="true"></node_attributes>
<image_template_id nil="true"></image_template_id>
</load_balancing_cluster>

```

The description of the attributes is the same as for the Get the list of load balancing clusters request.

23.3 Delete a load balancing cluster

To delete a load balancing cluster, use the following request:

```
DELETE onapp.com/load_balancing_clusters/:id .xml
```

```
DELETE onapp.com/load_balancing_clusters/:id .json
```

23.4 Get the list of load balancers

To get the list of available load balancers, use the following request:

```
GET onapp.com/load_balancers .xml
GET onapp.com/load_balancers .json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<load_balancers type="array">
  <load_balancer>
    <label>sc_lb_very_last</label>
    <cpus type="integer">1</cpus>
    <operating_system_distro>lbva</operating_system_distro>
    <created_at type="datetime">2011-04-22T14:18:54+03:00</created_at>
    <template_id type="integer">23</template_id>
    <operating_system>linux</operating_system>
    <enable_autoscale nil="true"></enable_autoscale>
    <cpu_shares type="integer">10</cpu_shares>
    <updated_at type="datetime">2011-04-28T13:01:57+03:00</updated_at>
    <memory type="integer">512</memory>
    <local_remote_access_port type="integer">5901</local_remote_access_port>
    <allowed_swap type="boolean">true</allowed_swap>
    <recovery_mode type="boolean">false</recovery_mode>
    <allow_resize_without_reboot type="boolean">true</allow_resize_without_reboot>
    <total_disk_size type="integer">6</total_disk_size>
    <xen_id type="integer">2</xen_id>
    <id type="integer">41</id>
    <hypervisor_id type="integer">2</hypervisor_id>
    <user_id type="integer">1</user_id>
    <allowed_hot_migrate type="boolean">false</allowed_hot_migrate>
    <admin_note>&#1085;&#1077;</admin_note>
    <monthly_bandwidth_used type="integer">169110</monthly_bandwidth_used>
    <ip_addresses type="array">
      <ip_address>
        <netmask>255.255.255.240</netmask>
        <disallowed_primary type="boolean">false</disallowed_primary>
        <address>109.123.105.184</address>
        <created_at type="datetime">2011-04-19T20:48:03+03:00</created_at>
        <updated_at type="datetime">2011-04-19T20:48:03+03:00</updated_at>
        <network_id type="integer">1</network_id>
        <network_address>109.123.105.176</network_address>
        <broadcast>109.123.105.191</broadcast>
        <free type="boolean">false</free>
        <id type="integer">7</id>
        <gateway>109.123.105.177</gateway>
      </ip_address>
    </ip_addresses>
    <suspended type="boolean">false</suspended>
    <strict_virtual_machine_id nil="true"></strict_virtual_machine_id>
    <note nil="true"></note>
    <template_label>CentOS 5.3 lbva_6.11 x64</template_label>
    <hostname>sc_lb_very_last</hostname>
    <booted type="boolean">true</booted>
    <remote_access_password>yseh1s</remote_access_password>
    <min_disk_size type="integer">5</min_disk_size>
```



```
<initial_root_password>wzqkrenpdkmm</initial_root_password>  
<identifier>mlzxnmlu75ihzb</identifier>  
<locked type="boolean">>false</locked>  
<built type="boolean">>true</built>  
</load_balancer>  
</load_balancers>
```

Parameters description:

Label – the load balancer name

Cpus – the number of CPU cores allocated to this load balancer

Operating_system_distro – the OS on which this load balancer is based

Created_at – the date when this load balancer was created

template_id – the ID of a template on which this load balancing cluster is based

Operating_system – the OS on which the load balancing cluster is based

Enable_autoscale – true if autoscaling is enabled, otherwise false

Cpu_shares – the number of CPU shares assigned to this load balancing cluster

Updated_at – the date when the load balancer was updated

Memory – the amount of memory allocated to this load balancing cluster

Local_remote_access_port - the port ID used for console access

Allowed_swap – true if swap disks are allowed, otherwise false

Recovery_mode - true if recovery mode allowed. Otherwise false

Allow_resize_without_reboot – true if you can resize a VM's CPU & RAM without rebooting it

monthly_bandwidth_used - the bandwidth used this month

xen_id - The VM ID set by the virtualization engine

hypervisor_id - the ID of the hypervisor used by this load balancing cluster

id – the load balancing cluster ID

user_id – the ID of a user who is the owner of this load balancing cluster

allowed_hot_migrate – true if hot migration is allowed

Ip_address – an array of IP addresses and their details allocated to this load balancer

suspended – true if suspended. Otherwise false.

strict_virtual_machine_id – the ID of a VM that will never reside with this load balancing cluster

note – an optional text added as a note

template_label – the name of the template on which this load balancing cluster is based

hostname – the host name for this load balancer

booted - true if the machine is booted. Otherwise false.

remote_access_password – the password for the remote access

min_disk_size – the minimum disk size required to build a VM from a specified template

initial_root_password - The VM root password

identifier – identifier in DB

locked – true if load balancing cluster is locked. Otherwise false

built – true if load balancing cluster is built. Otherwise false

23.5 Get load balancer details

To get details for a particular load balancer, use the following request:

```
GET    onapp.com/load_balancers/:id.xml
GET    onapp.com/load_balancers/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<load_balancers type="array">
  <load_balancer>
    <label>qget</label>
    <cpus type="integer">1</cpus>
    <operating_system_distro>lbva</operating_system_distro>
    <created_at type="datetime">2011-04-27T19:22:01+03:00</created_at>
    <template_id type="integer">23</template_id>
    <operating_system>linux</operating_system>
    <enable_autoscale nil="true"></enable_autoscale>
    <cpu_shares type="integer">10</cpu_shares>
    <updated_at type="datetime">2011-04-27T19:28:38+03:00</updated_at>
    <memory type="integer">512</memory>
    <local_remote_access_port type="integer">5905</local_remote_access_port>
    <allowed_swap type="boolean">true</allowed_swap>
    <recovery_mode type="boolean">>false</recovery_mode>
```

```

<allow_resize_without_reboot type="boolean">true</allow_resize_without_reboot>
<total_disk_size type="integer">6</total_disk_size>
<xen_id type="integer">29</xen_id>
<id type="integer">55</id>
<hypervisor_id type="integer">2</hypervisor_id>
<user_id type="integer">1</user_id>
<allowed_hot_migrate type="boolean">>false</allowed_hot_migrate>
<admin_note nil="true"></admin_note>
<monthly_bandwidth_used type="integer">2176</monthly_bandwidth_used>
<ip_addresses type="array">
  <ip_address>
    <netmask>255.255.255.240</netmask>
    <disallowed_primary type="boolean">>false</disallowed_primary>
    <address>109.123.105.182</address>
    <created_at type="datetime">2011-04-19T20:48:03+03:00</created_at>
    <updated_at type="datetime">2011-04-19T20:48:03+03:00</updated_at>
    <network_id type="integer">1</network_id>
    <network_address>109.123.105.176</network_address>
    <broadcast>109.123.105.191</broadcast>
    <free type="boolean">>false</free>
    <id type="integer">5</id>
    <gateway>109.123.105.177</gateway>
  </ip_address>
</ip_addresses>
<suspended type="boolean">>false</suspended>
<strict_virtual_machine_id nil="true"></strict_virtual_machine_id>
<note nil="true"></note>
<template_label>CentOS 5.3 lbva_6.11 x64</template_label>
<hostname>afd</hostname>
<booted type="boolean">>true</booted>
<remote_access_password>srfcwo</remote_access_password>
<min_disk_size type="integer">5</min_disk_size>
<initial_root_password>rhcl15qcbx1mw</initial_root_password>
<identifier>xzb7cm6msu3ehw</identifier>
<locked type="boolean">>false</locked>
<built type="boolean">>true</built>
</load_balancer>

```

For parameters description refer to a Get the list of load balancers section.

23.6 Delete a load balancer

To delete a load balancer, use the following request:

```

DELETE /load_balancers/:id.xml
DELETE /load_balancers/:id.json

```

23.7 Start up a load balancer

To start up a load balancer, use the following request:

```

POST onapp.test/load_balancers/:id/startup.xml

```

POST onapp.test/load_balancers/:id/startup.json

23.8 Stop a load balancer

To stop a load balancer, use the following request:

POST onapp.com/load_balancers/:id/stop.xml
POST onapp.json/load_balancers/:id/stop.json

23.9 Shut down a load balancer

To shut down a load balancer, use the following request:

POST onapp.com/load_balancers/:id/shutdown.xml
POST onapp.com/load_balancers/:id/shutdown.json

23.10 Unlock a load balancer

To unlock a load balancer:

POST onapp.com/load_balancers/:id/unlock.xml
POST onapp.com/load_balancers/:id/unlock.json

23.11 Suspend a load balancer

To suspend a load balancer:

POST onapp.com/load_balancers/:id/suspend.xml
POST onapp.com/load_balancers/:id/suspend.json

24. Backups

Lists the backups taken of that virtual machine, and provides tools to restore a backup, delete backups, and convert backups to templates.

24.1 Get the list of VM backups

```
GET onapp.com/virtual_machines/{VM_ID}/backups.xml
GET onapp.com/virtual_machines/{VM_ID}/backups.json
```

An array of backups is returned. If there are no backups, an empty array is returned.

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<backups type="array">
  <backup>
    <built_at type="datetime">2011-02-18T23:38:51Z</built_at>
    <disk_id type="integer">38</disk_id>
    <created_at type="datetime">2011-02-18T23:35:54Z</created_at>
    <operating_system_distro>rhel</operating_system_distro>
    <operating_system>linux</operating_system>
    <template_id type="integer">19</template_id>
    <allowed_swap type="boolean">true</allowed_swap>
    <backup_type>normal</backup_type>
    <updated_at type="datetime">2011-02-18T23:38:51Z</updated_at>
    <allow_resize_without_reboot type="boolean">true</allow_resize_without_reboot>
    <id type="integer">15</id>
    <allowed_hot_migrate type="boolean">true</allowed_hot_migrate>
    <backup_size>442788</backup_size>
    <identifier>c4th2akcgyse7</identifier>
    <min_disk_size type="integer">0</min_disk_size>
    <built type="boolean">true</built>
    <locked type="boolean">>false</locked>
  </backup>
</backups>
```

Where:

built_at - the date when the disk backup was built

disk_id – the id of a disk backed up

created_at – the date when the record in DB was created

updated_at – the date when this record in DB was updated

operating_system_distro – the OS distribution of the VM backed up

operating_system – the OS of the VM backed up

template_id – the ID of a template from which the VM backed up was built

allowed_swap – True if swap disk is allowed for VM backed up

backup_type – Disk backup

allowed_resize_without_reboot – True if resizing CPU & RAM is allowed without restarting the VM backed up

ID – the ID of this backup

allowed_hot_migrate – True if hot migration for a VM backed up is allowed

backup_size – the disk space taken by this backup in MB

min_disk_size – the minimum disk size

built – true if a VM backed up has been built

locked – true if a VM backed up has been locked

24.2 Create a disk backup

To create a backup of a disk, use the following method:

```
POST onapp.com/settings/disks/139/backups.xml
POST onapp.com/settings/disks/139/backups.json
```

Request example:

```
curl -X POST -u admin:passwd -H 'Accept: application/xml' -H 'Content-type: application/xml' --url http://onapp.test/settings/disks/139/backups.xml
```

24.3 Convert a backup to a template

```
POST onapp.com/backups/{ID}/convert.xml
POST onapp.com/backups/{ID}/convert.json
```

Converts a backup to a template. A label for a template can be set with the **backup[label]** parameter.

Example:

```
curl -X GET -H 'Accept: application/json' -H 'Content-type: application/json' -d  
{'backup':{'label':'new template'}} -u user:pass  
http://demo.onapp.com/backups/85/convert.json
```

24.4 Restore a backup

You can restore a disk from a backup, using the following method:

```
POST onapp.com/backups/:id/restore.xml  
POST onapp.com/backups/:id/restore.json
```

Request example:

```
curl -X POST -u admin:password -H 'Accept: application/xml' -H 'Content-type:  
application/xml' --url http://onapp.test/backups/180/restore.xml
```

24.5 Delete a backup

To delete a disk backup:

```
DELETE onapp.com/backups/{ID}.xml  
DELETE onapp.com/backups/{ID}.json
```

An HTTP 200 response is returned on success, an HTTP 404 error is returned if a requested backup does not exist.

25. Autobackup Presets

Autobackup presets are a simple way to set up an automatic backup schedule when Virtual Machines are created. Once configured, they can be applied to a VM automatically when the Automatic Backups Required parameter is enabled during VM creation.

25.1 Get the list of autobackup presets

To get the list of available autobackup presets, use the following request:

```
GET onapp.com/autobackup_presets.xml
GET onapp.com/autobackup_presets.json
```

An array of autobackup presets is returned. If there are no presets, an empty array is returned.

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<autobackup-templates type="array">
  <autobackup-template>
    <duration type="integer">1</duration>
    <created_at type="datetime">2011-01-06T10:49:43Z</created_at>
    <period>days</period>
    <updated_at type="datetime">2011-01-06T10:49:43Z</updated_at>
    <enabled type="boolean">true</enabled>
    <id type="integer">1</id>
  </autobackup-template>
</autobackup-templates>
```

Explanation of the data returned:

<i>duration</i>	The number specifying how often a backup should be taken
<i>created at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>period</i>	The time period (days, weeks, months, or years)
<i>updated at</i>	The date when the autobackup preset was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>enabled</i>	True if the autobackup preset is enabled, otherwise false.
<i>id</i>	The ID of the autobackup preset

25.2 Get an autobackup preset

This method will output the details for a particular autobackup preset.


```
GET onapp.com/autobackup_presets/:id.xml
GET onapp.com/autobackup_presets/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<autobackup_template>
  <duration type="integer">1</duration>
  <created_at type="datetime">2011-01-06T10:49:43Z</created_at>
  <period>days</period>
  <updated_at type="datetime">2011-01-06T10:49:43Z</updated_at>
  <enabled type="boolean">>true</enabled>
  <id type="integer">1</id>
</autobackup_template>
```

Where:

<i>duration</i>	Edit the number specifying how often a backup should be taken
<i>created_at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>period</i>	Specify the time period (days, weeks, months, or years)
<i>updated_at</i>	The date when the autobackup preset was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>enabled</i>	Set True if autobackup preset is enabled, otherwise False
<i>id</i>	Edit an autobackup preset ID

25.3 Edit an autobackup preset

To edit an autobackup preset, use the following method:

```
PUT onapp.com/autobackup_presets/:id.xml
PUT onapp.com/autobackup_presets/:id.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<autobackup_template>
  <duration type="integer">1</duration>
  <period>days</period>
  <enabled type="boolean">>true</enabled>
  <id type="integer">1</id>
</autobackup_template>
```

You can edit the following parameters:

<i>duration</i>	Edit the number specifying how often a backup should be taken
<i>period</i>	Specify the time period (days, weeks, months, or years)
<i>enabled</i>	Set True if autobackup preset is enabled, otherwise False

26. Schedules

Schedules are concerned with backups scheduled for virtual machines in the cloud. When a schedule is no longer needed, it can be deleted so that the task will no longer run.

26.1 Get the list of schedules

This method outputs an array of the disk backups scheduled within your cloud. If there are no schedules, an empty array is returned.

```
GET /schedules.xml
GET /schedules.json
```

Output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<objects type="array">
  <object nil="true"></object>
  <object type="array">
    <object>
      <duration type="integer">1</duration>
      <created_at type="datetime">2011-01-24T15:45:45Z</created_at>
      <target_id type="integer">24</target_id>
      <period>days</period>
      <updated_at type="datetime">2011-01-28T15:45:48Z</updated_at>
      <action>autobackup</action>
      <id type="integer">17</id>
      <start_at type="datetime">2011-01-29T15:45:45Z</start_at>
      <user_id type="integer">1</user_id>
      <failure_count type="integer">0</failure_count>
      <params type="yaml" nil="true"></params>
      <status>enabled</status>
      <target_type>Disk</target_type>
    </object>
  </object>
</objects>
```

Where:

<i>duration</i>	How often a disk backup is taken
<i>created_at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>target_id</i>	The disk ID for which a backup is taken
<i>period</i>	Time period for a backup schedule (days, weeks, months, or years)
<i>updated_at</i>	The date when a schedule was updated in the [YYYY][MM][DD]T[hh][mm]Z format
<i>action</i>	Currently, only autobackup action is performed by schedules

<i>id</i>	Schedule ID
<i>start_at</i>	The date when a backup started in the [YYYY][MM][DD]T[hh][mm]Z format
<i>user_id</i>	The ID of a user who created this schedule
<i>failure_count</i>	The number of requests processed until the task fails
<i>status</i>	The status of the backup schedule (enabled, disabled, or failed)
<i>target_type</i>	Currently, you can schedule backup of Disks only

26.2 Get schedule details

Use this method to get details for a particular disk backup schedule:

```
GET /schedules/:id.xml
GET /schedules/:id.json
```

Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<objects type="array">
  <object nil="true"></object>
  <object type="array">
    <object>
      <duration type="integer">2</duration>
      <created_at type="datetime">2011-01-24T15:45:45Z</created_at>
      <target_id type="integer">2</target_id>
      <period>weeks</period>
      <updated_at type="datetime">2011-01-28T15:45:48Z</updated_at>
      <action>autobackup</action>
      <id type="integer">11</id>
      <start_at type="datetime">2011-01-29T15:45:45Z</start_at>
      <user_id type="integer">5</user_id>
      <failure_count type="integer">0</failure_count>
      <params type="yaml" nil="true"></params>
      <status>enabled</status>
      <target_type>Disk</target_type>
    </object>
  </object>
</objects>
```

Where:

<i>duration</i>	How often a disk backup is taken
<i>created_at</i>	The date in the [YYYY][MM][DD]T[hh][mm]Z format
<i>target_id</i>	The disk ID for which a backup is taken
<i>period</i>	Time period for a backup schedule (days, weeks, months, or years)
<i>updated_at</i>	The date when a schedule was updated in the [YYYY][MM][DD]T[hh][mm]Z format

<i>action</i>	Currently, only autobackup action is performed by schedules
<i>id</i>	Schedule ID
<i>start_at</i>	The date when a backup started in the [YYYY][MM][DD]T[hh][mm]Z format
<i>user_id</i>	The ID of a user who created this schedule
<i>failure_count</i>	The number of requests processed until the task fails
<i>status</i>	The status of the backup schedule (enabled, disabled, or failed)
<i>target_type</i>	Currently, you can schedule backup of Disks only

26.3 Edit a schedule

To edit a schedule, use the following method:

```
PUT /schedules/:id.xml
PUT /schedules/:id.json
```

Currently, you can edit the following parameters:

<i>duration</i>	How often a disk backup is taken
<i>period</i>	Time period for a backup schedule (days, weeks, months, or years)
<i>enabled</i>	True if a schedule is enabled, otherwise false

26.4 Delete a schedule

```
DELETE /schedules/:id.xml
DELETE /schedules/:id.json
```

27. Statistics

Statistics show detailed information on the resources used by virtual machines.

Get daily stats (information on the resources used by virtual machines):

```
GET onapp.com/usage_statistics.xml
GET onapp.com/usage_statistics.json
```

Only the GET method is available for statistics. This method sends back usage statistics for all virtual machines in the cloud (per VM for the last 48 hours).

XML Output Example:

```
<?xml version="1.0" encoding="UTF-8"?>
<vm_stats>
  <vm_stat>
    <data_sent>0.0</data_sent>
    <reads_completed>328892.0</reads_completed>
    <data_received>0.0</data_received>
    <cpu_usage>2813.0</cpu_usage>
    <virtual_machine_id>883</virtual_machine_id>
    <writes_completed>193395.0</writes_completed>
    <data_read>1315568.0</data_read>
    <user_id>1</user_id>
    <data_written>773580.0</data_written>
  </vm_stat>
</vm_stats>
```

Explanation of the data returned

data_sent - the amount of Bytes sent by this VM

reads_completed - the number of read operations performed by the disk

data_received - the amount of Bytes received by this VM

cpu_usage - shows how long (in seconds) the VM has been using CPU for the last 72 hours or during the specified period

virtual_machine_id - the ID of the VM for which these statistics are generated

writes_completed - the number of write operations performed by the disk

data_read - the amount of data read from a disk in Bytes

data_written - the amount of data written to a disk in Bytes

28. Transactions

This class represents all the operations happening in your cloud , such as VM provisioning, OS configuring, VM start up, operations with disks, and so on.

28.1 Get the list of transactions

GET onapp.com/transactions.xml
GET onapp.com/transactions.json

Json Output Example:

```
{"transaction":{"pid":26883,"created_at":"2010-08-09T08:29:21Z","updated_at":"2010-08-09T08:29:39Z","actor":null,"priority":10,"parent_type":"VirtualMachine","action":"reboot_virtual_machine","id":4372,"allowed_cancel":true,"dependent_transaction_id":null,"parent_id":367,"params":{"log_output":"Running: xm shutdown evnndau8y146ek\n"},"status":"complete"}}
```

28.2 Get a particular transaction's details

GET onapp.com/transactions/{ID}.xml
GET onapp.com/transactions/{ID}.json

Json Output Example:

```
{"pid":22006,"created_at":"2010-05-06T12:17:48Z","updated_at":"2010-05-06T12:17:52Z","actor":null,"priority":10,"parent_type":"Radar:VirtualMachine","action":"stop_virtual_machine","id":102,"dependent_transaction_id":null,"parent_id":3,"params":{"log_output":"Running: xm destroy 0frl82wp533d3e\n"},"status":"complete"}}
```

29. Version

To check the version of your cloud installation, use the following request:

```
GET    /version.xml
GET    /version.json
```

XML output example:

```
<?xml version="1.0" encoding="UTF-8"?>
<onapp>
  <version>2.1 </version>
</onapp>
```

Json output example:

```
{"version": "2.1 "}
```

30. Document revisions

1.16, 13th July 2011

- Added Json request example to [Create a VM](#) section
- Cleared up `cpu_usage` parameter in the [Statistics](#) chapter

1.15, 21st June 2011

- Updated *Edit a VM* section parameters
- Added *Delete a backup* section to the Backups chapter
- Removed not working API calls from the Load Balancers chapter
- Added short descriptions to the chapters

1.14, 16th June 2011

- Minor change to the *Create a user* section (corrected error code)

1.13, 14th June 2011

- Added *Open a VM console* section to the Virtual Machines chapter

1.12, 6th June 2011

- Updated *Edit a VM* and *Resize a VM* sections with request examples and parameters description

1.11, 30th May 2011

- Updated output example in the *Statistics* section
- Updated request example in the *Reset root password* section (*Virtual Machines* chapter)

1.10, 27th May 2011

- Clarified information about resizing VMs without reboot in the *Load balancers* and *Backups* sections – *resize without reboot* refers to resizing a VM's CPU and RAM

1.09, 20th May 2011

- Added the following chapters:
 - *Currencies*
 - *Whitelist IPs*
 - *Template Groups*
 - *Load Balancers*
 - *Firewall Rules*
- Updated the following sections:
 - *Create a new user* (Users chapter)
 - *Add a new hypervisor* (Hypervisors chapter)
 - *Edit network parameters* (Networks chapter)
 - *Add a new network* (Networks chapter)
 - *Assign an IP address join to a VM* (IP address joins chapter)
 - *Add a new billing plan* (Billing plans chapter)
- Corrected *Edit an IP Address* request

1.08, 11th May 2011

- Updated *Reboot a hypervisor* section: corrected request and added Curl example.
- Revised TOC titles

1.07, 4th May 2011

- Added *Version* section explaining how to get the version of your installation
- Added *Software Licenses* chapter

1.06, 21st April 2011

- Added instructions on how to specify a hypervisor zone when creating a VM, and tidied other parameters in this section (*Create a new VM* section)

1.05, 20th April 2011

- Added a note which clarifies how the system deletes users to the *Delete a user* section.
- Removed *Download a new template* section, as this feature is temporarily unavailable.

1.04, 18th April 2011

- Moved *Edit a user's role assignment* from the *Roles* section to the *Users* section, to better reflect the purpose of this function.

1.03, 11th April 2011

- Updated examples of Basic HTTP and API key authentication (*Introduction* section)

1.02, 8th April 2011

- Updated *View billing statistics for a user* to the *Users* section
- Added info on the units in which VM resources are measured to the *Billing Plans* section
- Updated the following sections of the *Virtual Machines* chapter:
 - *Create a VM*
 - *Change a VM owner*
 - *Billing statistics for a VM*
- Updated *Statistics* chapter
- Added *How to authenticate using HTTP Basic and API key* sections to *Introduction*

1.01, 1st April 2011

- Added *View billing statistics for a user* to the *Users* section
- Added *Network Interfaces* section:
 - *Get the list of network interfaces for a VM*
 - *Get a particular network interface details*
 - *Edit a particular network interface details*
 - *Add a new network interface to a VM*
 - *Delete a network interface*
- Added *Billing statistics for a VM* to the *VMs* section

1.0, 25th March 2011

- Re-ordered documentation to comply with the sequence of adding resources when you create a cloud from scratch
- Added the following chapters: *FAQ*, *Billing Plans*, *Autobackup Presets*, *Schedules*, *Data Store Zones*, *Network Zones*, *Hypervisor Zones*, and *Skins*.
- Added *Get the list of all permissions* section to the *Roles* chapter.
- Added the following sections to the *Users* chapter:
 - *Generate API key*
 - *See VMs of a particular user*
- Added the following sections to the *Disks* chapter:
 - *View disk IOPS*
 - *Build a disk*
 - *Unlock a disk*

- *Enable autobackups for a disk*
- *Disable autobackups for a disk*
- *Get the list of schedules for a particular disk*
- *Add a schedule to a disk*
- *Get the list of backups available for a particular disk*
- Added the following sections to the *Virtual Machines* chapter:
 - *Start up a VM*
 - *Reassign VM to another user*
 - *Build a VM*
 - *Change root password*
 - *Migrate a VM*
 - *Resize a VM*
 - *Suspend a VM*
 - *Unlock a VM*
 - *Shut down a VM*
 - *Stop a VM*
 - *Segregate a VM*
- Added field explanations to the *Statistics* section
- Updated field explanations of the following sections:
 - *Get a particular user's details (Users chapter)*
 - *Get the list of VMs (Virtual Machines chapter)*
 - *Create a new VM (Virtual Machines chapter)*
 - *Get a particular hypervisor's details (Hypervisors chapter)*
- Added XML examples and clarification of role setting during user creation
- Removed *Billing Group* and *User Limits* chapters as deprecated
- Added the following sections to the *Users* chapter:
 - *Suspend a user*
 - *Activate a user*
- Added request example to the *Segregate a VM* section (*Virtual Machines* chapter)
- Added *IP address joins* section
 - *Get the list of IP address joins*
 - *Assign an IP address join to a VM*
 - *Delete an IP address join*
- Minor formatting changes
 - Added document changelog