Red Hat CloudForms 4.6

Red Hat CloudForms REST API

Using the Red Hat CloudForms REST API

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Red Hat CloudForms Documentation Team
cloudforms-docs@redhat.com

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Abstract

This guide provides web services available to integrate Red Hat CloudForms with external applications. It details the specification of the Red Hat CloudForms RESTful API, which is implemented as standard REST HTTP requests and responses of content type JSON. If you have a suggestion for improving this guide or have found an error, please submit a Bugzilla report at http://bugzilla.redhat.com against Red Hat CloudForms Management Engine for the Documentation component. Please provide specific details, such as the section number, guide name, and CloudForms version so we can easily locate the content.

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CHAPTER 1. SPECIFICATION

1.1. HTTP BASICS

1.1.1. REST API Entry Point

The REST API is available via the **/api** URL prefix. It is accessed on the Red Hat CloudForms server as follows:

```
https://<host_fqdn>/api
```

Response

```
{
  "name" : "API",
  "description" : "REST API",
  "version" : "2.0.0",
  "versions" : [
    {
      "name" : "2.0.0",
      "href" : "https://hostname/api/v2.0.0"
    },
  ]
  "collections" : [
    {
      "name" : "automation_requests",
      "href" : "https://hostname/api/automation_requests",
      "description" : "Automation Requests"
    },
    {
      "name" : "availability_zones",
      "href" : "https://hostname/api/availability_zones",
      "description" : "Availability Zones"
    },
    ...
  ]
}
```

- **version** is the current API version, accessible via either of the following:
- /api/
- /api/v2.0.0/
- **versions** lists all the earlier API versions that are still exposed via their respective entry points:
- /api/vVersion/

1.1.2. Supported Content Types

Requests:

```
Accept: application/json
```

Responses:

```
Content-Type: application/json
```

1.1.3. URL Paths

The recommended convention for URLs is to use alternative collection or resource path segments, relative to the API entry point as described in the following example:

URL	Description
/api	The REST API Entrypoint
/api/v**Version**	The REST Entrypoint for a specific version of the REST API
/api/:collection	A top-level collection
/api/:collection/:id	A specific resource of that collection
/api/:collection/:id/:subcollection	Sub-collection under the specific resource

1.1.4. Methods and related URLs

The basic HTTP Methods used for the API are GET, POST, PUT, PATCH and DELETE.

URL	Semantic
GET /api/:collection	Return all resources of the collection
GET /api/:collection/:id	Return the specific resource
POST /api/:collection	Create a resource in the collection
POST /api/:collection/:id	Perform an Action on a resource in the collection
PUT /api/:collection/:id	Update a specific resource
PATCH /api/:collection/:id	Update a specific resource
DELETE /api/:collection/:id	Delete a specific resource

`:collection` represents specific entities such as services, hosts, and virtual machines.

1.1.5. Updating Resources

Use the following methods to update attributes in a resource:

- Update a resource via the **PUT** HTTP Method
- Update a resource via a **POST** Method with an **edit** action.
- Update a resource via the **PATCH** HTTP Method

While **PUT** is the common method, the **PATCH** mechanism gives better control on which attribute to edit or add, and enables removal, which is not available with the other two methods.

1.1.6. Modifying Resource Attributes

PUT /api/vms/42

```
{
  "name" : "A new VM name",
  "description" : "A Description for the new VM"
}
```

POST /api/vms/42

```
{
  "action" : "edit",
  "resource" : {
    "name" : "A new VM name",
    "description" : "A Description for the new VM"
  }
}
```

PATCH /api/vms/42

```
[
  { "action": "edit", "path": "name", "value": "A new VM name" },
  { "action": "add", "path": "description", "value": "A Description for
the new VM" },
  { "action": "remove", "path": "policies/3/description" }
]
```

In the **PATCH** implementation, path either references local attributes or attributes from a related resource in a subcollection.

1.1.7. Return Codes

Success

- **200 OK** - The request has succeeded without errors, this code should be returned for example when retrieving a collection or a single resource.
- **201 Created** - The request has been fulfilled and resulted in a **new resource being created**. The resource is available before this status code is returned. The response includes the HTTP body of the newly created resource.
- **202 Accepted** - The request has been accepted for processing, but the processing has not been completed. Like, resource is not fully available yet. This status code is usually returned when the resource creation happens asynchronously. In this case the HTTP response includes a pointer to

monitor or a **job** where the client can query to get the current status of the request and the estimate on when the request will be actually fulfilled.

- **204 No Content** - The server has fulfilled the request but does not need to return an entity-body, and might want to return updated meta information. This HTTP response is commonly used for the **`DELETE`** requests, as the resource that was deleted does not exists anymore.

Client Errors

- **400 Bad Request** - The request could not be understood by the server due to malformed syntax. The client SHOULD NOT repeat the request without modifications. In REST API this status code should be returned to client when the client use the wrong combination of attributes, like expanding the non-existing collection, or using the pagination parameter incorrectly. Another use-case could be creating or performing actions on the resource, when the wrong JSON serialization of the resource or action is used.
- **401 Unauthorized** - The request requires user authentication. The response MUST include a **Authenticate** header field containing a challenge applicable to the requested resource. If the request include **Authenticate** header, then this HTTP status code might indicate that the current user is **not authorized** to perform given action or to access given resource.
- **403 Forbidden** - The server understood the request, but is refusing to fulfill it. Authorization will not help in this case. This HTTP status code might indicate that the action performed is not supported for this resource or collection.
- **404 Not Found** - In this case, the server has not found anything that matches with the URL.
- **415 Unsupported Media Type** - The server is refusing to service the request because the entity of the request is in a format not supported by the requested resource for the requested method. This error must be returned, when the client is explicitly asking for format other than JSON (application/json).

Server Errors

- **500 Internal Server Error** - The server encountered an unexpected condition which prevented it from fulfilling the request. This error code must be used when an exception is raised in the application and the exception has nothing to do with the client request.

1.1.8. CRUD Examples

The following examples show the basic CRUD operations (Create, Read, Update, Delete) using the REST API.

The commands below use basic authentication via the **`--user admin:smartvm`** credentials argument. For multiple API calls, it is recommended to access the Red Hat CloudForms REST API via token-based authentication. See Authentication for details.

Show a Collection of Resources

Get a collection of services: **GET /api/services**

```
curl --user admin:smartvm
 -i -X GET -H "Accept: application/json"
 https://hostname/api/services
```

Return a Single Resource

Return a single service: **GET /api/services/:id**

```
curl --user admin:smartvm
 -i -X GET -H "Accept: application/json"
 https://hostname/api/services/1
```

Create a Resource

Create a new provider: **POST /api/providers**

```
curl --user admin:smartvm
      -i -X POST -H "Accept: application/json"
      -d '{
            "type"      : "ManageIQ::Providers::Redhat::InfraManager",
            "name"      : "RHEVM Provider",
            "hostname"  : "rhevm.local.com",
            "ipaddress" : "192.168.5.1",
            "credentials" : {
              "userid"   : "admin",
              "password" : "12345"
            }
      }'
      https://hostname/api/providers
```

Update a Resource

Update the name of a service: **PUT /api/services/:id**

```
curl --user admin:smartvm
      -i -X PUT -H "Accept: application/json"
      -d '{ "name" : "updated service name" }'
      https://hostname/api/services/1
```

Delete a Resource

Delete a service: **DELETE /api/services/:id**

```
curl --user admin:smartvm
 -i -X DELETE -H "Accept: application/json"
 https://hostname/api/services/1
```

1.2. AUTHENTICATION

There are two methods of authentication for the Red Hat CloudForms REST API:

- **Basic Authentication**: The user and password credentials are passed in with each HTTP request.
- **Token based Authentication**: The client requests a token for the username/password credentials specified. Then the token is used in lieu of the username/password for each subsequent API call.

1.2.1. Using Basic Authentication

The following example demonstrates how to use basic authentication:

```
$ curl --user username:password
   -i -X GET -H "Accept: application/json"
   https://hostname/api/services/1013
```

Red Hat recommends token-based authentication for multiple REST API calls.

1.2.2. Using Authentication Tokens

Authentication Tokens:

- Are associated with the user credential.
- Provide the necessary identification for RBAC in subsequent REST calls.
- Expire after a certain amount of time (10 minutes by default).

Request

```
$ curl --user username:password
        -i X GET -H "Accept: application/json"
        https://hostname/api/auth
```

Response

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "auth_token" : "af0245-238722-4d23db",
  "expires_on" : "2013-12-07T18:20:07Z"
}
```

Request using Token based authentication

```
$ curl -i -X GET -H "Accept: application/json"
       -H "X-Auth-Token: af0245-238722-4d23db"
       https://hostname/api/services/1013
```

Failed response due to invalid token

```
HTTP/1.1 401 Unauthorized
WWW-Authenticate: Basic realm="Application"
...
```

When a request fails due to an invalid token, the client must re-authenticate with the user credentials to obtain a new Authentication Token.

1.3. JSON SPECIFICATION

The API uses JSON throughout; the Content-Type for all requests and responses is **`application/json`**.

As is general practice with REST, clients should not make assumptions about the server's URL space. Clients are expected to discover all URL's by navigating the API. To keep this document readable, we still mention specific URL's, generally in the form of an absolute path. Clients should not use these, or assume that the actual URL structure follows these examples, and instead use discovered URL's. Any client should start its discovery with the API entry point, here denoted with **`/api`**.

1.3.1. Basic types

The following are basic data types and type combinators that are used throughout:

Name	Explanation	Example serialization
Integer	Integer value	{ "id" : 10 }
String	JSON string	{ "state" : "running" }
URL	Absolute URL	{ "href" : "http://SERVER/vms/1/start" }
Timestamp	Timestamp in ISO8601 format	{ "created" : "2013-12-05T08:15:30Z" }
Array[T]	Array where each entry has type T	{ "vms" : [{ "id" : 1 }, { "id" : 2 }] }
Ref[T]	A reference to a T, used to model relations, the T is a valid Resource identifier	{ "vm" : { "href" : URL } }
Collection	Array[T] where T represents a Ref[T], this might allow actions to be executed on all members as a single unit	{ "vms" : { "count" : 2, "resources" : [{ "href" : URL}, { "href" : URL }], "actions" : [] }
Struct	A structure with sub-attributes	"power_state": {"state" : "ON", "last_boot_time" : "2013-05-29T15:28Z", "state_change_time" : "2013-05-29T15:28Z"}

1.3.2. Common Attributes and Actions

The following describes attributes and actions that are shared by all resources and collections defined in this API.

Table 1.1. Attributes

Attribute	Type	Description
id	Integer	An integer identifier for the referenced resource
href	Ref(self)	A unique self reference
name	String	A human name of the resource

```
{
  "href" : "https://hostname/api/resources/1",
  "id" : 1,
  "name" : "first_resource"
}
```

Table 1.2. Actions

Action	HTTP method	Description
create	POST	Create new resource in the collection
edit	PUT/PATCH/POST	Edit attributes in resource
delete	DELETE	Delete resource

NOTE

The availability of these common actions depends on the role and permissions that the current API user has for a particular resource.

1.3.3. Collections

Resources can be grouped into collections. Each collection is unordered, and is homogeneous so that it contains only one type of resource. Resources can also exist outside any collection; these resources are referred to as singleton resources. Collections are themselves resources as well.

Collections can exist globally, at the top level of an API, and can also be contained inside a single resource. The latter are referred to as sub-collections. Sub-collections are usually used to express a relationship where one resource is contained within another.

Collections are serialized in JSON in the following way:

```
{
  "name" : "String",
  "count": String,
  "subcount": String,
  "resources": [ ... ],
  "actions": [ ... ]
}
```

- The **count** attribute in a collection always denotes the total number of items in the collection, not the number of items returned.
- The **subcount** attribute in a collection depicts the number of items returned.
- The **resources** attribute is an Array[T], where T might be a list of references to the T or, if expanded, a list of resources with all attributes.
- The **actions** attribute contains an Array of actions that can be performed against the collection resources.

1.3.4. Action Specification

The representation of each resource will only contain an action and its URL if the current user is presently allowed to perform that action against that resource. Actions will be contained in the **actions** attribute of a resource; that attribute contains an array of action definition, where each action definition has a rel, method and a href attribute.

- **name** attribute contains the action name
- **method** attribute states the HTTP method that must be used in a client HTTP request in order to perform the given action (eg. GET, POST, PUT, DELETE)
- **href** attribute contains the absolute URL that the HTTP request should be performed against
- **form** is an optional attribute that references a JSON document which describes the resource attributes that can be provided in the message body when performing this action. This description indicates which of those attributes are mandatory and which are optional.

Collection actions

The actions performed against a collection of resources, are in most cases batch operations against multiple resources. The action request must include an HTTP body with the action name and the list of resource representations that the action will be performed against.

The resource representation might include the resource attributes as they can change the way how the action is actually performed. In the example below, the first resource is started with **enable_ipmi** attribute, but the second resource omits this attribute which means the default value will be used.

Sample JSON request body for collection action:

POST /api/vms

```
{
  "action": "start",
  "resources" : [
    { "href" : "https://hostname/api/vms/1", "enable_ipmi" : "enabled",
"initial_state" : "started" },
    { "href" : "https://hostname/api/vms/2" }
  ]
}
```

Actions in collection:

```
{
```

```
  "name" : "String",
  "count": String,
  "subcount": String,
  "resources": [ ... ],
  "actions": [
    {
 "name"   : "shutdown",
 "method" : "post",
 "href"   : "URL"
    },
    {
 "name"   : "restart",
 "method" : "post",
 "href"   : "URL"
    },
    {
 "name"   : "poweron",
 "method" : "post",
 "href"   : "URL"
    },
    {
 "name"   : "poweroff",
 "method" : "post",
 "href"   : "URL"
    },
    {
 "name"   : "suspend",
 "method" : "post",
 "href"   : "URL"
    },
    {
 "name"    : "edit",
 "method" : "post",
 "form"   : { "href" : "https://hostname/api/vms?form_for=add" },
 "href"   : "URL"
    },
    {
 "name"   : "destroy",
 "method" : "delete",
 "href"   : "URL"
    }
  ]
}
```

Resource actions

An action performed against a given resource is always described in the body of the HTTP request. The HTTP body could contain a list of resource attributes that dictate how the state of the receiving resource is to be changed once the action is performed. At minimum the JSON document in the message body must contain the name of the action to be performed.

In cases where no attributes are required to perform an action the HTTP body will contain an empty JSON document, in which case default values will be assigned to the corresponding attributes.

Sample JSON request body for resource action:

POST /api/vms/123

```
{
  "action"   : "start",
  "resource" : { "enable_ipmi" : "enabled" }
}
```

POST /api/vms/321

```
{
  "action"   : "start",
  "resource" : {}
}
```

Actions in a resource:

```
{
  "href"  : "Ref(self)",
  "id"    : Integer,
  "name"  : "resource human name",
  "actions" : [
    {
 "name"   : "edit",
 "method" : "post",
 "form"   : { "href" : "https://hostname/api/vms?form_for=edit" },
 "href"   : "URL"
    }
  ]
}
```

1.3.5. Forms

Getting a Form

The URL to fetch a form is part of the **`action`** serialization. In a case when no form is referenced, the action does not require any attributes to be performed.

Resource including an action with a Form:

```
{
  "href" : "Ref(self)",
  "id" : Integer,
  "name" : "resource human name",
  "actions": [
    {
 "name"   : "edit",
 "method" : "post",
 "form"   : { "href" : "https://hostname/vms?form_for=edit" },
 "href"   : "URL"
    }
  ]
}
```

```
GET /api/vms?form_for=edit HTTP/1.1
```

Example of a Form:

```
{
  "required" : [ "name", "host" ],
  "optional" : [ "description" ]
  "internal" : [ "power_state", "created_on"]
}
```

The following describes the semantics of the attribute identifiers:

- **required** - These attributes must be specified for the action to be carried out.
- **optional** - These are optional attributes, which may be specified and processed by the action. These may be shown in a UI but not enforced.
- **internal** - It is not necessary to define these, but they are required for a UI form to show and extended a form with more attributes than the required and optional identifiers permit. This identifier shows what attributes are system managed and not modifiable by the REST client.

1.4. QUERY SPECIFICATION

This specification identifies the controls available when querying collections.

1.4.1. Control Attributes

The controls are specified in the GET URL as attribute value pairs as follows:

```
GET /api/resources?ctl1=val1&ctl2=val2
```

Category	Attribute	Semantics
Paging		
	offset	0-based offset of first item to return
	limit	number of items to return. If 0 is specified then the remaining items are returned
Scope		
	filter[]	One or more filters to search on. See Filtering below.
	attributes=atr1,atr2,…	Which attributes in addition to id and href to return. If not specified or *all* (default is attributes=*all*), then all attributes are returned

Category	Attribute	Semantics
	expand=resources	To expand the resources returned in the collection and not just the href. See Expanding Collection below
Sorting		
	sort_by=atr1,atr2,…	By which attribute(s) to sort the result by
	sort_order=ascending or descending	Order of the sort

- The **`count`** attribute in a collection always denotes the total number of items in the collection, not the number of items returned.
- The **`subcount`** attribute in a collection denotes the number of items from the collection that were returned, for example as the result of a paged request.

1.4.2. Filtering

`GET` requests against collections support the following query parameters to enable filtering:

- **`filter[]`**: The SQL filter to use for querying the collection.

```
GET /api/resources?filter[]=name='myservice%25'
```

The query above requests resources that begin with the name **`myservice`**. String values must be contained in single or double quotes. Special characters within the quotes must be URL encoded. In the example above, the database wildcard character, **`%`**, is encoded as **`%25`**.

1.4.3. Expanding Collections

While in the JSON serialization example the description says that the resource might be a list of references to the resource, using the **`expand`** parameter returns a full JSON serialization of the resource instead:

GET `/api/vms`

```
{
  "name" : "vms"
  "count": 2,
  "subcount": 2,
  "resources": [
    { "href" : "https://hostname/api/vms/1" },
    { "href" : "https://hostname/api/vms/2" }
  ],
  "actions": []
}
```

GET /api/vms?expand=resources

```
{
  "name" : "vms"
  "count": 2,
  "subcount": 2,
  "resources": [
    {
      "href" : "https://hostname/api/vms/1",
      "id" : 1,
      "name" : "My First VM",
      ...
    },
    {
      "href" : "https://hostname/api/vms/2",
      "id" : 2,
      "name" : "My Second VM",
      ...
    }
  ],
  "actions": []
}
```

CHAPTER 2. REFERENCE GUIDE

2.1. AUTHENTICATION

Type	Mechanism
Basic Authentication	Basic HTTP Authorization with user and password
Token Based Authentication	
- Acquiring Token	/api/auth with Basic Authentication
- Authenticating with Token	X-Auth-Token Header

2.2. HTTP HEADERS

Header	Value
Authorization	Basic base64_encoded(user:password)
X-Auth-Token	Token provided by /api/auth
Accept	application/json
Content-Type	application/json

2.3. LISTING AND QUERYING COLLECTIONS AND SUB-COLLECTIONS

Feature	Path
Listing Available Collections	/api
Listing Collections	/api/<collection>
Listing Sub-Collections	/api/<collection>/<id>/<sub-collection>

Querying Capability	Query Parameters
Paging	offset, limit
Sorting	sort_by=attr, sort_order=asc|desc
Filtering	filter[]="…"

Querying Capability	Query Parameters
Querying by Tag	i.e. by_tag=/department/finance
Expanding Results	expand=<what>, i.e. expand=resources,tags,service_templates,…
Selecting Attributes	attributes=<attr1>,<attr2>,… i.e. attributes=id,name,type,…
	Attributes can be:
	Database columns
	Virtual attributes
	Relationships

2.4. COLLECTION QUERIES

Collection	URL
Automation Requests	/api/automation_requests
Availability Zones	/api/availability_zones
Clusters	/api/clusters
Conditions	/api/conditions
Datastores	/api/data_stores
Events	/api/events
Flavors	/api/flavors
Groups	/api/groups
Hosts	/api/hosts
Policies	/api/policies
Actions	/api/policy_actions
Policy Profiles	/api/policy_profiles

Collection	URL
Providers	/api/providers
Provision Requests	/api/provision_requests
Request Tasks	/api/request_tasks
Requests	/api/requests
Resource Pools	/api/resource_pools
Roles	/api/roles
Security Groups	/api/security_groups
EVM Servers	/api/servers
Service Catalogs	/api/service_catalogs
Service Requests	/api/service_requests
Service Templates	/api/service_templates
Services	/api/services
Tags	/api/tags
Tasks	/api/tasks
Templates	/api/templates
Users	/api/users
Vms	/api/vms
Zones	/api/zones

For example queries, see "Queries".

2.5. SUB-COLLECTION QUERIES

Sub-Collection	URL
Tagging	/api/<collection>/:id/tags

Sub-Collection	URL
Policies	/api/<collection>/:id/policies
Policy Profiles	/api/<collection>/:id/policy_profiles
Service Requests	/api/service_templates/:id/service_requests
Request Tasks	
	/api/service_requests/:id/request_tasks
	/api/automation_requests/:id/request_tasks
	/api/provision_requests/:id/request_tasks
Request Tasks can also be accessed via the tasks alias	
	/api/service_requests/:id/tasks
	/api/automation_requests/:id/tasks
	/api/provision_requests/:id/tasks

2.6. AVAILABLE ACTIONS

Action	Method	URL	Example
Add Service Catalog	POST	/api/service_catalogs	
Add Service Catalogs	POST	/api/service_catalogs	
Edit Service Catalog	POST	/api/service_catalogs/<replaceable>id</replaceable>	
Edit Service Catalogs	POST	/api/service_catalogs	
Automation Request	POST	/api/automation_requests	
Automation Requests	POST	/api/automation_requests	

Action	Method	URL	Example
Edit Service	POST	/api/services/<replaceable>id</replaceable>	
Edit Service via PUT	PUT	/api/services/<replaceable>id</replaceable>	
Edit Service via PATCH	PATCH	/api/services/<replaceable>id</replaceable>	
Edit Services	POST	/api/services/	
Assign Tags to a Service	POST	/api/services/<replaceable>id</replaceable>/tags	
Assign a Tag by Name to a Service	POST	/api/services/<replaceable>id</replaceable>/tags	
Assign a Tag by Name to a Service	POST	/api/services/<replaceable>id</replaceable>/tags	
Unassign Tags from Service	POST	/api/services/<replaceable>id</replaceable>/tags	
Retire Service Now	POST	/api/services/<replaceable>id</replaceable>	
Retire Service in Future	POST	/api/services/<replaceable>id</replaceable>	
Retire Services	POST	/api/services	
Delete Service	DELETE	/api/services/<replaceable>id</replaceable>	
Delete Services	POST	/api/services	
Edit Service Template	POST	/api/service_templates/<replaceable>id</replaceable>	
Edit Service Templates	POST	/api/service_templates	
Assign Tags to Service Template	POST	/api/service_templates/<replaceable>id</replaceable>/tags	

Action	Method	URL	Example
Unassign Tags from Service Template	POST	/api/service_templates/<replaceable>id</replaceable>/tags	
Delete Service Template	DELETE	/api/service_templates/<replaceable>id</replaceable>	
Delete Service Templates	POST	/api/service_templates	
Assign Service Templates	POST	/api/service_catalogs/<replaceable>id</replaceable>/service_templates	
Unassign Service Templates	POST	/api/service_catalogs/<replaceable>id</replaceable>/service_templates	
Order Service	POST	/api/service_catalogs/<replaceable>id</replaceable>/service_templates	
Order Services	POST	/api/service_catalogs/<replaceable>id</replaceable>/service_templates	
Delete Service Catalog	DELETE	/api/service_catalogs/<replaceable>id</replaceable>	
Delete Service Catalogs	POST	/api/service_catalogs	
Provision Request	POST	/api/provision_requests	
Provision Requests	POST	/api/provision_requests	
Create a Provider	POST	/api/providers	
Create a Provider with Compound Credentials	POST	/api/providers	
Edit a Provider	POST	/api/providers	
Update a Provider	POST	/api/providers	

Action	Method	URL	Example
Delete a Provider	POST	/api/providers	
Delete Multiple Providers	POST	/api/providers	
Refresh a Provider	POST	/api/providers	
Scan a VM	POST	/api/vms	
Set Owner of a VM	POST	/api/vms	
Add a Lifecycle Event to a VM	POST	/api/vms	
Add an Event to a VM	POST	/api/vms	
Start a VM	POST	/api/vms	
Stop a VM	POST	/api/vms	
Suspend a VM	POST	/api/vms	
Delete VMs	DELETE	/api/vms	

2.7. PROVISIONING REQUEST ATTRIBUTES

2.7.1. Provisioning Request Attribute Groups

Attribute Group	Type	Description
version	string	Interface version. Defaults to 1.1
template_fields	hash	Fields used to find the template virtual machine. Provide any or all fields. Supply a guid or ems_guid to protect against matching same-named templates on different Providers within the appliance. Supported fields are: name=[VM Template Name] Example: template_1 guid=[guid value from vms resource] ems_guid=[uid_ems value from vms resource]
vm_fields	hash	Allows for setting properties on the Service Catalog, Hardware, Network, Customize, and Schedule tabs in the Provisioning dialog.
requester	hash	Allows for the setting of properties on the Requester tab in the Provisioning dialog.
tags	hash	Tags to apply to newly created virtual machine. Example: network_location=Internal cc=001
additional_values	hash	Additional values are name-value pairs stored with a provision request, but not used by the core provisioning code. These values are usually referenced from automate methods for custom processing. Example: Store a request_id from an external system so the system can be notified during the provisioning process.
ems_custom_attributes	hash	Custom attributes applied to the virtual machine through the Provider as part of provisioning.

Attribute Group	Type	Description
miq_custom_attributes	hash	Custom attributes applied to the virtual machine and stored in the database as part of provisioning.

2.7.2. Service Catalog Attributes

These attributes are used in the **`vm_fields`** attribute group:

Attribute	Type	Description	Default
number_of_vms	integer	Number of virtual machines - maximum 50	1
vm_description	string	Virtual machine description - maximum 100 characters	
vm_prefix	string	Virtual machine name prefix or suffix	
src_vm_id	integer	Name	
vm_name	string	Virtual machine name	
pxe_image_id	string	Image	
pxe_server_id	integer	Server	
host_name	string	Host name	
provision_type	string	Provision type	vmware
linked_clone	boolean	Linked clone	false
snapshot	string	Snapshot	
vm_filter	integer	Filter	

2.7.3. Hardware Attributes

These attributes are used in the **`vm_fields`** attribute group:

Attribute	Type	Description	Values	Default
disk_format	string	Disk format	thick, thin, unchanged	unchanged
cpu_limit	integer	CPU (MHz)		
memory_limit	integer	Memory (MB)		
number_of_sockets	integer	Number of sockets	1, 2, 4, 8	1
cores_per_socket	integer	Cores per socket	1, 2, 4, 8	1
cpu_reserve	integer	CPU (MHz)		
vm_memory	string	Memory (MB)	1024, 2048, 4096	1024
memory_reserve	integer	Memory (MB)		
network_adapters	integer	Network adapters	1, 2, 3, 4	1

2.7.4. Network Attributes

These attributes are used in the **`vm_fields`** attribute group:

Attribute	Type	Description
vlan	string	vLAN
mac_address	string	MAC address

2.7.5. Custom Attributes

These attributes are used in the **`vm_fields`** attribute group:

Attribute	Type	Description	Values	Default
dns_servers	string	DNS server list		
sysprep_organization	string	Organization		
sysprep_password	string	New administrator password		

Attribute	Type	Description	Values	Default
sysprep_custom_spec	string	Name		
sysprep_server_license_mode	string	Identification	perServer, perSeat	
ldap_ous	string	LDAP group		
sysprep_timezone	string	Timezone		
dns_suffixes	string	DNS suffix list		
sysprep_product_id	string	ProductID		
sysprep_identification	string	Identification	domain, workgroup	
sysprep_per_server_max_connections	string	Maximum connections		5
sysprep_computer_name	string	Computer name		
sysprep_workgroup_name	string	Workgroup name		WORKGROUP
sysprep_spec_override	boolean	Override specification		false
addr_mode	string	Address mode	static, dhcp	dhcp
linux_host_name	string	Computer name		
sysprep_domain_admin	string	Domain admin		
sysprep_change_sid	boolean	Change SID		true
sysprep_domain_name	string	Domain name		

Attribute	Type	Description	Values	Default
sysprep_upload_file	string	Upload		
gateway	string	Gateway		
ip_addr	string	IP address		
linux_domain_name	string	Domain name		
sysprep_domain_password	string	Domain password		
sysprep_auto_logon	boolean	Auto Logon		true
sysprep_enabled	string	Customize		disabled
sysprep_delete_accounts	boolean	Delete accounts		false
sysprep_upload_text	string	Sysprep text		
wins_servers	string	WINS server list		
subnet_mask	string	Subnet mask		
sysprep_full_name	string	Full name		
sysprep_auto_logon_count	integer	Auto logon count	1, 2, 3	1
customization_template_id	integer	Script name		
root_password	string	Root password		
hostname	string	Host name		
customization_template_script	string	Script text		

2.7.6. Schedule Attributes

These attributes are used in the **`vm_fields`** attribute group:

Attribute	Type	Description	Values	Default
schedule_type	string	When to provision	schedule, immediately (*On Approval*)	immediately
vm_auto_start	boolean	Power on virtual machines after creation		true
schedule_time	time	Time to provision on		
retirement	integer	Time until retirement	0 (*Indefinite*), 1.month, 3.months, 6.months	0
retirement_warn	integer	Retirement warning	1.week, 2.weeks, 30.days	1.week

2.7.7. Requester Attributes

These attributes are used in the **requester** attribute group:

Attribute	Type	Description
owner_phone	string	Phone
owner_country	string	Country/Region
owner_phone_mobile	string	Mobile phone
owner_title	string	Title
owner_first_name	string	First name
owner_manager	string	Manager name
owner_address	string	Address
owner_company	string	Company
owner_last_name	string	Last name
owner_manager_email	string	Manager e-mail address

Attribute	Type	Description
owner_city	string	City
owner_department	string	Department
owner_load_ldap	button	Look up LDAP e-mail address
owner_manager_phone	string	Manager phone
owner_state	string	State
owner_office	string	Office
owner_zip	string	Zip code
owner_email	string	E-Mail
request_notes	string	Notes

2.7.8. Environment Attributes

These attributes cannot be passed directly. To use these attributes, provide **additional_values** and allow customization methods to use these attributes, then modify the request accordingly.

Attribute	Type	Description	Values	Default
new_datastore_grow_increment	integer	Grow increment (GB)		
new_datastore_create	boolean	Create datastore		false
placement_cluster_name	integer	Name		
new_datastore_aggregate	string	Aggregate		
new_datastore_max_size	integer	Max size (GB)		
new_datastore_storage_controller	string	Controller		
cluster_filter	integer	Filter		

Attribute	Type	Description	Values	Default
host_filter	integer	Filter		
ds_filter	integer	Filter		
new_datastore_volume	string	Volume		
placement_host_name	integer	Name		
placement_ds_name	integer	Name		
new_datastore_fs_type	string	FS Type	NFS, VMFS	NFS
rp_filter	integer	Filter		
new_datastore_thin_provision	string	Thin provision		
placement_auto	boolean	Choose automatically		false (**NOTE**: placement_auto defaults to **`true`** for requests made from the API or CloudForms Automate.)
new_datastore_size	integer	Size (GB)		
new_datastore_autogrow	string	Autogrow		false
placement_folder_name	integer	Name		
new_datastore_name	string	Name		
placement_rp_name	integer	Name		
placement_dc_name	integer	Name		

CHAPTER 3. EXAMPLES

This section provides a collection of examples of using the REST API to interact with resources in a Red Hat CloudForms environment.

3.1. GENERAL QUERIES

This section introduces a number of general examples of how to use the REST API to query resources, and return information about resources and events.

3.1.1. Queries

Query all virtual machines:

```
GET /api/vms
```

Query a specific virtual machine:

```
GET /api/vms/1386
```

Query all virtual machines, but return only the name and vendor:

```
GET /api/vms?expand=resources&attributes=name,vendor
```

Query all virtual machines named sample*, and return the name and vendor:

```
GET /api/vms?
expand=resources&attributes=name,vendor&filter[]="name='sample%'"
```

Query all virtual machines, but only return the first 500 results:

```
GET /api/vms?offset=0&limit=500
```

Query all virtual machines, but return the second 500 results:

```
GET /api/vms?offset=500&limit=500
```

Query the first 1000 virtual machines named test*, get the name, vendor, and guid, and sort by name in ascending order:

```
GET /api/vms?
offset=0&limit=1000&filter[]="name='test%'"&expand=resources&attributes=na
me,vendor,guid&sort_by=name&sort_order=asc
```

Query services tagged for the finance department:

```
GET /api/services?by_tag=/department/finance
```

Get the details of tags for the first service:

```
GET /api/services/1/tags?expand=resources
```

Get the details of the first service catalog and related details on the assigned service templates:

```
GET /api/service_catalogs/1?expand=service_templates
```

```
GET /api/service_templates/25/service_requests?
expand=resources,request_tasks
```

Get a specific provision request with expanded details on the associated provision request tasks:

```
GET /api/provision_requests/120?expand=tasks
```

3.1.2. Paging Queries

This series of requests shows paging queries and the expected responses for each subsequent page.

3.1.2.1. Request:

```
GET /api/vms?offset=0&limit=500
    &sort_order=asc&sort_by=name
    &expand=resources&attributes=name
```

3.1.2.2. Response:

```
{
  "name": "vms",
  "count": 1912,
  "subcount": 500,
  "resources": [
    {
      "href": "https://hostname/api/vms/176",
      "id": 176,
      "name": "53 Zone1"
    },
    ...
    {
      "href": "https://hostname/api/vms/1575",
      "id": 1575,
      "name": "VmEmpty-3de98f0f-c6f3-4f8b-a932-554713a61067"
    }
  ],
  "actions": [
  ]
}
```

3.1.2.3. Request:

```
GET /api/vms?offset=500&limit=500
    &sort_order=asc&sort_by=name
    &expand=resources&attributes=name
```

3.1.2.4. Response:

```
{
  "name": "vms",
  "count": 1912,
  "subcount": 500,
  "resources": [
    {
      "href": "https://hostname/api/vms/1574",
      "id": 1574,
      "name": "VmEmpty-3e13ff43-6907-4a22-8f95-58aeb1bffa0b"
    },
    ...
    {
      "href": "https://hostname/api/vms/1076",
      "id": 1076,
      "name": "VmEmpty-9a885181-7771-4f91-9805-245c7606d833"
    }
  ],
  "actions": [
  ]
}
```


3.1.2.5. Request:

```
GET /api/vms?offset=1000&limit=500
    &sort_order=asc&sort_by=name
    &expand=resources&attributes=name
```

3.1.2.6. Response:

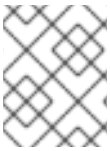

```
{
  "name": "vms",
  "count": 1912,
  "subcount": 500,
  "resources": [
    {
      "href": "https://hostname/api/vms/1074",
      "id": 1074,
      "name": "VmEmpty-9ab9e101-92b0-4b6b-864e-e196538da8a8"
    },
    ...
    {
      "href": "https://hostname/api/vms/575",
      "id": 575,
      "name": "VmEmpty-f251f135-01c8-4d44-b8e1-37b30844a9dd"
    }
  ],
  "actions": [
  ]
}
```


3.1.2.7. Request:

```
GET /api/vms?offset=1500&limit=500
    &sort_order=asc&sort_by=name
    &expand=resources&attributes=name
```

3.1.2.8. Response:

```
{
  "name": "vms",
  "count": 1912,
  "subcount": 412,
  "resources": [
    {
      "href": "https://hostname/api/vms/574",
      "id": 574,
      "name": "VmEmpty-f28912f3-b096-487f-9763-97b39b67364b"
    },
    ...
    {
      "href": "https://hostname/api/vms/1907",
      "id": 1907,
      "name": "yy_vm"
    }
  ],
  "actions": [
  ]
}
```



NOTE

In this last request, the **subcount** was less than the requested page size, thus denoting the last page of data being returned.

3.1.3. Querying a Delete Task

3.1.3.1. Request:

```
GET /api/tasks/625
```

3.1.3.2. Response:

```
{
  "href": "https://hostname/api/tasks/625",
  "id": 625,
  "name": "Provider id:106 name:'rhevm102' deleting",
  "state": "Finished",
  "status": "Ok",
  "message": "Task completed successfully",
  "userid": "admin",
  "created_on": "2015-05-06T14:02:26Z",
  "updated_on": "2015-05-06T14:02:32Z"
}
```

3.2. SERVICE CATALOGS

This section provides examples of how to interact with service catalogs.

3.2.1. Adding a Sample Service Catalog

3.2.1.1. Request:

```
POST /api/service_catalogs
```

```
{
   "action" : "create",
   "resource" : {
        "name" : "Sample Service Catalog",
        "description" : "Description of Sample Service Catalog",
        "service_templates" : [
          { "href" : "https://hostname/api/service_templates/3" },
          { "href" : "https://hostname/api/service_templates/4" }
        ]
   }
}
```

3.2.1.2. Response:

```
{
  "results": [
    {
      "id": 7,
      "name": "Sample Service Catalog",
      "description": "Description of Sample Service Catalog"
    }
  ]
}
```

3.2.2. Adding Multiple Service Catalogs

3.2.2.1. Request:

```
POST /api/service_catalogs
```

```
{
   "action" : "create",
   "resources" : [
      {
        "name" : "First Sample Service Catalog",
        "description" : "Description of First Sample Service Catalog",
        "service_templates" : [
          { "href" : "https://hostname/api/service_templates/1" },
          { "href" : "https://hostname/api/service_templates/2" }
        ]
      },
```

```
      {
        "name" : "Second Sample Service Catalog",
        "description" : "Description of Second Sample Service Catalog",
        "service_templates" : [
          { "href" : "https://hostname/api/service_templates/3" },
          { "href" : "https://hostname/api/service_templates/4" }
        ]
      },
      {
        "name" : "Third Sample Service Catalog",
        "description" : "Description of Third Sample Service Catalog",
        "service_templates" : [
          { "href" : "https://hostname/api/service_templates/5" },
          { "href" : "https://hostname/api/service_templates/6" }
        ]
      }
  ]
}
```

3.2.2.2. Response:

```
{
  "results": [
    {
      "id": 8,
      "name": "First Sample Service Catalog",
      "description": "Description of First Sample Service Catalog"
    },
    {
      "id": 9,
      "name": "Second Sample Service Catalog",
      "description": "Description of Second Sample Service Catalog"
    },
    {
      "id": 10,
      "name": "Third Sample Service Catalog",
      "description": "Description of Third Sample Service Catalog"
    }
  ]
}
```

3.2.3. Assigning Service Templates to Service Catalogs

3.2.3.1. Request:

```
POST /api/service_catalogs/6/service_templates
```

```
{
  "action" : "assign",
  "resources" : [
    { "href" : "https://hostname/api/service_templates/5" },
```

```
    { "href" : "https://hostname/api/service_templates/1" }
  ]
}
```

3.2.3.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Service Template id:5 name:'template5'",
      "service_template_id": 5,
      "service_template_href": "https://hostname/api/service_templates/5",
      "href": "https://hostname/api/service_catalogs/6"
    },
    {
      "success": false,
      "message": "Service Template 1 is currently assigned to Service
Catalog 3",
      "service_template_id": 1,
      "service_template_href": "https://hostname/api/service_templates/1",
      "href": "https://hostname/api/service_catalogs/6"
    }
  ]
}
```

3.2.4. Editing a Service Catalog

3.2.4.1. Request:

```
POST /api/service_catalog/7
```

```
{
   "action" : "edit",
   "resource" : {
      "description" : "Updated Description of the Seventh Service Catalog"
   }
}
```

3.2.4.2. Response:

```
{
  "href": "https://hostname/api/service_catalogs/7",
  "id": 7,
  "name": "Sample Service Catalog",
  "description": "Updated Description of the Seventh Service Catalog",
  "service_templates": {
    "count": 1,
    "resources": [
      {
        "href":
"https://hostname/api/service_catalogs/7/service_templates/3"
```

```
      }
    ]
  }
}
```

3.2.5. Editing Multiple Service Catalogs

3.2.5.1. Request:

```
POST /api/service_catalogs
```

```
{
   "action" : "edit",
   "resources" : [
     {
       "href" : "https://hostname/api/service_catalogs/3",
       "description" : "Updated Description for Third Service Catalog"
     },
     {
       "href" : "https://hostname/api/service_catalogs/6",
       "description" : "Updated Description for Sixth Service Catalog"
     }
   ]
}
```

3.2.5.2. Response:

```
{
  "results": [
    {
      "id": 3,
      "name": "Service Catalog B Added from REST API",
      "description": "Updated Description for Third Service Catalog"
    },
    {
      "id": 6,
      "name": "Service Catalog E Added from REST API",
      "description": "Updated Description for Sixth Service Catalog"
    }
  ]
}
```

3.2.6. Ordering a Single Service from a Service Catalog

3.2.6.1. Request:

```
POST /api/service_catalogs/1/service_templates
```

```
{
  "action" : "order",
  "resource" : {
```

```
    "href" : "https://hostname/api/service_templates/3",
    "option_0_vm_target_name" : "test-vm-0001",
    "option_0_vm_target_hostname" : "test-vm-0001"
  }
}
```

3.2.6.2. Response:

```
{
  results: [
    {
      "approval_state": "pending_approval",
      "created_on": "2014-07-02T19:28:12Z",
      "description": "Provisioning Service [aws-ubuntu-api] from [aws-
ubuntu-api]",
      "destination_id": null,
      "destination_type": null,
      "fulfilled_on": null,
      "id": 13,
      "message": "Service_Template_Provisioning - Request Created",
      "options": {
        "dialog": {
          "dialog_option_0_vm_target_name" : "test-vm-0001",
          "dialog_option_0_vm_target_hostname" : "test-vm-0001"
        }
    }
    "request_state": "pending",
    "request_type": "clone_to_service",
    "requester_id": 1,
    "requester_name": "Administrator",
    "source_id": 6,
    "source_type": "ServiceTemplate",
    "status": "Ok",
    "updated_on": "2014-07-02T19:28:12Z",
    "userid": "admin"
    }
  ]
}
```

3.2.7. Ordering Multiple Services from a Service Catalog

3.2.7.1. Request:

```
POST /api/service_catalogs/2/service_templates
```

```
{
  "action" : "order",
  "resources" : [
    {
      "href" : "https://hostname/api/service_templates/3",
      "option_1_vm_target_name" : "sample-vm-1201",
      "option_2_vm_target_hostname" : "sample-vm-1201"
    },
```

```
    {
      "href" : "https://hostname/api/service_templates/3",
      "option_1_vm_target_name" : "sample-vm-1202",
      "option_2_vm_target_hostname" : "sample-vm-1202"
    },
    {
      "href" : "https://hostname/api/service_templates/4",
      "option_1_vm_target_name" : "dev-vm1",
      "option_2_vm_target_hostname" : "dev-vm1",
      "option_3_vm_memory" : '16384'
    },
  ]
}
```

3.2.7.2. Response:

```
{
  results: [
    {
      "approval_state": "pending_approval",
      "created_on": "2014-07-02T19:28:12Z",
      "description": "Provisioning Service [sample-vm-1201] from [sample-
vm-1201]",
      "destination_id": null,
      "destination_type": null,
      "fulfilled_on": null,
      "id": 13,
      "message": "Service_Template_Provisioning - Request Created",
      "options": {
        "dialog": {
          "dialog_option_0_vm_target_name" : "test-vm-0001",
          "dialog_option_0_vm_target_hostname" : "test-vm-0001"
        }
    }
    "request_state": "pending",
    "request_type": "clone_to_service",
    "requester_id": 1,
    "requester_name": "Administrator",
    "source_id": 6,
    "source_type": "ServiceTemplate",
    "status": "Ok",
    "updated_on": "2014-07-02T19:28:12Z",
    "userid": "admin"
    },
    {
      "approval_state": "pending_approval",
      "created_on": "2014-07-02T19:28:12Z",
      "description": "Provisioning Service [sample-vm-1202] from [sample-
vm-1202]",
      "destination_id": null,
      "destination_type": null,
      "fulfilled_on": null,
      "id": 13,
      "message": "Service_Template_Provisioning - Request Created",
      "options": {
```

```
        "dialog": {
          "dialog_option_0_vm_target_name" : "test-vm-0001",
          "dialog_option_0_vm_target_hostname" : "test-vm-0001"
        }
    }
    "request_state": "pending",
    "request_type": "clone_to_service",
    "requester_id": 1,
    "requester_name": "Administrator",
    "source_id": 6,
    "source_type": "ServiceTemplate",
    "status": "Ok",
    "updated_on": "2014-07-02T19:28:12Z",
    "userid": "admin"
    },
    {
      "approval_state": "pending_approval",
      "created_on": "2014-07-02T19:28:12Z",
      "description": "Provisioning Service [sample-vm-1201] from [sample-
vm-1201]",
      "destination_id": null,
      "destination_type": null,
      "fulfilled_on": null,
      "id": 13,
      "message": "Service_Template_Provisioning - Request Created",
      "options": {
        "dialog": {
          "dialog_option_0_vm_target_name" : "test-vm-0001",
          "dialog_option_0_vm_target_hostname" : "test-vm-0001"
        }
    }
    "request_state": "pending",
    "request_type": "clone_to_service",
    "requester_id": 1,
    "requester_name": "Administrator",
    "source_id": 6,
    "source_type": "ServiceTemplate",
    "status": "Ok",
    "updated_on": "2014-07-02T19:28:12Z",
    "userid": "admin"
    }
  ]
}
```


3.2.8. Unassigning Service Templates from a Service Catalog

3.2.8.1. Request:

```
POST /api/service_catalogs/6/service_templates
```

```
{
  "action" : "unassign",
  "resources" : [
    { "href" : "https://hostname/api/service_templates/1" },
```

```
    { "href" : "https://hostname/api/service_templates/5" },
    { "href" : "https://hostname/api/service_templates/8" }
  ]
}
```

3.2.8.2. Response:

```
{
  "results": [
    {
      "success": false,
      "message": "Service Template 1 is not currently assigned to Service
Catalog 3",
      "service_template_id": 1,
      "service_template_href": "https://hostname/api/service_templates/1",
      "href": "https://hostname/api/service_catalogs/6"
    },
    {
      "success": true,
      "message": "Unassigning Service Template id:5 name:'template5'",
      "service_template_id": 5,
      "service_template_href": "https://hostname/api/service_templates/5",
      "href": "https://hostname/api/service_catalogs/6"
    },
    {
      "success": false,
      "message": "Couldn't find ServiceTemplate with id=8",
      "href": "https://hostname/api/service_catalogs/6"
    }
  ]
}
```

3.2.9. Deleting Multiple Service Catalogs

3.2.9.1. Request:

```
POST /api/service_catalogs
```

```
{
  "action" : "delete",
  "resources" : [
    { "href" : "https://hostname/api/service_catalogs/8"  },
    { "href" : "https://hostname/api/service_catalogs/9"  },
    { "href" : "https://hostname/api/service_catalogs/10" }
  ]
}
```

3.2.9.2. Response:

```
{
  "results": [
    {
```

```
      "success": true,
      "message": "service_catalogs id: 8 deleting",
      "href": "https://hostname/api/service_catalogs/8"
    },
    {
      "success": true,
      "message": "service_catalogs id: 9 deleting",
      "href": "https://hostname/api/service_catalogs/9"
    },
    {
      "success": true,
      "message": "service_catalogs id: 10 deleting",
      "href": "https://hostname/api/service_catalogs/10"
    }
  ]
}
```


3.3. TAGS

This section provides examples of how to interact with tags.

3.3.1. Assigning Tags to a Service

3.3.1.1. Request:

```
POST /api/services/101/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "category" : "location", "name" : "ny" },
    { "category" : "department", "name" : "finance" },
    { "category" : "environment", "name" : "dev" }
  ]
}
```

3.3.1.2. Response:


```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'location' name:'ny'",
      "href": "https://hostname/api/services/101",
      "tag_category": "location",
      "tag_name": "ny"
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/services/101",
      "tag_category": "department",
      "tag_name": "finance"
```

```
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'environment' name:'dev'",
      "href": "https://hostname/api/services/101",
      "tag_category": "environment",
      "tag_name": "dev"
    }
  ]
}
```

3.3.2. Assigning Tags by Name to a Service

3.3.2.1. Request:

```
POST /api/services/101/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "name" : "/department/finance" },
    { "name" : "/location/ny" }
  ]
}
```

3.3.2.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/services/101",
      "tag_category": "department",
      "tag_name": "finance"
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'location' name:'ny'",
      "href": "https://hostname/api/services/101",
      "tag_category": "location",
      "tag_name": "ny"
    }
  ]
}
```

3.3.3. Assigning Tags by Reference to a Service

3.3.3.1. Request:

```
POST /api/services/101/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "href" : "https://hostname/api/services/1/tags/49" }
  ]
}
```

3.3.3.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/services/101",
      "tag_category": "department",
      "tag_name": "finance",
      "tag_href": "https://hostname/api/tags/49"
    }
  ]
}
```

3.3.4. Assigning Tags to a Service Template

3.3.4.1. Request:

```
POST /api/service_templates/1/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "category" : "location", "name" : "ny" },
    { "category" : "department", "name" : "finance" }
  ]
}
```

3.3.4.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'location' name:'ny'",
      "href": "https://hostname/api/service_templates/1",
      "tag_category": "location",
      "tag_name": "ny"
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/service_templates/1",
      "tag_category": "department",
```

```
      "tag_name": "finance"
    }
  ]
}
```

3.3.5. Assigning Tags to a Virtual Machine

3.3.5.1. Request:

```
POST /api/vms/101/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "name" : "/department/finance" },
    { "name" : "/location/ny" }
  ]
}
```

3.3.5.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'location' name:'ny'",
      "href": "https://hostname/api/vms/101",
      "tag_category": "location",
      "tag_name": "ny"
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/vms/101",
      "tag_category": "department",
      "tag_name": "finance"
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'environment' name:'dev'",
      "href": "https://hostname/api/vms/101",
      "tag_category": "environment",
      "tag_name": "dev"
    }
  ]
}
```

3.3.6. Assigning Tags by Name to a Virtual Machine

3.3.6.1. Request:

```
POST /api/vms/101/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "name" : "/department/finance" },
    { "name" : "/location/ny" }
  ]
}
```

3.3.6.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/vms/101",
      "tag_category": "department",
      "tag_name": "finance"
    },
    {
      "success": true,
      "message": "Assigning Tag: category:'location' name:'ny'",
      "href": "https://hostname/api/vms/101",
      "tag_category": "location",
      "tag_name": "ny"
    }
  ]
}
```

3.3.7. Assigning Tags by Reference to a Virtual Machine

3.3.7.1. Request:

```
POST /api/vms/101/tags
```

```
{
  "action" : "assign",
  "resources" : [
    { "href" : "https://hostname/api/vms/1/tags/49" }
  ]
}
```

3.3.7.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Assigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/vms/101",
      "tag_category": "department",
```

```
      "tag_name": "finance",
      "tag_href": "https://hostname/api/tags/49"
    }
  ]
}
```

3.3.8. Unassigning Tags from a Service

3.3.8.1. Request:

```
POST /api/services/101/tags
```

```
{
  "action" : "unassign",
  "resources" : [
    { "category" : "department", "name" : "finance" },
    { "category" : "environment", "name" : "dev" }
  ]
}
```

3.3.8.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Unassigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/services/101",
      "tag_category": "department",
      "tag_name": "finance"
    },
    {
      "success": true,
      "message": "Unassigning Tag: category:'environment' name:'dev'",
      "href": "https://hostname/api/services/101",
      "tag_category": "environment",
      "tag_name": "dev"
    }
  ]
}
```

3.3.9. Unassigning a Tag by Name from a Service

3.3.9.1. Request:

```
POST /api/services/101/tags
```

```
{
  "action" : "unassign",
  "resources" : [
```

```
    { "name" : "/managed/department/finance" }
  ]
}
```

3.3.9.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Unassigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/services/101",
      "tag_category": "department",
      "tag_name": "finance"
    }
  ]
}
```

3.3.10. Unassigning a Tag by Reference from a Service

3.3.10.1. Request:

```
POST /api/services/101/tags
```

```
{
  "action" : "unassign",
  "resources" : [
    { "href" : "tags/49" }
  ]
}
```

3.3.10.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Unassigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/services/101",
      "tag_category": "department",
      "tag_name": "finance",
      "tag_href": "https://hostname/api/tags/49"
    }
  ]
}
```

3.3.11. Unassigning Tags from a Service Template

3.3.11.1. Request:

```
POST /api/service_templates/1/tags
```

```
{
  "action" : "unassign",
  "resources" : [
    { "category" : "location", "name" : "ny" },
    { "category" : "department", "name" : "finance" }
  ]
}
```

3.3.11.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "Unassigning Tag: category:'location' name:'ny'",
      "href": "https://hostname/api/service_templates/1",
      "tag_category": "location",
      "tag_name": "ny"
    },
    {
      "success": true,
      "message": "Unassigning Tag: category:'department' name:'finance'",
      "href": "https://hostname/api/service_templates/1",
      "tag_category": "department",
      "tag_name": "finance"
    }
  ]
}
```

3.4. AUTOMATION REQUESTS

This section provides examples of how to interact with automation requests.

3.4.1. Triggering a Single Automation Request

```
With automation requests:
```

- **version** defaults to **`1.1`** if not specified.
- **user_name** defaults to the **`REST API`** authenticated user if not specified.

3.4.1.1. Request:

```
POST /api/automation_requests
```

```
{
  "version" : "1.1",
  "uri_parts" : {
    "namespace" : "System",
    "class" : "Request",
    "instance" : "InspectME",
```

```
    "message" : "create"
  },
  "parameters" : {
    "var1" : "xxxxx",
    "var2" : "yyyyy",
    "var3" : 1024,
    "var4" : true,
    "var5" : "last value"
  },
  "requester" : {
    "user_name" : "admin",
    "auto_approve" : true
  }
}
```

Optionally, the action-based request format is also supported:

3.4.1.2. Request:

```
POST /api/automation_requests
```

```
{
  "action" : "create",
  "resource" : {
    "version" : "1.1",
    "uri_parts" : {
      "namespace" : "System",
      "class" : "Request",
      "instance" : "InspectME",
      "message" : "create"
    },
    "parameters" : {
      "var1" : "xxxxx",
      "var2" : "yyyyy",
      "var3" : 1024,
      "var4" : true,
      "var5" : "last value"
    },
    "requester" : {
      "user_name" : "admin",
      "auto_approve" : true
    }
  }
}
```

3.4.1.3. Response:

```
{
  "results": [
    {
      "id": 12,
      "description": "Automation Task",
      "approval_state": "approved",
      "type": "AutomationRequest",
```

```
      "created_on": "2015-04-16T21:49:55Z",
      "updated_on": "2015-04-16T21:49:55Z",
      "requester_id": 1,
      "requester_name": "Administrator",
      "request_type": "automation",
      "request_state": "pending",
      "status": "Ok",
      "options": {
        "message": "create",
        "namespace": "System",
        "class_name": "Request",
        "instance_name": "InspectME",
        "user_id": 1,
        "attrs": {
          "var1": "xxxxx",
          "var2": "yyyyy",
          "var3": 1024,
          "var4": true,
          "var5": "last value",
          "userid": "admin"
        }
      },
      "userid": "admin"
    }
  ]
}
```

3.4.2. Triggering Multiple Automation Requests

With automation requests:

- **version** defaults to **`1.1`** if not specified.
- **user_name** defaults to the **`REST API`** authenticated user if not specified.

3.4.2.1. Request:

```
POST /api/automation_requests
```

```
{
  "action" : "create",
  "resources" : [
    {
      "version" : "1.1",
      "uri_parts" :  {
        "namespace" : "System",
        "class" : "Request",
        "instance" : "InspectME",
        "message" : "create"
      },
      "parameters" : {
        "vm_name" : "test_1",
        "var2" : "yyyyy",
        "var3" : 1024,
        "var4" : true,
```

```
        "var5" : "last value"
      },
      "requester" :  {
        "user_name" : "jdoe",
        "auto_approve" : true
      }
    },
    {
      "uri_parts" :  {
        "namespace" : "System",
        "class" : "Request",
        "instance" : "InspectME",
        "message" : "create"
      },
      "parameters" : {
        "vm_name" : "test_2",
        "vm_memory" : 1024,
        "memory_limit" : 16384
      },
      "requester" :  {
        "auto_approve" : true
      }
    },
    {
      "uri_parts" :  {
        "namespace" : "System",
        "class" : "Request",
        "instance" : "InspectME",
        "message" : "create"
      },
      "parameters" : {
        "vm_name" : "test_3",
        "vm_memory" : 2048,
        "memory_limit" : 16384
      },
      "requester" :  {
        "auto_approve" : true
      }
    },
    {
      "uri_parts" :  {
        "namespace" : "System",
        "class" : "Request",
        "instance" : "InspectME",
        "message" : "create"
      },
      "parameters" : {
        "vm_name" : "test_4",
        "vm_memory" : 4096,
        "memory_limit" : 16384
      },
      "requester" :  {
        "auto_approve" : true
      }
```

```
    }
  ]
}
```

3.4.2.2. Response:

```
{
  "results": [
    {
      "id": 14,
      "description": "Automation Task",
      "approval_state": "approved",
      "type": "AutomationRequest",
      "created_on": "2015-04-16T21:59:42Z",
      "updated_on": "2015-04-16T21:59:42Z",
      "requester_id": 13,
      "requester_name": "aab",
      "request_type": "automation",
      "request_state": "pending",
      "status": "Ok",
      "options": {
        "message": "create",
        "namespace": "System",
        "class_name": "Request",
        "instance_name": "InspectME",
        "user_id": 13,
        "attrs": {
          "vm_name": "test_1",
          "var2": "yyyyy",
          "var3": 1024,
          "var4": true,
          "var5": "last value",
          "userid": "aab"
        }
      },
      "userid": "aab"
    },
    {
      "id": 15,
      "description": "Automation Task",
      "approval_state": "approved",
      "type": "AutomationRequest",
      "created_on": "2015-04-16T21:59:42Z",
      "updated_on": "2015-04-16T21:59:42Z",
      "requester_id": 1,
      "requester_name": "Administrator",
      "request_type": "automation",
      "request_state": "pending",
      "status": "Ok",
      "options": {
        "message": "create",
        "namespace": "System",
        "class_name": "Request",
        "instance_name": "InspectME",
        "user_id": 1,
```

```
        "attrs": {
          "vm_name": "test_2",
          "vm_memory": 1024,
          "memory_limit": 16384,
          "userid": "admin"
        }
      },
      "userid": "admin"
    },
    {
      "id": 16,
      "description": "Automation Task",
      "approval_state": "approved",
      "type": "AutomationRequest",
      "created_on": "2015-04-16T21:59:42Z",
      "updated_on": "2015-04-16T21:59:42Z",
      "requester_id": 1,
      "requester_name": "Administrator",
      "request_type": "automation",
      "request_state": "pending",
      "status": "Ok",
      "options": {
        "message": "create",
        "namespace": "System",
        "class_name": "Request",
        "instance_name": "InspectME",
        "user_id": 1,
        "attrs": {
          "vm_name": "test_3",
          "vm_memory": 2048,
          "memory_limit": 16384,
          "userid": "admin"
        }
      },
      "userid": "admin"
    },
    {
      "id": 17,
      "description": "Automation Task",
      "approval_state": "approved",
      "type": "AutomationRequest",
      "created_on": "2015-04-16T21:59:42Z",
      "updated_on": "2015-04-16T21:59:42Z",
      "requester_id": 1,
      "requester_name": "Administrator",
      "request_type": "automation",
      "request_state": "pending",
      "status": "Ok",
      "options": {
        "message": "create",
        "namespace": "System",
        "class_name": "Request",
        "instance_name": "InspectME",
        "user_id": 1,
        "attrs": {
          "vm_name": "test_4",
```

```
          "vm_memory": 4096,
          "memory_limit": 16384,
          "userid": "admin"
        }
      },
      "userid": "admin"
    }
  ]
}
```

3.5. PROVISIONING REQUESTS

This section provides examples of how to interact with provisioning requests.

3.5.1. Triggering a Single Provision Request

With provisioning requests:

- **version** defaults to **`1.1`** if not specified.
- **user_name** defaults to the **`REST API`** authenticated user if not specified.

3.5.1.1. Request:

Provisioning requests are made available via the following entrypoint, either by specifying a **`create`** action or by posting the request directly to **`/api/provision_requests`**:

```
POST /api/provision_requests
```

```
{
  "version" : "1.1",
  "template_fields" : {
    "guid" : "afe6e8a0-89fd-11e3-b6ac-b8e85646e742"
  },
  "vm_fields" : {
    "number_of_cpus" : 1,
    "vm_name" : "aab_rest_vm1",
    "vm_memory" : "1024",
    "vlan" : "rhevm"
  },
  "requester" : {
    "user_name" : "jdoe",
    "owner_first_name" : "John",
    "owner_last_name" : "Doe",
    "owner_email" : "jdoe@sample.com",
    "auto_approve" : true
  },
  "tags" : {
    "network_location" : "Internal",
    "cc" : "001"
  },
  "additional_values" : {
    "request_id" : "1001"
  },
```

```
  "ems_custom_attributes" : { },
  "miq_custom_attributes" : { }
}
```

Optionally, the action-based request format is also supported:

3.5.1.2. Request:

```
POST /api/provision_requests
```

```
{
  "action" : "create",
  "resource" : {
    "version" : "1.1",
      "template_fields" : {
        "guid" : "afe6e8a0-89fd-11e3-b6ac-b8e85646e742"
      },
      "vm_fields" : {
        "number_of_cpus" : 1,
        "vm_name" : "aab_rest_vm1",
        "vm_memory" : "1024",
        "vlan" : "rhevm"
      },
      "requester" : {
        "user_name" : "jdoe",
        "owner_first_name" : "John",
        "owner_last_name" : "Doe",
        "owner_email" : "jdoe@sample.com",
        "auto_approve" : true
      },
      "tags" : {
        "network_location" : "Internal",
        "cc" : "001"
      },
      "additional_values" : {
        "request_id" : "1001"
      },
      "ems_custom_attributes" : { },
      "miq_custom_attributes" : { }
  }
}
```

3.5.1.3. Response:

```
{
  "results": [
    {
      "id": 18,
      "description": "Provision from [bd-clone-template] to
[aab_rest_vm1]",
      "approval_state": "pending_approval",
      "type": "MiqProvisionRequest",
      "created_on": "2015-05-08T17:42:55Z",
      "updated_on": "2015-05-08T17:42:55Z",
```

```
      "requester_id": 1,
      "requester_name": "Administrator",
      "request_type": "template",
      "request_state": "pending",
      "message": "VM Provisioning - Request Created",
      "status": "Ok",
      "options": {
        "use_pre_dialog": false,
        "request_type": "template",
        "miq_request_dialog_name":
"miq_provision_redhat_dialogs_template",
        "owner_first_name": "John",
        "owner_last_name": "Doe",
        "owner_email": "jdoe@sample.com",
        "vm_tags": [
          62,
          58
        ],
        "addr_mode": [
          "static",
          "Static"
        ],
        "placement_cluster_name": [
          null,
          null
        ],
        "cluster_filter": [
          null,
          null
        ],
        "placement_auto": [
          true,
          1
        ],
        "placement_dc_name": [
          null,
          null
        ],
        "number_of_vms": [
          1,
          "1"
        ],
        "src_vm_id": [
          1947,
          "bd-clone-template"
        ],
        "provision_type": [
          "native_clone",
          "Native Clone"
        ],
        "linked_clone": [
          null,
          null
        ],
        "vm_name": "aab_rest_vm1",
        "pxe_server_id": [
```

```
          null,
          null
        ],
        "schedule_type": [
          "immediately",
          "Immediately on Approval"
        ],
        "vm_auto_start": [
          true,
          1
        ],
        "schedule_time": "2015-05-09T13:42:54-04:00",
        "retirement": [
          0,
          "Indefinite"
        ],
        "retirement_warn": [
          604800,
          "1 Week"
        ],
        "stateless": [
          false,
          0
        ],
        "vlan": [
          "rhevm",
          "rhevm"
        ],
        "disk_format": [
          "default",
          "Default"
        ],
        "number_of_sockets": [
          1,
          "1"
        ],
        "cores_per_socket": [
          1,
          "1"
        ],
        "vm_memory": [
          "1024",
          "1024"
        ],
        "network_adapters": [
          1,
          "1"
        ],
        "placement_host_name": [
          null,
          null
        ],
        "placement_ds_name": [
          null,
          null
        ],
```

```
        "src_vm_nics": [

        ],
        "src_vm_lans": [

        ],
        "customize_enabled": [
          "enabled"
        ],
        "src_ems_id": [
          105,
          "rhevm230"
        ],
        "auto_approve": false,
        "ws_values": {
          "request_id": "1001"
        },
        "ws_ems_custom_attributes": {
        },
        "ws_miq_custom_attributes": {
        }
      },
      "userid": "jdoe",
      "source_id": 1947,
      "source_type": "VmOrTemplate"
    }
  ]
}
```

3.5.2. Triggering Multiple Provision Requests

With provisioning requests:

- **version** defaults to **`1.1`** if not specified.
- **user_name** defaults to the **`REST API`** authenticated user if not specified.

3.5.2.1. Request:

```
POST /api/provision_requests
```

```
{
  "action" : "create",
  "resources" : [
    {
      "version" : "1.1",
      "template_fields" : { "guid" : "afe6e8a0-89fd-11e3-b6ac-
b8e85646e742" },
      "vm_fields" : {
        "vm_name" : "jdoe_rest_vm1",
        "number_of_cpus" : 1,
        "vm_memory" : "1024",
        "vlan" : "nic1"
      },
      "requester" : {
```

```
        "user_name" : "jdoe",
        "owner_first_name" : "John",
        "owner_last_name" : "Doe",
        "owner_email" : "jdoe@sample.com",
        "auto_approve" : true
      },
      "tags" : {
        "network_location" : "Internal",
        "cc" : "001"
      },
      "additional_values" : { "request_id" : "1001" },
      "ems_custom_attributes" : { },
      "miq_custom_attributes" : { }
    },
    {
      "template_fields" : { "guid" : "afe6e8a0-89fd-11e3-b6ac-
b8e85646e742" },
      "vm_fields" : {
        "vm_name" : "jdoe_rest_vm2",
        "number_of_cpus" : 1,
        "vm_memory" : "2048",
        "vlan" : "nic1"
      },
      "requester" : {
        "owner_first_name" : "John",
        "owner_last_name" : "Doe",
        "owner_email" : "jdoe@sample.com",
        "auto_approve" : true
      },
      "tags" : {
        "network_location" : "Internal",
        "cc" : "001"
      },
      "additional_values" : { "request_id" : "1002" }
    },
    {
      "template_fields" : { "guid" : "afe6e8a0-89fd-11e3-b6ac-
b8e85646e742" },
      "vm_fields" : {
        "vm_name" : "jdoe_rest_vm3",
        "number_of_cpus" : 1,
        "vm_memory" : "4096",
        "vlan" : "nic1"
      },
      "requester" : {
        "owner_first_name" : "John",
        "owner_last_name" : "Doe",
        "owner_email" : "jdoe@sample.com",
        "auto_approve" : true
      },
      "tags" : {
        "network_location" : "Internal",
        "cc" : "001"
      },
      "additional_values" : { "request_id" : "1003" }
```

```
    }
  ]
}
```

3.5.2.2. Response:

```
{
  "results": [
    {
      "id": 19,
      "description": "Provision from [bd-clone-template] to
[aab_rest_vm1]",
      "approval_state": "pending_approval",
      "type": "MiqProvisionRequest",
      "created_on": "2015-05-08T18:25:25Z",
      "updated_on": "2015-05-08T18:25:26Z",
      "requester_id": 1,
      "requester_name": "jdoe",
      "request_type": "template",
      "request_state": "pending",
      "message": "VM Provisioning - Request Created",
      "status": "Ok",
      "options": {
        "use_pre_dialog": false,
        "request_type": "template",
        "miq_request_dialog_name":
"miq_provision_redhat_dialogs_template",
        "owner_first_name": "John",
        "owner_last_name": "Doe",
        "owner_email": "jdoe@sample.com",
        "vm_tags": [
          62,
          58
        ],
        "addr_mode": [
          "static",
          "Static"
        ],
        "placement_cluster_name": [
          null,
          null
        ],
        "cluster_filter": [
          null,
          null
        ],
        "placement_auto": [
          true,
          1
        ],
        "placement_dc_name": [
          null,
          null
        ],
        "number_of_vms": [
```

```
        1,
        "1"
      ],
      "src_vm_id": [
        1947,
        "bd-clone-template"
      ],
      "provision_type": [
        "native_clone",
        "Native Clone"
      ],
      "linked_clone": [
        null,
        null
      ],
      "vm_name": "aab_rest_vm1",
      "pxe_server_id": [
        null,
        null
      ],
      "schedule_type": [
        "immediately",
        "Immediately on Approval"
      ],
      "vm_auto_start": [
        true,
        1
      ],
      "schedule_time": "2015-05-09T14:25:25-04:00",
      "retirement": [
        0,
        "Indefinite"
      ],
      "retirement_warn": [
        604800,
        "1 Week"
      ],
      "stateless": [
        false,
        0
      ],
      "vlan": [
        "rhevm",
        "rhevm"
      ],
      "disk_format": [
        "default",
        "Default"
      ],
      "number_of_sockets": [
        1,
        "1"
      ],
      "cores_per_socket": [
        1,
        "1"
```

```
        ],
        "vm_memory": [
          "1024",
          "1024"
        ],
        "network_adapters": [
          1,
          "1"
        ],
        "placement_host_name": [
          null,
          null
        ],
        "placement_ds_name": [
          null,
          null
        ],
        "src_vm_nics": [

        ],
        "src_vm_lans": [

        ],
        "customize_enabled": [
          "enabled"
        ],
        "src_ems_id": [
          105,
          "rhevm230"
        ],
        "auto_approve": false,
        "ws_values": {
          "request_id": "1001"
        },
        "ws_ems_custom_attributes": {
        },
        "ws_miq_custom_attributes": {
        }
      },
      "userid": "jdoe",
      "source_id": 1947,
      "source_type": "VmOrTemplate"
    },
    {
      "id": 20,
      "description": "Provision from [bd-clone-template] to
[aab_rest_vm2]",
      "approval_state": "pending_approval",
      "type": "MiqProvisionRequest",
      "created_on": "2015-05-08T18:25:28Z",
      "updated_on": "2015-05-08T18:25:29Z",
      "requester_id": 1,
      "requester_name": "jdoe",
      "request_type": "template",
      "request_state": "pending",
      "message": "VM Provisioning - Request Created",
```

```
      "status": "Ok",
      "options": {
        "use_pre_dialog": false,
        "request_type": "template",
        "miq_request_dialog_name":
"miq_provision_redhat_dialogs_template",
        "owner_first_name": "John",
        "owner_last_name": "Doe",
        "owner_email": "jdoe@sample.com",
        "vm_tags": [
          62,
          58
        ],
        "addr_mode": [
          "static",
          "Static"
        ],
        "placement_cluster_name": [
          null,
          null
        ],
        "cluster_filter": [
          null,
          null
        ],
        "placement_auto": [
          true,
          1
        ],
        "placement_dc_name": [
          null,
          null
        ],
        "number_of_vms": [
          1,
          "1"
        ],
        "src_vm_id": [
          1947,
          "bd-clone-template"
        ],
        "provision_type": [
          "native_clone",
          "Native Clone"
        ],
        "linked_clone": [
          null,
          null
        ],
        "vm_name": "aab_rest_vm2",
        "pxe_server_id": [
          null,
          null
        ],
        "schedule_type": [
          "immediately",
```

```
      "Immediately on Approval"
    ],
    "vm_auto_start": [
      true,
      1
    ],
    "schedule_time": "2015-05-09T14:25:28-04:00",
    "retirement": [
      0,
      "Indefinite"
    ],
    "retirement_warn": [
      604800,
      "1 Week"
    ],
    "stateless": [
      false,
      0
    ],
    "vlan": [
      "rhevm",
      "rhevm"
    ],
    "disk_format": [
      "default",
      "Default"
    ],
    "number_of_sockets": [
      1,
      "1"
    ],
    "cores_per_socket": [
      1,
      "1"
    ],
    "vm_memory": [
      "1024",
      "1024"
    ],
    "network_adapters": [
      1,
      "1"
    ],
    "placement_host_name": [
      null,
      null
    ],
    "placement_ds_name": [
      null,
      null
    ],
    "src_vm_nics": [

    ],
    "src_vm_lans": [
```

```
        ],
        "customize_enabled": [
          "enabled"
        ],
        "src_ems_id": [
          105,
          "rhevm230"
        ],
        "auto_approve": false,
        "ws_values": {
          "request_id": "1001"
        },
        "ws_ems_custom_attributes": {
        },
        "ws_miq_custom_attributes": {
        }
      },
      "userid": "jdoe",
      "source_id": 1947,
      "source_type": "VmOrTemplate"
    },
    {
      "id": 21,
      "description": "Provision from [bd-clone-template] to
[aab_rest_vm3]",
      "approval_state": "pending_approval",
      "type": "MiqProvisionRequest",
      "created_on": "2015-05-08T18:25:32Z",
      "updated_on": "2015-05-08T18:25:32Z",
      "requester_id": 1,
      "requester_name": "jdoe",
      "request_type": "template",
      "request_state": "pending",
      "message": "VM Provisioning - Request Created",
      "status": "Ok",
      "options": {
        "use_pre_dialog": false,
        "request_type": "template",
        "miq_request_dialog_name":
"miq_provision_redhat_dialogs_template",
        "owner_first_name": "John",
        "owner_last_name": "Doe",
        "owner_email": "jdoe@sample.com",
        "vm_tags": [
          62,
          58
        ],
        "addr_mode": [
          "static",
          "Static"
        ],
        "placement_cluster_name": [
          null,
          null
        ],
        "cluster_filter": [
```

```
      null,
      null
    ],
    "placement_auto": [
      true,
      1
    ],
    "placement_dc_name": [
      null,
      null
    ],
    "number_of_vms": [
      1,
      "1"
    ],
    "src_vm_id": [
      1947,
      "bd-clone-template"
    ],
    "provision_type": [
      "native_clone",
      "Native Clone"
    ],
    "linked_clone": [
      null,
      null
    ],
    "vm_name": "aab_rest_vm3",
    "pxe_server_id": [
      null,
      null
    ],
    "schedule_type": [
      "immediately",
      "Immediately on Approval"
    ],
    "vm_auto_start": [
      true,
      1
    ],
    "schedule_time": "2015-05-09T14:25:31-04:00",
    "retirement": [
      0,
      "Indefinite"
    ],
    "retirement_warn": [
      604800,
      "1 Week"
    ],
    "stateless": [
      false,
      0
    ],
    "vlan": [
      "rhevm",
      "rhevm"
```

```
        ],
        "disk_format": [
          "default",
          "Default"
        ],
        "number_of_sockets": [
          1,
          "1"
        ],
        "cores_per_socket": [
          1,
          "1"
        ],
        "vm_memory": [
          "1024",
          "1024"
        ],
        "network_adapters": [
          1,
          "1"
        ],
        "placement_host_name": [
          null,
          null
        ],
        "placement_ds_name": [
          null,
          null
        ],
        "src_vm_nics": [

        ],
        "src_vm_lans": [

        ],
        "customize_enabled": [
          "enabled"
        ],
        "src_ems_id": [
          105,
          "rhevm230"
        ],
        "auto_approve": false,
        "ws_values": {
          "request_id": "1001"
        },
        "ws_ems_custom_attributes": {
        },
        "ws_miq_custom_attributes": {
        }
      },
      "userid": "jdoe",
      "source_id": 1947,
      "source_type": "VmOrTemplate"
```

```
    }
  ]
}
```

3.5.3. Monitoring Request

Once a provisioning request is created, the response result will include the queryable provision request itself, for example: **`/api/provision_requests/:id`**

3.5.3.1. Response:

```
{
  "results": [
    {
      "id": 3068,
      "description": "Provision from [template1] to [###]",
      "approval_state": "pending_approval",
      "type": "MiqProvisionRequest",
      "created_on": "2015-04-14T17:36:30Z",
      "updated_on": "2015-04-14T17:36:30Z",
      "requester_id": 88913,
      "requester_name": "API User",
      "request_type": "template",
      "request_state": "pending",
      "message": "VM Provisioning - Request Created",
      "status": "Ok"
      "options": {
        "use_pre_dialog": false,
        "request_type": "template",
        "miq_request_dialog_name": "miq_provision_dialogs",
        "src_vm_id": [
          109996,
          "template1"
        ],
        "src_vm_nics": [],
        "src_vm_lans": [],
        "src_ems_id": [
          59136,
          "ems_0000000000002"
        ],
        "placement_auto": [
          true,
          1
        ],
        "vm_tags": [],
        "ws_values": {
        },
        "ws_ems_custom_attributes": {
        },
        "ws_miq_custom_attributes": {
        },
        "tags": {
        }
      },
      "userid": "admin",
```

```
      "source_id": 109996,
      "source_type": "VmOrTemplate"
    }
  ]
}
```

In the above example, the request can be queried periodically until the **request_state** reaches the **finished** state with:

```
GET /api/provision_requests/3068
```

NOTE

The **requests** tasks of a provisioning request can also be queried by expanding the **request_tasks** subcollection as follows:

```
GET /api/provision_requests/:id?expand=request_tasks
```

An alias **tasks** is also defined for the above subcollection:

```
GET /api/provision_requests/:id?expand=tasks
```

For a list of available attributes, see the Provisioning Request Attributes section.

3.5.4. Placement of Environmental Variables in Provisioning Requests

Pass environment values directly through the **vm_fields** attribute group of a provisioning request by first adding **"placement_auto":"false"** to the hash.

NOTE

Once **"placement_auto:"false"** has been added, you must pass values for all the required fields on the Environment tab.

The example request displays how the **vm_fields** attribute group should appear when passing environment values.

3.5.4.1. Request:

Provisioning requests are made available via the following entrypoint, either by specifying a create action or by posting the request directly to /api/provision_requests:

```
POST /api/provision_requests
```

```
"vm_fields" : {
  "vm_name" : "aab_rest_vm1",
  "placement_auto": "false",
  "placement_availability_zone": "2",
  "cloud_network": "2",
  "cloud_subnet": "3",
```

```
  "security_groups": "64",
  "instance_type": "2",
},
```

3.6. PROVIDERS

This section provides examples of how to interact with providers.

3.6.1. Creating a Provider

3.6.1.1. Request:

```
POST /api/providers
```

```
{
  "type"       : "ManageIQ::Providers::Redhat::InfraManager",
  "name"       : "rhevm101",
  "hostname"   : "rhevm101",
  "ipaddress" : "100.200.300.101",
  "credentials" : {
    "userid"    : "admin_account",
    "password"  : "admin_password"
  }
}
```

3.6.1.2. Response:

```
{
  "results": [
    {
      "id": 105,
      "name": "rhevm101",
      "hostname": "rhevm101",
      "ipaddress": "100.200.300.101",
      "created_on": "2015-05-05T15:47:41Z",
      "updated_on": "2015-05-05T15:47:41Z",
      "guid": "10360312-f33e-11e4-86c7-b8e85646e742",
      "zone_id": 1,
      "type": "ManageIQ::Providers::Redhat::InfraManager"
    }
  ]
}
```

3.6.2. Creating a Provider with Compound Credentials

3.6.2.1. Request:

```
POST /api/providers
```

```
{
  "type"       : "ManageIQ::Providers::Redhat::InfraManager",
```

```
  "name"      : "rhevm102",
  "hostname"  : "rhevm102",
  "ipaddress" : "100.200.300.102",
  "credentials" : [
    {
      "userid"    : "default_userid",
      "password"  : "default_password"
    },
    {
      "userid"    : "metrics_userid",
      "password"  : "metrics_password",
      "auth_type" : "metrics"
    }
  ]
}
```

3.6.2.2. Response:

```
{
  "results": [
    {
      "id": 106,
      "name": "rhevm102",
      "hostname": "rhevm102",
      "ipaddress": "100.200.300.102",
      "created_on": "2015-05-05T15:57:44Z",
      "updated_on": "2015-05-05T15:57:44Z",
      "guid": "acbd610e-f3f6-11e4-aaba-b8e85646e742",
      "zone_id": 1,
      "type": "ManageIQ::Providers::Redhat::InfraManager"
    }
  ]
}
```

3.6.3. Refreshing a Provider

3.6.3.1. Request:

```
POST /api/providers/105
```

```
{
  "action" : "refresh"
}
```

3.6.3.2. Response:

```
{
  "success": true,
  "message": "Provider id:105 name:'rhevm105' refreshing",
  "href": "https://hostname/api/providers/105"
}
```

3.6.4. Updating a Provider

3.6.4.1. Request:

```
POST /api/providers/106
```

```
{
  "action"    : "edit",
  "ipaddress" : "100.200.300.112",
  "credentials" : [
    {
      "userid"    : "updated_metrics_userid",
      "password"  : "updated_metrics_password",
      "auth_type" : "metrics"
    }
  ]
}
```

3.6.4.2. Response:

```
{
  "href": "https://hostname/api/providers/106",
  "id": 106,
  "name": "rhevm102",
  "hostname": "rhevm102",
  "ipaddress": "100.200.300.112",
  "created_on": "2015-05-06T13:49:11Z",
  "updated_on": "2015-05-06T13:53:06Z",
  "guid": "acbd610e-f3f6-11e4-aaba-b8e85646e742",
  "zone_id": 1,
  "type": "ManageIQ::Providers::Redhat::InfraManager"
}
```

3.6.5. Deleting a Provider

3.6.5.1. Deleting a Single Provider

3.6.6. Request:

```
DELETE /api/provider/105
```

Or via the delete action as follows:

```
POST /api/provider/105
```

```
{
  "action" : "delete"
}
```

3.6.7. Response:

```
{
  "success": true,
  "message": "Provider id:106 name:'rhevm102' deleting",
  "task_id": 625,
  "task_href": "https://hostname/api/tasks/625",
  "href": "https://hostname/api/providers/106"
}
```

NOTE

Delete actions are done asynchronously as it can take a while to complete. The delete task can be queried as follows:

3.6.8. Request:

```
GET /api/tasks/625
```

3.6.9. Response:

```
{
  "href": "https://hostname/api/tasks/625",
  "id": 625,
  "name": "Provider id:106 name:'rhevm102' deleting",
  "state": "Finished",
  "status": "Ok",
  "message": "Task completed successfully",
  "userid": "admin",
  "created_on": "2015-05-06T14:02:26Z",
  "updated_on": "2015-05-06T14:02:32Z"
}
```

3.6.9.1. Deleting Multiple Providers

3.6.10. Request:

```
POST /api/providers
```

```
{
  "action" : "delete",
  "resources" : [
    { "href" : "https://hostname/api/providers/107" },
    { "href" : "https://hostname/api/providers/108" }
  ]
}
```

3.6.11. Response:

```
{
  "results": [
    {
```

```
      "success": true,
      "message": "Provider id:107 name:'rhevm102' deleting",
      "task_id": 626,
      "task_href": "https://hostname/api/tasks/626",
      "href": "https://hostname/api/providers/107"
    },
    {
      "success": true,
      "message": "Provider id:108 name:'rhevm103' deleting",
      "task_id": 627,
      "task_href": "https://hostname/api/tasks/627",
      "href": "https://hostname/api/providers/108"
    }
  ]
}
```

3.7. SERVICES

This section provides examples of how to interact with services.

3.7.1. Editing a Service

3.7.1.1. Request:

```
POST /api/services/101
```

```
{
  "action" : "edit",
  "resource" : {
    "name" : "service_101",
    "description" : "This is an updated description for service 101"
  }
}
```

3.7.1.2. Response:

```
{
  "href": "https://hostname/api/services/101",
  "id": 101,
  "name": "service_101",
  "description": "This is an updated description for the service 101",
  "guid": "4a8f96de-a1a6-11e4-9f8d-b8e85646e742",
  "options": {
  },
  "created_at": "2015-01-21T19:47:11Z",
  "updated_at": "2015-04-16T22:17:15Z"
}
```

3.7.2. Editing Multiple Services

3.7.2.1. Request:

```
POST /api/services
```

```
{
  "action" : "edit",
  "resources" : [
    {
      "href" : "https://hostname/api/services/81",
      "description" : "This is an updated description for service 81"
    },
    {
      "href" : "https://hostname/api/services/82",
      "description" : "This is an updated description for service 82"
    }
  ]
}
```

3.7.2.2. Response:

```
{
  "results": [
    {
      "id": 81,
      "name": "api_gen_A_81",
      "description": "This is an updated description for service 81",
      "guid": "eb6daaf8-7c9b-11e4-8a3a-b8e85646e742",
      "options": {
      },
      "created_at": "2014-12-05T16:29:43Z",
      "updated_at": "2015-04-16T22:43:37Z"
    },
    {
      "id": 82,
      "name": "api_gen_A_82",
      "description": "This is an updated description for service 82",
      "guid": "eb6de400-7c9b-11e4-8a3a-b8e85646e742",
      "options": {
      },
      "created_at": "2014-12-05T16:29:43Z",
      "updated_at": "2015-04-16T22:43:37Z"
    }
  ]
}
```

3.7.3. Editing a Resource with the PATCH Method

Supported attribute actions for PATCH include add, edit and remove.

3.7.3.1. Request:

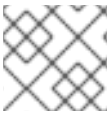
```
PATCH /api/services/90
```

```
[
  { "action" : "edit", "path" : "name", "value" : "updated_service_90" },
```

```
  { "action" : "remove", "path" : "description"}
]
```

3.7.3.2. Response:

```
{
  "href": "https://hostname/api/services/90",
  "id": 90,
  "name": "updated_service_90",
  "guid": "eb6fc61c-7c9b-11e4-8a3a-b8e85646e742",
  "options": {
  },
  "created_at": "2014-12-05T16:29:43Z",
  "updated_at": "2015-04-16T22:38:57Z"
}
```



NOTE

Note that the description attribute is no longer defined for this service.

3.7.4. Editing a Service with the PUT Method

3.7.4.1. Request:

```
PUT /api/services/90
```

```
{
  "name" : "new_service_90",
  "description" : "This is a new description for service 90"
}
```

3.7.4.2. Response:

```
{
  "href": "https://hostname/api/services/90",
  "id": 90,
  "name": "new_service_90",
  "description": "This is a new description for service 90",
  "guid": "eb6fc61c-7c9b-11e4-8a3a-b8e85646e742",
  "options": {
  },
  "created_at": "2014-12-05T16:29:43Z",
  "updated_at": "2015-04-16T22:41:37Z"
}
```

3.7.5. Retiring a Service Immediately

3.7.5.1. Request:

```
POST /api/services
```

```
{
  "action" : "retire",
  "resource" : { "href" : "https://hostname/api/services/35" }
}
```

3.7.5.2. Response:

```
{
  "results" : [
    {
      "href": "https://hostname/api/services/95",
      "id": 95,
      "name": "sample_service_95",
      "description": "Description for sample_service_95",
      "guid": "eb713538-7c9b-11e4-8a3a-b8e85646e742",
      "options": {
      },
      "created_at": "2014-12-05T16:29:43Z",
      "updated_at": "2015-05-08T19:32:00Z"
    }
  ]
}
```

Alternatively, this can be done by targeting the service directly:

```
POST /api/services/95
```

```
{
  "action" : "retire"
}
```

3.7.5.3. Response:

```
{
  "href": "https://hostname/api/services/95",
  "id": 95,
  "name": "sample_service_95",
  "description": "Description for sample_service_95",
  "guid": "eb713538-7c9b-11e4-8a3a-b8e85646e742",
  "options": {
  },
  "created_at": "2014-12-05T16:29:43Z",
  "updated_at": "2015-05-08T19:32:00Z"
}
```

3.7.6. Retiring a Service at a Future Time

3.7.6.1. Request:

```
POST /api/services/93
```

```
{
  "action" : "retire",
  "resource" : { "date" : "10/31/2015", "warn" : "7"  }
}
```

3.7.6.2. Response:

```
{
  "href": "https://hostname/api/services/93",
  "id": 93,
  "name": "sample_service_93",
  "description": "Description for sample_service_93",
  "guid": "eb709e02-7c9b-11e4-8a3a-b8e85646e742",
  "options": {
  },
  "created_at": "2014-12-05T16:29:43Z",
  "updated_at": "2015-05-08T19:40:19Z",
  "retired": false,
  "retires_on": "2015-10-30",
  "retirement_warn": 7
}
```

3.7.7. Retiring Multiple Services

3.7.7.1. Request:

```
POST /api/services
```

```
{
  "action" : "retire",
  "resources" : [
      { "href" : "https://hostname/api/services/100" },
      { "href" : "https://hostname/api/services/101", "date" :
"11/01/2015", "warn" : "4" },
      { "href" : "https://hostname/api/services/102", "date" :
"11/02/2015", "warn" : "4" }
  ]
}
```

3.7.7.2. Response:

```
{
  "results": [
    {
      "id": 100,
      "name": "cloud_service_100",
      "description": "Description for cloud_service_100",
      "guid": "eb725f94-7c9b-11e4-8a3a-b8e85646e742",
      "options": {
      },
      "created_at": "2014-12-05T16:29:43Z",
      "updated_at": "2015-05-08T19:46:11Z"
```

```
    },
    {
      "id": 101,
      "name": "cloud_service_101",
      "description": "Description for cloud_service_101",
      "guid": "4a8f96de-a1a6-11e4-9f8d-b8e85646e742",
      "options": {
      },
      "created_at": "2015-01-21T19:47:11Z",
      "updated_at": "2015-05-08T19:46:19Z",
      "retired": false,
      "retires_on": "2015-11-01",
      "retirement_warn": 4
    },
    {
      "id": 102,
      "name": "cloud_service_102",
      "description": "Description for cloud_service_102",
      "guid": "e2da0cb0-e47e-11e4-a47f-b8e85646e742",
      "options": {
      },
      "created_at": "2015-04-16T21:23:55Z",
      "updated_at": "2015-05-08T19:46:19Z",
      "retired": false,
      "retires_on": "2015-11-02",
      "retirement_warn": 3
    }
  ]
}
```


3.7.8. Deleting Services

3.7.8.1. Request:

```
POST /api/services
```

```
{
  "action" : "delete",
  "resources" : [
    { "href" : "https://hostname/api/services/97" },
    { "href" : "https://hostname/api/services/98" },
    { "href" : "https://hostname/api/services/99" }
  ]
}
```

3.7.8.2. Response:


```
{
  "results": [
    {
      "success": true,
      "message": "services id: 97 deleting",
      "href": "https://hostname/api/services/97"
```

```
    },
    {
      "success": true,
      "message": "services id: 98 deleting",
      "href": "https://hostname/api/services/98"
    },
    {
      "success": true,
      "message": "services id: 99 deleting",
      "href": "https://hostname/api/services/99"
    }
  ]
}
```

3.8. VIRTUAL MACHINES

This section provides examples of how to interact with virtual machines.

3.8.1. Scanning a Virtual Machine

3.8.1.1. Request:

```
POST /api/vms/1922
```

```
{
  "action": "scan"
}
```

3.8.1.2. Response:

```
{
  "success": true,
  "message": "VM id:1922 name:'aab_test_vm' scanning",
  "task_id": 618,
  "task_href": "https://hostname/api/tasks/618",
  "href": "https://hostname/api/vms/1922"
}
```

Optionally, to query the status of the scan:

3.8.1.3. Request:

```
GET /api/tasks/618
```

3.8.1.4. Response:

```
{
  "href": "https://hostname/api/tasks/618",
  "id": 618,
  "name": "VM id:1922 name:'aab_test_vm' scanning",
  "state": "Finished",
```

```
  "status": "Ok",
  "message": "Task completed successfully",
  "userid": "admin",
  "created_on": "2015-05-05T19:37:32Z",
  "updated_on": "2015-05-05T19:37:38Z"
}
```

3.8.2. Setting the Virtual Machine Owner

3.8.2.1. Request:

```
POST /api/vms/1921
```

```
{
  "action": "set_owner",
  "resource" : {
    "owner" : "admin"
  }
}
```

3.8.2.2. Response:

```
{
  "success": true,
  "message": "VM id:1921 name:'aab_demo_vm' setting owner to 'admin'",
  "href": "https://hostname/api/vms/1921"
}
```

3.8.3. Adding an Event to a Virtual Machine

3.8.3.1. Request:

```
POST /api/vms/1921
```

```
{
  "action": "add_event",
  "resource" : {
    "event_type" : "BadUserNameSessionEvent",
    "event_message" : "Cannot login user@test.domain"
  }
}
```

3.8.3.2. Response:

```
{
  "success": true,
  "message": "Adding Event type=BadUserNameSessionEvent message=Cannot
login user@test.domain",
  "href": "https://hostname/api/vms/1921"
}
```

3.8.4. Adding a Lifecycle Event to a Virtual Machine

3.8.4.1. Request:

```
POST /api/vms/1921
```

```
{
  "action" : "add_lifecycle_event",
  "resource" : {
    "event" : "event_name",
    "status" : "event_status",
    "message" : "Message about the event",
    "created_by" : "user_name"
  }
}
```

3.8.4.2. Response:

```
{
  "success": true,
  "message": "VM id:1921 name:'aab_demo_vm' adding lifecycle
event=event_name message=Message about the event",
  "href": "https://hostname/api/vms/1921"
}
```

3.8.5. Starting a Virtual Machine

3.8.5.1. Request:

```
POST /api/vms/1921
```

```
{
  "action": "start"
}
```

3.8.5.2. Response:

```
{
  "success": true,
  "message": "VM id:1921 name:'aab_demo_vm' starting",
  "task_id": 610,
  "task_href": "https://hostname/api/tasks/610",
  "href": "https://hostname/api/vms/1921"
}
```

3.8.6. Querying Task Progress

3.8.6.1. Request:

```
GET /api/tasks/620
```

3.8.6.2. Response:

```
{
  "href": "https://hostname/api/tasks/610",
  "id": 610,
  "name": "VM id:1921 name:'aab_demo_vm' starting",
  "state": "Queued",
  "status": "Ok",
  "message": "Queued the action: [VM id:1921 name:'aab_demo_vm' starting]
being run for user: [admin]",
  "userid": "admin",
  "created_on": "2015-05-05T15:58:08Z",
  "updated_on": "2015-05-05T15:58:08Z"
}
```

3.8.7. Stopping a Virtual Machine

3.8.7.1. Request:

```
POST /api/vms/1921
```

```
{
  "action": "stop"
}
```

3.8.7.2. Response:

```
{
  "success": true,
  "message": "VM id:1921 name:'aab_demo_vm' stopping",
  "task_id": 619,
  "task_href": "https://hostname/api/tasks/619",
  "href": "https://hostname/api/vms/1921"
}
```

3.8.8. Suspending a Virtual Machine

3.8.8.1. Request:

```
POST /api/vms/1921
```

```
{
  "action": "suspend"
}
```

3.8.8.2. Response:

```
{
  "success": true,
  "message": "VM id:1921 name:'aab_demo_vm' suspending",
  "task_id": 620,
  "task_href": "https://hostname/api/tasks/620",
  "href": "https://hostname/api/vms/1921"
}
```

3.8.9. Deleting Virtual Machines

3.8.9.1. Deleting a Single Virtual Machine

3.8.10. Request:

```
DELETE /api/vms/334
```

On success, the virtual machine targeted for deletion asynchronously and no response content with an HTTP status code of 204 are returned.

3.8.10.1. Deleting Multiple Virtual Machines

3.8.11. Request:

```
DELETE /api/vms
```

```
{
  "action" : "delete",
  "resources" : [
    { "href" : "https://hostname/api/vms/348" },
    { "href" : "https://hostname/api/vms/349" },
    { "href" : "https://hostname/api/vms/3" }
  ]
}
```

3.8.12. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "VM id:348 name:'aab-temp1' deleting",
      "task_id": 616,
      "task_href": "https://hostname/api/tasks/616",
      "href": "https://hostname/api/vms/348"
    },
    {
      "success": true,
      "message": "VM id:349 name:'aab-temp2' deleting",
      "task_id": 617,
      "task_href": "https://hostname/api/tasks/617",
      "href": "https://hostname/api/vms/349"
```

```
    }
  ]
}
```

Optionally, monitor the asynchronous virtual machine deletion by accessing the related task as follows:

3.8.13. Request:

```
GET /api/tasks/616
```

3.8.14. Response:

```
{
  "href": "https://hostname/api/tasks/616",
  "id": 616,
  "name": "VM id:348 name:'aab-temp1' deleting",
  "state": "Finished",
  "status": "Ok",
  "message": "Task completed successfully",
  "userid": "admin",
  "created_on": "2015-05-05T19:33:35Z",
  "updated_on": "2015-05-05T19:33:40Z"
}
```

3.9. SERVICE TEMPLATES

This section provides examples of how to interact with service templates.

3.9.1. Creating a Service Template

Create service templates (catalog items) via a POST method to the **/api/service_templates** collection, which can then be assigned to service catalogs.

3.9.1.1. Request:

```
POST /api/service_templates
```

```
{
  "name" : "Atomic Service Template",
  "service_type" : "atomic",
  "prov_type"    : "amazon",
  "display"      : "false",
  "config_info"  : {
    "miq_request_dialog_name" : "Dialog_Name",
    "placement_auto"          : [true, 1],
    "number_of_vms"           : [1, "1"],
    "src_vm_id"               : [11, "test_vm"],
    "vm_name"                 : "AtomicVMName",
    "schedule_type"           : ["immediately", "Immediately on
Approval"],
    "instance_type"           : [21, "instance_flavor"],
    "src_ems_id"              : [5, "test_provider"],
```

```
    "provision"               : {
      "fqname"    : "/Sample/System/ProvisionEndpoint",
      "dialog_id" : "21"
    },
    "retirement"              : {
      "fqname"    : "/Sample/System/RetirementEndpoint",
      "dialog_id" : "22"
    }
  }
}
```

3.9.1.2. Response:

```
{
  "results": [
    {
      "href": "http://localhost:3000/api/service_templates/4",
      "id": "4",
      "name": "Example",
      "description": null,
      "guid": "db7c8ad5-27b3-4c7b-9fb2-945836b5d6f6",
      "type": null,
      "service_template_id": null,
      "options": {
        "config_info": {
          "miq_request_dialog_name":
"miq_provision_openstack_dialogs_template",
          "placement_auto": [
            true,
            1
          ],
          "number_of_vms": [
            1,
            "1"
          ],
          "src_vm_id": [
            99000000000001,
            "cirros"
          ],
          "vm_name": "AtomicVMName",
          "schedule_type": [
            "immediately",
            "Immediately on Approval"
          ],
          "instance_type": [
            99000000000001,
            "m1.tiny: 1 CPUs, 512 MB RAM, 1 GB Root Disk"
          ],
          "src_ems_id": [
            99000000000003,
            "OSP 12"
          ],
          "provision": {
            "dialog_id": "99000000000002",
            "fqname":
```

```
"/ManageIQ/Service/Provisioning/StateMachines/ServiceProvision_Template/Ca
talogItemInitialization"
          },
          "retirement": {
            "dialog_id": "99000000000002",
            "fqname":
"/ManageIQ/Service/Retirement/StateMachines/ServiceRetirement/Default"
          }
        }
      },
      "created_at": "2018-11-19T18:12:43Z",
      "updated_at": "2018-11-19T18:12:43Z",
      "display": true,
      "evm_owner_id": null,
      "miq_group_id": "2",
      "service_type": "atomic",
      "prov_type": "openstack",
      "provision_cost": null,
      "service_template_catalog_id": null,
      "long_description": null,
      "tenant_id": "1",
      "generic_subtype": null,
      "deleted_on": null,
      "internal": false
    }
  ]
}
```

The service templates can now be assigned to service catalogs. See Section 3.2.3, “Assigning Service Templates to Service Catalogs”.

3.9.2. Editing a Service Template

3.9.2.1. Request:

```
POST /api/service_templates/2
```

```
{
  "action" : "edit",
  "resource" : {
    "name" : "updated_svc_template_02",
    "description" : "This is an updated description for service template
02"
  }
}
```

3.9.2.2. Response:

```
{
  "href": "https://hostname/api/service_templates/2",
  "id": 2,
  "name": "updated_svc_template_02",
  "description": "This is an updated description for service template 02",
  "guid": "6f7918b4-d6e7-11e4-9837-b8e85646e742",
```

```
  "options": {
  },
  "created_at": "2015-03-30T14:17:02Z",
  "updated_at": "2015-04-16T22:30:02Z",
  "service_type": "unknown",
  "service_template_catalog_id": 6
}
```

3.9.3. Editing Multiple Service Templates

3.9.3.1. Request:

```
POST /api/service_templates
```

```
{
  "action" : "edit",
  "resources" : [
    {
      "href" : "https://hostname/api/service_templates/1",
      "description" : "This is an updated description for the first sample
service template"
    },
    {
      "href" : "https://hostname/api/service_templates/2",
      "description" : "This is an updated description for the second
sample service template"
    }
  ]
}
```

3.9.3.2. Response:

```
{
  "results": [
    {
      "id": 1,
      "name": "template1",
      "description": "This is an updated description for the first sample
service template",
      "guid": "6a6fdf7e-d6e7-11e4-9837-b8e85646e742",
      "options": {
      },
      "created_at": "2015-03-30T14:16:53Z",
      "updated_at": "2015-04-16T22:33:09Z",
      "service_type": "unknown",
      "service_template_catalog_id": 3
    },
    {
      "id": 2,
      "name": "updated_svc_template_02",
      "description": "This is an updated description for the second sample
service template",
      "guid": "6f7918b4-d6e7-11e4-9837-b8e85646e742",
```

```
      "options": {
      },
      "created_at": "2015-03-30T14:17:02Z",
      "updated_at": "2015-04-16T22:33:09Z",
      "service_type": "unknown",
      "service_template_catalog_id": 6
    }
  ]
}
```

3.9.4. Deleting Multiple Service Templates

3.9.4.1. Request:

```
POST /api/service_templates
```

```
{
  "action" : "delete",
  "resources" : [
    { "href" : "https://hostname/api/service_templates/4" },
    { "href" : "https://hostname/api/service_templates/5" }
  ]
}
```

3.9.4.2. Response:

```
{
  "results": [
    {
      "success": true,
      "message": "service_templates id: 4 deleting",
      "href": "https://hostname/api/service_templates/4"
    },
    {
      "success": true,
      "message": "service_templates id: 5 deleting",
      "href": "https://hostname/api/service_templates/5"
    }
  ]
}
```