

HP Virtualization Performance Viewer

Software Version: 2.10
Linux operating system

HP vPV API Reference Guide

Document Release Date: February 2015
Software Release Date: December 2014



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Chapter 1: Overview

HP Virtualization Performance Viewer (HP vPV) Representational State Transfer (REST) Application Programming Interfaces (APIs) provide a REST based interface to get Virtual Machine (VM) placement suggestions and optimization recommendations for your virtualized environment.

The VM placement suggestions provide the most suitable cluster and datastore in which the VM can be placed based on the Days To Capacity¹ for all the container entities. The optimization recommendation APIs provide information on VM sizing and datastore sizing. These recommendations can be used to automate reclamation of resources not being utilized, for example datastore space reclamation and for right sizing of VMs.

This document provides details about the REST APIs resource model schema and JavaScript Object Notation (JSON) examples.

HP vPV provides the following two set of REST APIs:

- [REST API for Placement](#)
- [REST APIs for Optimization Recommendations](#)

¹the number of days in which the entity reaches the maximum capacity

Chapter 2: Using REST API for Placement

The HP vPV REST API for Placement can be used by applications to get placement suggestions from HP vPV whenever a new VM is created. The REST API for Placement provides placement suggestions for VMs in the VMware domain only.

The REST API takes VM's specification, container's specification, and storage specification (optional) as input and provides suggestions on placing a VM in the most suitable cluster and datastore as an output. The REST API provides placement suggestions only if all the requested VMs can be placed in the container entities.

Resource Information

Response formats	JSON
Request Header requirements	Content-Type: application/json Authorization: Basic <Base 64 encoded username:password> (optional, required only when LDAP is enabled)
Supported request methods	POST

Resource URL

`https://<IP address or host name>:<port number>/PV/api/v1/placement`

In this instance,

- IP address or host name is the IP address or host name of the HP vPV server.
- port number is the port number of the HP vPV server. The default port number of HP vPV server is 8444.

POST Parameters

Following is a representation of REST API request body:

```

  ▾ Request Body [2]
    outputFormat : flatlist → Optional input parameter
                               for detailed list output.
    ▾ vmSpecifications[n] *
      ▶ 0 {8}
        numVM : 5
        numCPU : 2
        memSizeGB : 2
        diskSizeGB : 10
        expectedCPUUtil : 80
        expectedMemUtil : 80
        startDayFromToday : 1
        endDayFromToday : 90
      ▶ 1 {8}
        .
        .
      ▶ n {8}
    ▾ containerSpecifications [m] *
      ▶ 0 {3}
        virtType : VMWARE
        type : VCENTER
        vcenterName : 16.184.46.174
      ▶ 1 {3}
        .
        .
      ▶ m {3}
    ▾ storageSpecifications [x] *
      ▾ 0 {4}
        vcenterName : iwfvm01029.hpswlab.s.adapps.hp.com
        datacenterName : ispi_qa_DC_1029
        clusterName : ispi_qa_CLUSTER_1029
        datastoreName : ovpesx9:storage1

* n is the number of VM specifications.
* m is the number of container specifications.
* x is the number of storage specifications.
* storageSpecifications is optional.

```


The request body consists of the following objects:

- **outputFormat : flatlist:** This is an optional input parameter. It is required when you need the placement output in the form of a detailed list. If you do not specify any parameter, the output appears in form of a three-dimensional matrix.
- **vmSpecifications:** vmSpecifications is an array of JSON objects. The objects are used to specify the configurations of VMs to be placed. It has the following parameters:

Parameter	Description
numVM (<i>optional</i>)	Number of VMs of a specific configuration that are to be added. The default value is 1.
numCPU (<i>optional</i>)	Number of CPUs in each VM. The default value is 1.
memSizeGB	Memory size of each VM (in GigaBytes)
diskSizeGB	Disk size of each VM (in GigaBytes)
expectedCPUUtil (<i>optional</i>)	Expected CPU usage for a VM (in percentage). The default value is 100.
expectedMemUtil (<i>optional</i>)	Expected Memory usage for a VM (in percentage). The default value is 100.
startDayFromToday (<i>optional</i>)	Number of days from the current date on which you would like to create the VM. The default value is 1. For example, if the value is 5, the placement suggestions would be given considering that the VM has to be placed five days after the current date.
endDayFromToday (<i>optional</i>)	Number of days from the current date till which the VM would be active. The default value is 90. For example, if the value is 20, the placement suggestions would be given considering that the VM would remain active for 20 days from the current date.

- **containerSpecifications:** containerSpecifications is an array of JSON objects. The objects are used to specify the container configurations in which the VMs can be placed. It has the following parameters:

Parameter	Description
virtType	Type of the virtualized environment. Currently, placement suggestions are supported only on VMware virtualized environment. Hence, the value should be VMWARE.

Parameter	Description
type	Type of container. You can specify type as VCENTER, DATACENTER, or CLUSTER. <ul style="list-style-type: none"> If the type is specified as VCENTER, the parameter vcenterName is mandatory. If the type is specified as DATACENTER, the parameters vcenterName and datacenterName are mandatory. If the type is specified as CLUSTER, the parameters vcenterName, datacenterName, and clusterName are mandatory.
vcenterName	Name of the vCenter
datacenterName	Name of the Datacenter
clusterName	Name of the cluster

- storageSpecifications**(*optional*): storageSpecifications is an array of JSON objects. The objects are used to specify the datastores in which the VMs can be placed. If you do not specify this parameter, the placement suggestions are given considering all the datastores in the vCenter. It has the following parameters.

Parameter	Description
vcenterName	Name of the vCenter. It should be one of the vCenter names specified in the containerSpecifications.
datacenterName	Name of the Datacenter.
clusterName	Name of the cluster.
datastoreName	Name of the datastore.

Custom Error Codes

If the REST API for Placement is unable to provide placement suggestions, it returns the following custom error codes:

Error Code	Error Description
512	Unable to provide placement suggestions as none of the available clusters and storage meet the input specifications.
513	Unable to provide placement suggestions due to lack of forecast information.
514	Unable to provide placement suggestions as there are not enough resources available to place the requested VMs.

Sample API

URL

```
https://<IP address or host name>:<port number>/PV/api/v1/placement
```

Request Body

```
{  
  "vmSpecifications": [  
    {  
      "numVM": 5,  
      "numCPU": 2,  
      "memSizeGB": 2,  
      "diskSizeGB": 10,  
      "expectedCPUUtil": 80,  
      "expectedMemUtil": 80,  
      "startDayFromToday": 1,  
      "endDayFromToday": 90  
    },  
    {  
      "numVM": 4,  
      "numCPU": 4,  
      "memSizeGB": 8,  
      "diskSizeGB": 5,  
      "expectedCPUUtil": 20,  
      "expectedMemUtil": 40,  
      "startDayFromToday": 1,  
      "endDayFromToday": 90  
    }  
  ],  
  "containerSpecifications": [  
    {  
      "virtType": "VMWARE",
```

```
    "type": "VCENTER",
    "vcenterName": "iwfvm01029.hpswlab.s.adapps.hp.com ",
    "datacenterName" : "ispi_qa_DC_1029",
    "clusterName" : "ispi_qa_CLUSTER_1029"
  },
  {
    "virtType": "VMWARE",
    "type": "DATACENTER",
    "vcenterName": "16.184.45.94",
    "datacenterName" : "DataCenter1",
    "clusterName" : "PMi_Cluster"
  },
  {
    "virtType": "VMWARE",
    "type": "CLUSTER",
    "vcenterName": "iwfvm01030.hpswlab.s.adapps.hp.com ",
    "datacenterName" : "ispi_qa_DC_1030",
    "clusterName" : "ispi_qa_CLUSTER_1030"
  }
],
"storageSpecifications": [
  {
    "vcenterName" : "iwfvm01029.hpswlab.s.adapps.hp.com",
    "datacenterName" : "ispi_qa_DC_1029",
    "clusterName" : "ispi_qa_CLUSTER_1029",
    "datastoreName" : "ovpesx9:storage1"
  },
  {
    "vcenterName" : "16.184.45.94",
    "datacenterName" : "DataCenter1",
    "clusterName" : "PMi_Cluster",
    "datastoreName" : "datastore1_1"
  }
],
```

```
{
    "vcenterName" : " iwfv01030.hpsw1abs.adapps.hp.com ",
    "datacenterName" : " ispi_qa_DC_1030",
    "clusterName" : " ispi_qa_DC_1030",
    "datastoreName" : "storage3"
},
{
    "vcenterName" : " iwfv01030.hpsw1abs.adapps.hp.com ",
    "datacenterName" : " ispi_qa_DC_1030",
    "clusterName" : " ispi_qa_DC_1030",
    "datastoreName" : "storage4"
}
]
```

JSON Response

The JSON response is in the form of a detailed list if **"outputFormat" : "flatlist"** is specified in the request body. If you do not specify **"outputFormat" : "flatlist"** in the request body, the JSON response is in the form of three dimensional matrix. The type of JSON response received depends on the output format parameter included in the request body.

Following are the sample outputs of both the types of JSON Response:

- **Detailed list Output:**

The following JSON response appears if you specify **"outputFormat" : "flatlist"** in the request body:

```
"result" : [
{
"vmDetails" : {
    "numCPU":2,
    "memSizeGB":2,
    "diskSizeGB":10,
    "expectedCPUUtil":80,
    "expectedMemUtil":80,
    "startDayFromToday":1,
```

```
        "endDayFromToday":90
    },
    "containerDetails" : {
        "virtType":"VMWARE",
        "type":"CLUSTER",
        "vcenterName":"iwfvm01030.hpswlab.s.adapps.hp.com ",
        "datacenterName" : "ispi_qa_DC_1030",
        "clusterName" : "ispi_qa_CLUSTER_1030"
    },
    "storageDetails" : {
        "vcenterName" : " iwfvm01030.hpswlab.s.adapps.hp.com ",
        "datacenterName" : " ispi_qa_DC_1030",
        "clusterName" : " ispi_qa_DC_1030",
        "datastoreName" : "storage3"
    }
},
"vmDetails" : {
    "numCPU":2,
    "memSizeGB":2,
    "diskSizeGB":10,
    "expectedCPUUtil":80,
    "expectedMemUtil":80,
    "startDayFromToday":1,
    "endDayFromToday":90
},
"containerDetails" : {
    "virtType":"VMWARE",
    "type":"VCENTER",
    "vcenterName":"iwfvm01029.hpswlab.s.adapps.hp.com ",
    "datacenterName" : "ispi_qa_DC_1029",
    "clusterName" : "ispi_qa_CLUSTER_1029"
},
"storageDetails" : {
```

```
        "vcenterName" : "iwfvm01029.hpsw1abs.adapps.hp.com",
        "datacenterName" : "ispi_qa_DC_1029",
        "clusterName" : "ispi_qa_CLUSTER_1029",
        "datastoreName" : "ovpesx9:storage1"
    }
},
.....
}
],
"daysToCapacity" : 30,
"errorCode" : 0
}
```

• Three-Dimensional Matrix Output

The following JSON response appears if you do not specify **"outputFormat" : "flatlist"** in the request body:

```
{
    "numVMConfigDetails" : 2,
    "numContainerDetails" : 3,
    "numStorageDetails" : 4,
    "vmConfigDetailsList" : [
        {
            "numVM":5,
            "numCPU":2,
            "memSizeGB":2,
            "diskSizeGB":10,
            "expectedCPUUtil":80,
            "expectedMemUtil":80,
            "startDayFromToday":1,
            "endDayFromToday":90
        },
        {
            "numVM":4,
```

```
        "numCPU":4,  
        "memSizeGB":8,  
        "diskSizeGB":5,  
        "expectedCPUUtil":20,  
        "expectedMemUtil":40,  
        "startDayFromToday":1,  
        "endDayFromToday":90  
    } ],  
    "containerDetailsList" : [ {  
        "virtType" : "VMWARE",  
        "type" : "CLUSTER",  
        "vcenterName" : "iwfvm01029.hpswlab.s.adapps.hp.com",  
        "datacenterName" : "ispi_qa_DC_1029",  
        "clusterName" : "ispi_qa_CLUSTER_1029",  
        "daysToCapacity" : 30  
    },  
    {  
        "virtType" : "VMWARE",  
        "type" : "CLUSTER",  
        "vcenterName" : "16.184.45.94",  
        "datacenterName" : "DataCenter1",  
        "clusterName" : "PMi_Cluster",  
        "daysToCapacity" : 70  
    },  
    {  
        "virtType" : "VMWARE",  
        "type" : "CLUSTER",  
        "vcenterName" : " iwfvm01030.hpswlab.s.adapps.hp.com ",  
        "datacenterName" : " ispi_qa_DC_1030",  
        "clusterName" : " ispi_qa_DC_1030",  
        "daysToCapacity" : 50}  
    ],  
    "storageDetailsList" : [
```



```
{
    "vcenterName" : "iwfvm01029.hpswlab.s.adapps.hp.com",
    "datacenterName" : "ispi_qa_DC_1029",
    "clusterName" : "ispi_qa_CLUSTER_1029",
    "datastoreName" : "ovpesx9:storage1",
    "daysToCapacity" : 90
},
{
    "vcenterName" : "16.184.45.94",
    "datacenterName" : "DataCenter1",
    "clusterName" : "PMi_Cluster",
    "datastoreName" : "datastore1_1",
    "daysToCapacity" : 90
},
{
    "vcenterName" : " iwfvm01030.hpswlab.s.adapps.hp.com ",
    "datacenterName" : " ispi_qa_DC_1030",
    "clusterName" : " ispi_qa_DC_1030",
    "datastoreName" : "storage3",
    "daysToCapacity" : 40
},
{
    "vcenterName" : " iwfvm01030.hpswlab.s.adapps.hp.com ",
    "datacenterName" : " ispi_qa_DC_1030",
    "clusterName" : " ispi_qa_DC_1030",
    "datastoreName" : "storage4",
    "daysToCapacity" : 60
}
],
"resultMatrix" : [ [ [ 2, null, null, null ], [ null, 2, null, null], [ null, null,
1, null] ], [ [ 2, null, null, null ], [ 1, null, null, null ],[ 1, null, null,
null ] ] ],
"daysToCapacity" : 30
```

Sample Output Details

- **Detailed list Output:**

The JSON response contains an array of JSON objects. Each JSON object corresponds to a VM to be placed. Each JSON object contains the VM configuration details, container and the datastore details where the VM can be placed. The JSON output can be visually represented in the following way:



```
Result [9]
  0 {3}
  1 {3}
    vmDetails {7}
      numCPU : 2
      memSizeGB : 2
      diskSizeGB : 10
      expectedCPUUtil : 80
      expectedMemUtil : 80
      startDayFromToday : 1
      endDayFromToday : 90
    containerDetails {5}
      virtType : VMWARE
      type : CLUSTER
      vcenterName : iwfv01030.hpswlab.s.adapps.hp.com
      datacenterName : ispi_qa_DC_1030
      clusterName : ispi_qa_CLUSTER_1030
    storageDetails {4}
      vcenterName : iwfv01030.hpswlab.s.adapps.hp.com
      datacenterName : ispi_qa_DC_1030
      clusterName : ispi_qa_DC_1030
      datastoreName : storage3
  2 {3}
  3 {3}
  4 {3}
  5 {3}
  6 {3}
  7 {3}
  8 {3}
```

Configuration details, container details, and storage details of the VM to be placed.

- **Three-Dimensional Matrix Output**

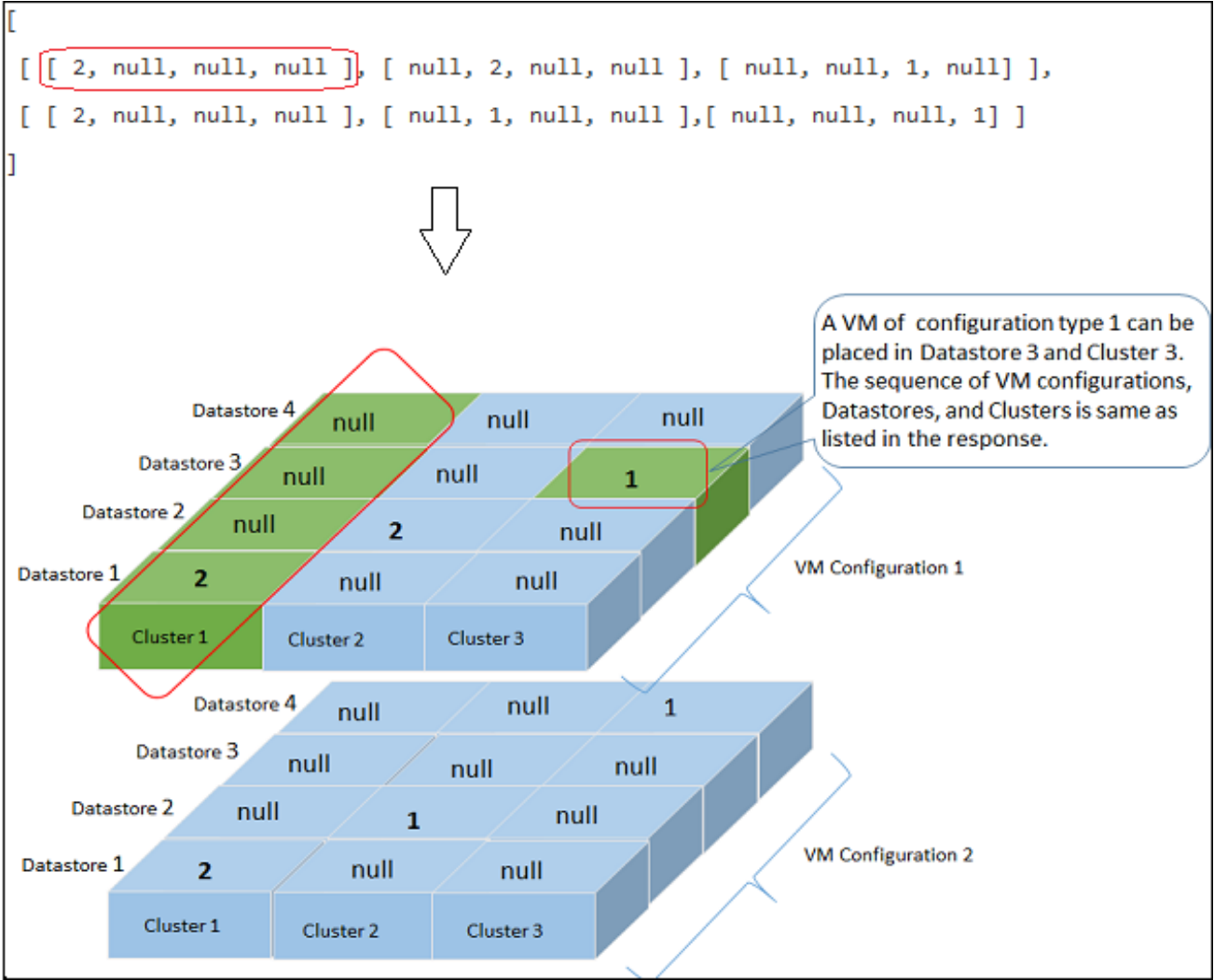
The API provides placement suggestions in the form of matrix. The matrix can be interpreted after understanding other output parameters. Following is a brief outline of the output parameters:

Parameter	Description
numVMConfigs	Total number of VM configurations
numContainers	Total number of distinct clusters in which the VMs can be placed
numDatastores	Total number of distinct datastores in which the VMs can be placed
vmConfigDetailsList	This object contains the list of VM configurations. Note the sequence of VM configurations in the list as it would be required to interpret the result matrix.
containerDetailsList	This object contains the list of containers in which the VMs can be placed. Note the sequence of containers in the list as it would be required to interpret the result matrix.
storageDetailsList	This object contains the list of datastores in which the VMs can be placed. Note the sequence of datastores in the list as it would be required to interpret the result matrix.

resultMatrix: The placement suggestions are given in the form of a three-dimensional matrix. The result matrix in the sample output is:

```
[
  [ [ 2, null, null, null ], [ null, 2, null, null ], [ null, null, 1, null] ],
  [ [ 2, null, null, null ], [ null, 1, null, null ], [ null, null, null, 1 ] ]
]
```

Following is graphical representation of the result matrix:



Chapter 3: Using REST APIs for Optimization Recommendations

The HP vPV REST APIs for Optimization Recommendations provides sizing information for VMs and Datastores in Datacenters, Clusters, and Hosts in your virtualized infrastructure.

Resource Model

REST APIs for optimization recommendations can be invoked at two levels:

- Collection of Entities

At this level, you can view information for collection of Datacenters, Clusters, Hosts, and Datastores in your virtualized infrastructure.

- Specific Entities

At this level, you can view information for specific instances of Datacenters, Clusters, Hosts, Datastores, and VMs. You can view VM sizing and datastore sizing information for specific Datacenter, Cluster, and Host instances only.

Note: You may observe a difference in the count of VMs in the Treemap and the count of VMs returned by the REST API. This is because the REST API considers only the VMs in the virtualized infrastructure whereas the Treemap includes the VM Templates as well.

Resource Information

Response formats	JSON
Request Header requirements	Content-Type: application/json Authorization: Basic <Base 64 encoded username:password> (optional, required only when LDAP is enabled)
Supported request methods	GET

Resource URL

The Base URL to get information about the entities is:

`https://<ip_address or host_name>:<port_number>/PV/api/v1`

In this instance,

- `ip_address` or `host_name` is the IP address or host name of the HP vPV server.
- `port_number` is the port number of the HP vPV server. The default port number is 8444.

The Base URL must be appended with appropriate URIs to get information about various entities monitored by HP vPV server. The following table summarizes REST API URL details for various entities:

Click on the URL to view specific examples.

Entity	API	URL
VM	To get information of all the VMs along with sizing details.	<a href="https://<ip_address>:<port_number>/PV/api/v1/vm">https://<ip_address>:<port_number>/PV/api/v1/vm
	To get information of a specific VM.	<a href="https://<ip_address>:<port_number>/PV/api/v1/vm/<instance_id>">https://<ip_address>:<port_number>/PV/api/v1/vm/<instance_id> In this instance, <code>instance_id</code> is the resource ID of the VM.

Entity	API	URL
Datastore	To get datastore information along with sizing details.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datastore">https://<ip_address>:<port_number>/PV/api/v1/datastore
	To get information of a specific datastore.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>">https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id> In this instance, instance_id is the resource ID of the datastore.
	To get information about all the VMs on a specific datastore.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>/vm">https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>/vm In this instance, instance_id is the resource ID of the datastore.
	To get information of a specific VM in a datastore that is filtered on the basis of Status.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>/vm?status=<vm_status>">https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>/vm?status=<vm_status> In this instance, instance_id is the resource ID of the datastore. status is the current status of the VM. The parameter status can have the values as idle, mostlypoweredoff, deleted, or active.

Entity	API	URL
Cluster	To get information of all clusters.	<a href="https://<ip_address>:<port_number>/PV/api/v1/cluster">https://<ip_address>:<port_number>/PV/api/v1/cluster
	To get information of a specific cluster.	<a href="https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>">https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id> In this instance, instance_id is the resource ID of the cluster.
	To get sizing information of all the VMs in a specific cluster.	<a href="https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/vmsizing">https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/vmsizing In this instance, instance_id is the resource ID of the cluster.
	To get sizing information of a specific VM in a cluster that is filtered based on name and sizing parameters.	<a href="https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing>">https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing> In this instance, instance_id is the resource ID of the Cluster. system_name is the VM display name. You can specify a sub-string of the VM display name. sizing is the CPU or Memory size of the specific VM. The parameter sizing can have the values as oversized, undersized, or rightsized.
	To get sizing information of all the datastores that are part of a specific cluster.	<a href="https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/datastoresizing">https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/datastoresizing In this instance, instance_id is the resource ID of the cluster.

Entity	API	URL
Datacenter	To get information of all the Datacenters.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datacenter">https://<ip_address>:<port_number>/PV/api/v1/datacenter
	To get information of a specific Datacenter	<a href="https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>">https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id> In this instance, instance_id is the resource ID of the Datacenter.
	To get sizing information of all the VMs that are part of a specific Datacenter.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/vmsizing">https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/vmsizing In this instance, instance_id is the resource ID of the Datacenter.
	To get sizing information of a specific VM in a Datacenter that is filtered based on name and sizing parameters.	<a href="https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing>">https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing> In this instance, instance_id is the resource ID of the Datacenter. system_name is the VM display name. You can specify a sub-string of the VM display name. sizing is the CPU or Memory size of the specific VM. The parameter sizing can have the values as oversized, undersized, or rightsized.
	To get sizing information of all the datastores that are part of a specific Datacenter	<a href="https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/datastoresizing">https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/datastoresizing In this instance, instance_id is the resource ID of the Datacenter.

Entity	API	URL
Host	To get information of all the Hosts.	<a href="https://<ip_address>:<port_number>/PV/api/v1/host">https://<ip_address>:<port_number>/PV/api/v1/host
	To get information of a specific Host.	<a href="https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>">https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id> In this instance, instance_id is the resource ID of the Host.
	To get sizing information of all the VMs in a specific Host.	<a href="https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/vmsizing">https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/vmsizing In this instance, instance_id is the resource ID of the Host.
	To get sizing information of a specific VM in a Host that is filtered based on name and sizing parameters.	<a href="https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing>">https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing> In this instance, instance_id is the resource ID of the Host. system_name is the VM display name. You can specify a sub-string of the VM display name. sizing is the CPU or Memory size of the specific VM. The parameter sizing can have the values as oversized, undersized, or rightsized.
	To get datastore information and sizing details of all the datastores in a specific Host.	<a href="https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/datastoresizing">https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/datastoresizing In this instance, instance_id is the resource ID of the Host.

Datacenter

The following section provides sample JSON response generated by the REST API for optimization recommendations for Datacenter.

To get information of all the Datacenters

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datacenter
```

The following JSON is returned in the response:

```
{
  "instancecount" : 3,
  "instances" : [
    {
      "properties" :
      {
        "ParentUUID" : "16.184.45.37",
        "SystemVirtType" : "VMWARE",
        "SystemID" : "16.184.45.37/SMV-BLADE",
        "ParentType" : "VCENTER",
        "SystemRole" : "DATACENTER",
        "LSName" : "16.184.45.37/SMV-BLADE",
        "SystemName" : "SMV-BLADE"
      },
      "resourcepath" : "/datacenter/1",
      "resourceid" : 1
    },
    {
      "properties" : {
        "ParentUUID" : "16.184.45.37",
        "SystemVirtType" : "VMWARE",
        "SystemID" : "16.184.45.37/Google.Cloud",
        "ParentType" : "VCENTER",
        "SystemRole" : "DATACENTER",
        "LSName" : "16.184.45.37/Google.Cloud",
        "SystemName" : "Google.Cloud"
      }
    }
  ]
}
```

```
    },  
    "resourcepath" : "/datacenter/2",  
    "resourceid" : 2  
}....
```

To get information of a specific Datacenter

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>
```

The following JSON is returned in the response:

```
{  
  "instance" : [  
    {  
      "properties" :  
        {  
          "ParentUUID" : "16.184.45.37",  
          "SystemVirtType" : "VMWARE",  
          "SystemID" : "16.184.45.37/Google.Cloud",  
          "ParentType" : "VCENTER",  
          "SystemRole" : "DATACENTER",  
          "LSName" : "16.184.45.37/Google.Cloud",  
          "SystemName" : "Google.Cloud"  
        },  
      "resourcepath" : "/datacenter/2",  
      "resourceid" : 2  
    } ]  
}
```

To get sizing information of all the VMs that are part of a specific Datacenter

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/vmsizing
```

The following JSON is returned in the response:

```
{
  "instancecount" : 24,
  "instances" : [
    {
      "properties" :
      {
        "SystemOSName" : "Red Hat Enterprise Linux 6 (64-bit)",
        "StatTime" : "",
        "SystemID" : "421ad522-d7f5-0025-1b0a-409df1a2898f",
        "SystemOSRelease" : "",
        "ParentType" : "HOST",
        "SystemPath" : "[BLR-LUN-0112]
martellvm40158.hpswlabshp.com/martellvm40158.hpswlabshp.com.vmx",
        "SystemRole" : "GUEST",
        "Type" : "",
        "UseHardwareAssistedVirtualization" : "",
        "MacAddress" : "00:50:56:9a:79:aa",
        "SystemHostHostName" : "agentesx.ind.hp.com",
        "SystemVirtType" : "VMWARE",
        "ClusterName" : "BLR-APPLE-CLUSTER",
        "SystemOSVersion" : "",
        "ManagementIP" : "",
        "FlavorId" : "",
        "VCIPAddress" : "",
        "SystemVirtPlatform" : "",
        "InstanceName" : "",
        "CPUArch" : "",
        "ProcessorVendor" : "",
        "VirtVersion" : "",
        "SystemName" : "martellvm40158.hpswlabshp.com",
        "MarkedForDeletion" : ""
      }
    }
  ]
}
```

```
        "VMOwnerId" : "",
        "HPCSPort" : "",
        "LSID" : "79",
        "HAEnabled" : "",
        "ParentUUID" : "38393636-3430-4753-4832-333442364c53",
        "DynamicMemoryEnabled" : "",
        "LSMode" : "UnCapped",
        "CPUVendor" : "",
        "HasSnapshot" : "",
        "BelongsToDatacenter" : "16.184.45.37/BLR-APPLE-DC",
        "VMHost_UUID" : "",
        "LSName" : "421ad522-d7f5-0025-1b0a-409df1a2898f",
        "VirtVersionState" : "",
        "ManagementUUID" : "",
        "LSShared" : "Shared",
        "HPCSProtocol" : "",
        "SystemHostName" : "ci-0050569A79AA"
    },
    "resourcepath" : "/vm/62",
    "resourceid" : 62,
    "sizing" :
    {
        "PO_MemCapacity" : 10.0,
        "PO_CPUCycleEntlMin" : 0.0,
        "PO_RecommendedNumCPU" : 1.0,
        "PO_RecommendedCPUReservation" : 0.0,
        "PO_RecommendedMem" : 5.0,
        "PO_MemEntlMin" : 0.0,
        "PO_RecommendedMemReservation" : 0.0,
        "PO_NumCpu" : 2
    },
    "MemSize" : "oversized",
    "CPUSize" : "oversized"
```

```
}, .....
```

To get sizing information of a specific VM in a Datacenter filtered based on name and sizing parameters

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing>
```

```
{  
  "instancecount" : 1,  
  "instances" : [ {  
    "properties" : {  
      "SystemOSName" : "CentOS 4/5/6 (64-bit)",  
      "StatTime" : "",  
      "SystemID" : "420c9ec7-a54c-7173-ae2d-a6daa3621419/ispiva1.ind.hp.com_vPV1.2_MR",  
      "SystemPath" : "[Storage2]ispiva1.ind.hp.com_vPV1.2_MR/ispiva1.ind.hp.com_vPV1.2_MR.vmx",  
      "SystemOSRelease" : "",  
      "ParentType" : "HOST",  
      "Type" : "",  
      "SystemRole" : "GUEST",  
      "UseHardwareAssistedVirtualization" : "",  
      "SystemHostHostName" : "ovpesx9.ind.hp.com",  
      "MacAddress" : "00:50:56:8c:11:f6,52:54:00:24:e2:1e",  
      "SystemVirtType" : "VMWARE",  
      "ClusterName" : "ispi_qa_CLUSTER_1029",  
      "SystemOSVersion" : "",  
      "ManagementIP" : "",  
      "FlavorId" : "",  
      "VCIPAddress" : "",  
      "SystemVirtPlatform" : "",  
      "CPUArch" : "",  
      "InstanceName" : "",  
    }  
  }  
]
```

```
    "ProcessorVendor" : "",
    "VirtVersion" : "",
    "SystemName" : "ispiva1.ind.hp.com_vPV1.2_MR",
    "MarkedForDeletion" : "",
    "VMOwnerId" : "",
    "HPCSPort" : "",
    "LSID" : "1437",
    "HAEnabled" : "",
    "ParentUUID" : "34313734-3537-5347-4837-323034535242",
    "DynamicMemoryEnabled" : "",
    "LSMode" : "UnCapped",
    "CPUVendor" : "",
    "HasSnapshot" : "",
    "BelongsToDatacenter" : "iwfvm01029.hpswlab.s.adapps.hp.com/ispiva1.ind.hp.com_vPV1.2_MR",
    "VMHost_UUID" : "",
    "LSName" : "420c9ec7-a54c-7173-ae2d-a6daa3621419/ispiva1.ind.hp.com_vPV1.2_MR",
    "VirtVersionState" : "",
    "LSShared" : "Shared",
    "ManagementUUID" : "",
    "SystemHostName" : "ispiva1.ind.hp.com",
    "HPCSProtocol" : ""
  },
  "resourcepath" : "/vm/4",
  "resourceid" : 4,
  "sizing" : {
    "MemEntlMin" : 0.0,
    "RecommendedNumCPU" : 1.0,
    "RecommendedCPUReservation" : 0.0,
    "NumCpu" : 2,
    "CPUCycleEntlMin" : 0.0,
    "RecommendedMemReservation" : 0.0,
    "RecommendedMem" : 2.0,
    "MemCapacity" : 4.0
```



```
},  
"MemSize" : "oversized",  
"CPUSize" : "oversized"  
} ]  
}
```

To get sizing information of all the datastores that are part of a specific Datacenter

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datacenter/<instance_id>/datastoresizing
```

The following JSON is returned in the response:

```
{  
  "instance" : [  
    {  
      "properties" :  
        {  
          "ParentUUID" : "16.184.45.37/BLR-APPLE-DC/BLR-APPLE-CLUSTER",  
          "SystemVirtType" : "VMWARE",  
          "SystemID" : "4fb1a0b7-9de543d2-b203-ac162d75e5fc",  
          "ParentType" : "CLUSTER",  
          "ClusterName" : "BLR-APPLE-CLUSTER",  
          "BelongsToDatacenter" : "16.184.45.37/BLR-APPLE-DC",  
          "Type" : "VMFS",  
          "SystemRole" : "DATASTORE",  
          "LSName" : "4fb1a0b7-9de543d2-b203-ac162d75e5fc",  
          "SystemName" : "BLR-LUN-0112"  
        },  
      "resourcepath" : "/datastore/8",  
      "resourceid" : 8,  
      "sizing" :
```

```
{  
    "PO_StorageReclaimable" : 138.72,  
    "PO_StorageAllocationPossibleAfterReclaim" : 8973.99,  
    "PO_DiskUsage" : 1536.87  
}, .....
```

Cluster

The following section gives sample JSON responses generated by the REST API for optimization recommendations for Cluster.

To get information of all clusters

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/cluster
```

The following JSON is returned in the response:

```
{  
    "instancecount" : 4,  
    "instances" : [  
        {  
            "properties" :  
            {  
                "ParentUUID" : "",  
                "SystemVirtType" : "Hyper-V",  
                "IsFullyCached" : "",  
                "SystemID" : "hyperv-clus",  
                "BelongsToDatacenter" : "",  
                "ParentType" : "",  
                "Type" : "",  
                "SystemRole" : "CLUSTER",  
                "LSName" : "",  
                "SystemName" : "hyperv-clus",
```

```
        "MarkedForDeletion" : "",
        "SystemVirtPlatform" : ""
    },
    "resourcepath" : "/cluster/1",
    "resourceid" : 1
}, ....
{
    "properties" :
    {
        "ParentUUID" : "16.184.45.37/SMV-BLADE",
        "SystemVirtType" : "VMWARE",
        "IsFullyCached" : "",
        "SystemID" : "16.184.45.37/SMV-BLADE/SMV-Cluster",
        "BelongsToDatacenter" : "16.184.45.37/SMV-BLADE",
        "ParentType" : "DATACENTER",
        "Type" : "VMWare DRS",
        "SystemRole" : "CLUSTER",
        "LSName" : "16.184.45.37/SMV-BLADE/SMV-Cluster",
        "SystemName" : "SMV-Cluster",
        "MarkedForDeletion" : "",
        "SystemVirtPlatform" : ""
    },
    "resourcepath" : "/cluster/2",
    "resourceid" : 2
}
```

To get information of a specific cluster

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>
```

The following JSON is returned in the response:

```
{
```

```
"instance" : [  
  {  
    "properties" :  
    {  
      "ParentUUID" : "16.184.45.37/SMV-BLADE",  
      "SystemVirtType" : "VMWARE",  
      "IsFullyCached" : "",  
      "SystemID" : "16.184.45.37/SMV-BLADE/SMV-Cluster",  
      "BelongsToDatacenter" : "16.184.45.37/SMV-BLADE",  
      "ParentType" : "DATACENTER",  
      "Type" : "VMWare DRS",  
      "SystemRole" : "CLUSTER",  
      "LSName" : "16.184.45.37/SMV-BLADE/SMV-Cluster",  
      "SystemName" : "SMV-Cluster",  
      "MarkedForDeletion" : "",  
      "SystemVirtPlatform" : ""  
    },  
    "resourcepath" : "/cluster/2",  
    "resourceid" : 2  
  }  
]  
}
```

To get sizing information of all the VMs in a specific cluster

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/vmsizing
```

The following JSON is returned in the response:

```
{  
  "instancecount" : 58,  
  "instances" : [  
    {
```

```
"properties" :  
{  
    "SystemOSName" : "",  
    "StatTime" : "",  
    "SystemID" : "1AC13360-8C92-47C7-BFD7-83CB4EA4A266",  
    "SystemOSRelease" : "",  
    "ParentType" : "HOST",  
    "SystemPath" : "",  
    "SystemRole" : "GUEST",  
    "Type" : "",  
    "UseHardwareAssistedVirtualization" : "",  
    "MacAddress" : "00:15:5D:2F:78:49",  
    "SystemHostHostName" : "GOLDRICH6.iwflabs.com",  
    "SystemVirtType" : "Hyper-V",  
    "ClusterName" : "hyperv-clus",  
    "SystemOSVersion" : "",  
    "ManagementIP" : "",  
    "FlavorId" : "",  
    "VCIPAddress" : "",  
    "SystemVirtPlatform" : "",  
    "InstanceName" : "",  
    "CPUArch" : "",  
    "ProcessorVendor" : "",  
    "VirtVersion" : "",  
    "SystemName" : "2008WINSSCALE",  
    "MarkedForDeletion" : "",  
    "VMOwnerId" : "",  
    "HPCSPort" : "",  
    "LSID" : "",  
    "HAEnabled" : "",  
    "ParentUUID" : "35353636-3235-4753-4834-303241525843",  
    "DynamicMemoryEnabled" : "False",  
    "LSMode" : "",
```

```
        "CPUVendor" : "",
        "HasSnapshot" : "",
        "BelongsToDatacenter" : "",
        "VMHost_UUID" : "",
        "LSName" : "",
        "VirtVersionState" : "",
        "ManagementUUID" : "",
        "LSShared" : "",
        "HPCSProtocol" : "",
        "SystemHostName" : ""
    },
    "resourcepath" : "/vm/3",
    "resourceid" : 3,
    "sizing" : { },
    "MemSize" : null,
    "CPUSize" : null
}, ...
```

To get sizing information of a specific VM in a cluster filtered based on name and sizing parameters

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing>
```

The following JSON is returned in the response:

```
{
  "instancecount" : 1,
  "instances" : [ {
    "properties" : {
      "SystemOSName" : "Microsoft Windows Server 2008 R2 (64-bit)",
      "StatTime" : "",

```

```
"SystemID" : "421cc483-36a7-55a8-fc4f-fe3ee4715e9a/x86vm72 - OMW9 - Rajan",
"SystemPath" : "[IBTLUN21]x86vm72/x86vm72.vmx",
"SystemOSRelease" : "",
"ParentType" : "HOST",
"Type" : "",
"SystemRole" : "GUEST",
"UseHardwareAssistedVirtualization" : "",
"SystemHostHostName" : "ibtvz11.ind.hp.com",
"MacAddress" : "",
"SystemVirtType" : "VMWARE",
"ClusterName" : "Cluster01",
"SystemOSVersion" : "",
"ManagementIP" : "",
"FlavorId" : "",
"VCIPAddress" : "",
"SystemVirtPlatform" : "",
"CPUArch" : "",
"InstanceName" : "",
"ProcessorVendor" : "",
"VirtVersion" : "",
"SystemName" : "x86vm72 - OMW9 - Rajan",
"MarkedForDeletion" : "",
"VMOwnerId" : "",
"HPCSPort" : "",
"LSID" : "98",
"HAEnabled" : "",
"ParentUUID" : "30333735-3738-4753-4830-343758573459",
"DynamicMemoryEnabled" : "",
"LSMode" : "UnCapped",
"CPUVendor" : "",
"HasSnapshot" : "",
"BelongsToDatacenter" : "ibtv2.ind.hp.com/Datacenter01",
"VMHost_UUID" : "",
```

```
        "LSName" : "421cc483-36a7-55a8-fc4f-fe3ee4715e9a/x86vm72 - OMW9 - Rajan",
        "VirtVersionState" : "",
        "LSShared" : "Shared",
        "ManagementUUID" : "",
        "SystemHostName" : "x86vm72.ind.hp.com",
        "HPCSProtocol" : ""
    },
    "resourcepath" : "/vm/75",
    "resourceid" : 75,
    "sizing" : {
        "MemEntlMin" : 0.0,
        "RecommendedNumCPU" : 1.0,
        "RecommendedCPUReservation" : 0.0,
        "NumCpu" : 2,
        "CPUCycleEntlMin" : 0.0,
        "RecommendedMemReservation" : 0.0,
        "RecommendedMem" : 2.0,
        "MemCapacity" : 4.0
    },
    "MemSize" : "oversized",
    "CPUSize" : "oversized"
} ]
}
```

To get sizing information of all the datastores that are part of a specific cluster

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/cluster/<instance_id>/datastoresizing
```

The following JSON is returned in the response:

```
{
```



```
"instancecount" : 5,
  "instances" : [
    {
      "properties" : {
        "ParentUUID" : "35353636-3235-4753-4834-303241525843",
        "SystemVirtType" : "Hyper-V",
        "SystemID" : "02e045f8-3ea8-4d7d-844b-eb82ea0550bb",
        "ParentType" : "HOST",
        "ClusterName" : "",
        "BelongsToDatacenter" : "",
        "Type" : "NTFS",
        "SystemRole" : "DATASTORE",
        "LSName" : "",
        "SystemName" : "New Volume (E:)"
      },
      "resourcepath" : "/datastore/1",
      "resourceid" : 1,
      "sizing" :
      {
        "PO_StorageReclaimable" : 0.0,
        "PO_StorageAllocationPossibleAfterReclaim" : 48130.54,
        "PO_DiskUsage" : 917.57
      }
    },
    .....
  ],
```

Host

The following section gives sample JSON response generated by the REST API for optimization recommendations for Host.

To get information of all the Hosts

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/host
```

The following JSON is was returned in the response:

```
{
  "instancecount" : 8,
  "instances" : [
    {
      "properties" :
      {
        "SystemOSName" : "Microsoft Windows Server 2012 R2 Datacenter",
        "StatTime" : "",
        "SystemID" : "35353636-3235-4753-4834-303241525843",
        "SystemOSRelease" : "",
        "ParentType" : "CLUSTER",
        "SystemPath" : "",
        "SystemRole" : "HOST",
        "Type" : "",
        "UseHardwareAssistedVirtualization" : "",
        "MacAddress" : "2C:44:FD:87:C2:30",
        "SystemHostHostName" : "",
        "SystemVirtType" : "Hyper-V",
        "ClusterName" : "hyperv-clus",
        "SystemOSVersion" : "6.3.9600",
        "ManagementIP" : "",
        "FlavorId" : "",
        "VCIPAddress" : "",
        "SystemVirtPlatform" : "",
        "InstanceName" : "",
        "CPUArch" : "",
        "ProcessorVendor" : "GenuineIntel",
        "VirtVersion" : "6.3.9600",
        "SystemName" : "GOLDRICH6",
        "MarkedForDeletion" : ""
      }
    }
  ]
}
```

```
        "VMOwnerId" : "",
        "HPCSPort" : "",
    "LSID" : "",
    "HAEnabled" : "",
    "ParentUUID" : "hyperv-clus",
    "DynamicMemoryEnabled" : "",
    "LSMode" : "",
    "CPUVendor" : "",
    "HasSnapshot" : "",
    "BelongsToDatacenter" : "",
    "VMHost_UUID" : "",
    "LSName" : "",
    "VirtVersionState" : "",
    "ManagementUUID" : "",
    "LSShared" : "",
    "HPCSProtocol" : "",
    "SystemHostName" : "GOLDRICH6.iwflabs.com"
    },
    "resourcepath" : "/host/1",
    "resourceid" : 1
},....
```

To get information of a specific Host

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>
```

The following JSON is returned in the response:

```
{
  "instances" : [
    {
      "properties" :
      {
```

```
"SystemOSName" : "VMware ESXi",
"StatTime" : "",
"SystemID" : "31353337-3135-4753-4834-32344b315944",
"SystemOSRelease" : "",
"ParentType" : "CLUSTER",
"SystemPath" : "",
"SystemRole" : "HOST",
"Type" : "",
"UseHardwareAssistedVirtualization" : "",
"MacAddress" :
"fc:15:b4:22:70:90;fc:15:b4:22:70:91;fc:15:b4:22:70:92;fc:15:b4:22:70:94;fc:15:b4:2
2:70:95;fc:15:b4:22:70:96;",
"SystemHostHostName" : "",
"SystemVirtType" : "VMWARE",
"ClusterName" : "BLR-APPLE-CLUSTER",
"SystemOSVersion" : "",
"ManagementIP" : "",
"FlavorId" : "",
"VCIPAddress" : "16.184.45.37",
"SystemVirtPlatform" : "",
"InstanceName" : "",
"CPUArch" : "",
"ProcessorVendor" : "",
"VirtVersion" : "",
"SystemName" : "16.184.42.74",
"MarkedForDeletion" : "",
"VMOwnerId" : "",
"HPCSPort" : "",
"LSID" : "39",
"HAEnabled" : "",
"ParentUUID" : "16.184.45.37/BLR-APPLE-DC/BLR-APPLE-CLUSTER",
"DynamicMemoryEnabled" : "",
"LSMode" : "Capped",
```

```
        "CPUVendor" : "",  
        "HasSnapshot" : "",  
        "BelongsToDatacenter" : "16.184.45.37/BLR-APPLE-DC",  
        "VMHost_UUID" : "",  
        "LSName" : "31353337-3135-4753-4834-32344b315944",  
        "VirtVersionState" : "",  
        "ManagementUUID" : "",  
        "LSShared" : "Dedicated",  
        "HPCSProtocol" : "",  
        "SystemHostName" : "16.184.42.74"  
    },  
    "resourcepath" : "/host/63",  
    "resourceid" : 63  
} ]  
}
```

To get sizing information of all the VMs in a specific Host

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/vmsizing
```

The following JSON is returned in the response:

```
{  
    "instancecount" : 2,  
    "instances" : [  
        {  
            "properties" :  
            {  
                "SystemOSName" : "CentOS 4/5/6 (64-bit)",  
                "StatTime" : "",  
                "SystemID" : "421a3f0d-4bfe-0808-d643-09c48f9a9bed",  
                "SystemOSRelease" : "",  
                "ParentType" : "RESPOOL",  
            }  
        }  
    ]  
}
```

```
"SystemPath" : "[datastore1]Paul_33_210_18092014/Paul_33_210_18092014.vmx",  
"SystemRole" : "GUEST",  
"Type" : "",  
"UseHardwareAssistedVirtualization" : "",  
"MacAddress" : "00:50:56:9a:5a:77,52:54:00:a6:13:3d",  
"SystemHostHostName" : "16.184.42.74",  
"SystemVirtType" : "VMWARE",  
"ClusterName" : "BLR-APPLE-CLUSTER",  
"SystemOSVersion" : "",  
"ManagementIP" : "",  
"FlavorId" : "",  
"VCIPAddress" : "",  
"SystemVirtPlatform" : "",  
"InstanceName" : "",  
"CPUArch" : "",  
"ProcessorVendor" : "",  
"VirtVersion" : "",  
"SystemName" : "Paul_33_210_18092014",  
"MarkedForDeletion" : "",  
"VMOwnerId" : "",  
"HPCSPort" : "",  
"LSID" : "71",  
"HAEnabled" : "",  
"ParentUUID" : "16.184.45.37/BLR-APPLE-DC/BLR-APPLE-CLUSTER/Apricot",  
"DynamicMemoryEnabled" : "",  
"LSMode" : "UnCapped",  
"CPUVendor" : "",  
"HasSnapshot" : "",  
"BelongsToDatacenter" : "16.184.45.37/BLR-APPLE-DC",  
"VMHost_UUID" : "",  
"LSName" : "421a3f0d-4bfe-0808-d643-09c48f9a9bed",  
"VirtVersionState" : "",  
"ManagementUUID" : "",
```

```
        "LSShared" : "Shared",
        "HPCSProtocol" : "",
        "SystemHostName" : "martellvm26.ind.hp.com"
    },
    "resourcepath" : "/vm/70",
    "resourceid" : 70,
    "sizing" : {
        "PO_MemCapacity" : 16.0,
        "PO_CPUCycleEntlMin" : 0.0,
        "PO_RecommendedNumCPU" : 2.0,
        "PO_RecommendedCPUReservation" : 0.0,
        "PO_RecommendedMem" : 6.0,
        "PO_MemEntlMin" : 0.0,
        "PO_RecommendedMemReservation" : 0.0,
        "PO_NumCpu" : 4
    },
    "MemSize" : "oversized",
    "CPUSize" : "oversized"
},....
```

To get sizing information of a specific VM in a Host filtered based on name and sizing parameters

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/host/<instance_id>/vmsizing?name=<system_name>&sizing=<sizing>
```

```
{
"instancecount" : 1,
"instances" : [ {
    "properties" : {
        "SystemOSName" : "CentOS 4/5/6 (64-bit)",
        "StatTime" : "",
```

```
"SystemID" : "420ccb5b-2e36-7fa2-13a5-e39980e66a85/goldrich8vm5.ind.hp.com_
vPV2.10.005_4th_NOV",
"SystemPath" : "[Datastore2]goldrich8vm5.ind.hp.com_vPV2.10.005_4th_
NOV/goldrich8vm5.ind.hp.com_vPV2.10.005_4th_NOV.vmx",
"SystemOSRelease" : "",
"ParentType" : "HOST",
"Type" : "",
"SystemRole" : "GUEST",
"UseHardwareAssistedVirtualization" : "",
"SystemHostHostName" : "ovpesx10.ind.hp.com",
"MacAddress" : "00:50:56:8c:59:02,52:54:00:45:76:34",
"SystemVirtType" : "VMWARE",
"ClusterName" : "ispi_qa_CLUSTER_1029",
"SystemOSVersion" : "",
"ManagementIP" : "16.184.40.94",
"FlavorId" : "",
"VCIPAddress" : "",
"SystemVirtPlatform" : "",
"CPUArch" : "",
"InstanceName" : "",
"ProcessorVendor" : "",
"VirtVersion" : "",
"SystemName" : "goldrich8vm5.ind.hp.com_vPV2.10.005_4th_NOV",
"MarkedForDeletion" : "",
"VMOwnerId" : "",
"HPCSPort" : "381",
"LSID" : "1442",
"HAEnabled" : "",
"ParentUUID" : "34353139-3933-5347-4838-343658434531",
"DynamicMemoryEnabled" : "",
"LSMode" : "UnCapped",
"CPUVendor" : "",
"HasSnapshot" : "",
```



```
        "BelongsToDatacenter" : "iwfvm01029.hpswllabs.adapps.hp.com/ispi_qa_DC_1029",
        "VMHost_UUID" : "",
        "LSName" : "420ccb5b-2e36-7fa2-13a5-e39980e66a85/goldrich8vm5.ind.hp.com_
vPV2.10.005_4th_NOV",
        "VirtVersionState" : "",
        "LSShared" : "Shared",
        "ManagementUUID" : "40120627-5B31-4004-BF28-0050568C5902",
        "SystemHostName" : "goldrich8vm5.ind.hp.com",
        "HPCSProtocol" : "http"
    },
    "resourcepath" : "/vm/5",
    "resourceid" : 5,
    "sizing" : {
        "MemEntlMin" : 0.0,
        "RecommendedNumCPU" : 2.0,
        "RecommendedCPUReservation" : 0.0,
        "NumCpu" : 4,
        "CPUCycleEntlMin" : 0.0,
        "RecommendedMemReservation" : 0.0,
        "RecommendedMem" : 6.0,
        "MemCapacity" : 16.0
    },
    "MemSize" : "oversized",
    "CPUSize" : "oversized"
} ]
}
```

To get datastore information and sizing details of all the datastores in a specific Host

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/<instance_id>/datastoresizing
```

The following JSON is returned in the response:

```
{
  "instance" : [
    {
      "properties" :
      {
        "ParentUUID" : "16.184.45.37/SMV-BLADE",
        "SystemVirtType" : "VMWARE",
        "IsFullyCached" : "",
        "SystemID" : "16.184.45.37/SMV-BLADE/SMV-Cluster",
        "BelongsToDatacenter" : "16.184.45.37/SMV-BLADE",
        "ParentType" : "DATACENTER",
        "Type" : "VMWare DRS",
        "SystemRole" : "CLUSTER",
        "LSName" : "16.184.45.37/SMV-BLADE/SMV-Cluster",
        "SystemName" : "SMV-Cluster",
        "MarkedForDeletion" : "",
        "SystemVirtPlatform" : ""
      },
      "resourcepath" : "/cluster/2",
      "resourceid" : 2
    } ]
}
```

Virtual Machines

The following section gives sample JSON response generated by the REST API for optimization recommendations for Virtual Machines.

To get information about all the VMs along with sizing details

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/vm
```

The following JSON is returned in the response:

```
{
  "instancecount" : 107,
  "instances" : [
    {
      "properties" : {
        "SystemOSName" : "Red Hat Enterprise Linux 6 (64-bit)",
        "StatTime" : "",
        "SystemID" : "421ad522-d7f5-0025-1b0a-409df1a2898f",
        "SystemOSRelease" : "",
        "ParentType" : "HOST",
        "SystemPath" : "[BLR-LUN-0112]
martellvm40158.hpswlabshp.com/martellvm40158.hpswlabshp.com.vmx",
        "SystemRole" : "GUEST",
        "Type" : "",
        "UseHardwareAssistedVirtualization" : "",
        "MacAddress" : "00:50:56:9a:79:aa",
        "SystemHostHostName" : "agentesx.ind.hp.com",
        "SystemVirtType" : "VMWARE",
        "ClusterName" : "BLR-APPLE-CLUSTER",
        "SystemOSVersion" : "",
        "ManagementIP" : "",
        "FlavorId" : "",
        "VCIPAddress" : "",
        "SystemVirtPlatform" : "",
        "InstanceName" : "",
        "CPUArch" : "",
        "ProcessorVendor" : "",
        "VirtVersion" : "",
        "SystemName" : "martellvm40158.hpswlabshp.com",
        "MarkedForDeletion" : "",
        "VMOwnerId" : ""
      }
    }
  ]
}
```

```
    "HPCSPort" : "",
    "LSID" : "79",
    "HAEnabled" : "",
    "ParentUUID" : "38393636-3430-4753-4832-333442364c53",
    "DynamicMemoryEnabled" : "",
    "LSMode" : "UnCapped",
    "CPUVendor" : "",
    "HasSnapshot" : "",
    "BelongsToDatacenter" : "16.184.45.37/BLR-APPLE-DC",
    "VMHost_UUID" : "",
    "LSName" : "421ad522-d7f5-0025-1b0a-409df1a2898f",
    "VirtVersionState" : "",
    "ManagementUUID" : "",
    "LSShared" : "Shared",
    "HPCSProtocol" : "",
    "SystemHostName" : "ci-0050569A79AA"
  },
  "resourcepath" : "/vm/62",
  "resourceid" : 62,
  "sizing" : {
    "PO_MemCapacity" : 10.0,
    "PO_CPUCycleEntlMin" : 0.0,
    "PO_RecommendedNumCPU" : 1.0,
    "PO_RecommendedCPUReservation" : 0.0,
    "PO_RecommendedMem" : 5.0,
    "PO_MemEntlMin" : 0.0,
    "PO_RecommendedMemReservation" : 0.0,
    "PO_NumCpu" : 2
  },
  "MemSize" : "oversized",
  "CPUSize" : "oversized"
},
.....
```

To get information of a specific VM

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/<instance_id>
```

The following JSON is returned in the response:

```
{
  "instance" : [
    {
      "properties" : {
        "SystemOSName" : "Windows Server 2012 R2 Standard",
        "StatTime" : "",
        "SystemID" : "1FEDE220-B72F-432E-AFA2-6FCE94D19B1E",
        "SystemOSRelease" : "",
        "ParentType" : "HOST",
        "SystemPath" : "",
        "SystemRole" : "GUEST",
        "Type" : "",
        "UseHardwareAssistedVirtualization" : "",
        "MacAddress" : "00:15:5D:2F:78:13",
        "SystemHostHostName" : "GOLDRICH6.iwflabs.com",
        "SystemVirtType" : "Hyper-V",
        "ClusterName" : "hyperv-clus",
        "SystemOSVersion" : "",
        "ManagementIP" : "",
        "FlavorId" : "",
        "VCIPAddress" : "",
        "SystemVirtPlatform" : "",
        "InstanceName" : "",
        "CPUArch" : "",
        "ProcessorVendor" : "",
        "VirtVersion" : ""
      }
    }
  ]
}
```

```
    "SystemName" : "HyperV_VM2",
    "MarkedForDeletion" : "",
    "VMOwnerId" : "",
    "HPCSPort" : "",
    "LSID" : "",
    "HAEnabled" : "",
    "ParentUUID" : "35353636-3235-4753-4834-303241525843",
    "DynamicMemoryEnabled" : "True",
    "LSMode" : "",
    "CPUVendor" : "",
    "HasSnapshot" : "",
    "BelongsToDatacenter" : "",
    "VMHost_UUID" : "",
    "LSName" : "",
    "VirtVersionState" : "",
    "ManagementUUID" : "",
    "LSShared" : "",
    "HPCSProtocol" : "",
    "SystemHostName" : "WIN-A80SLN3KECF"
  },
  "resourcepath" : "/vm/5",
  "resourceid" : 5,
  "sizing" : {
    "PO_MemCapacity" : 1024.0,
    "PO_CPUCycleEntlMin" : 0.0,
    "PO_RecommendedNumCPU" : 0.0,
    "PO_RecommendedCPUReservation" : 0.0,
    "PO_RecommendedMem" : 206.0,
    "PO_MemEntlMin" : 0.5,
    "PO_RecommendedMemReservation" : 0.548828125,
    "PO_NumCpu" : 1
  },
  "MemSize" : "oversized",
```

```
"CPUSize" : "oversized"  
} ]  
}  
}
```

Datstores

The following section gives sample JSON response generated by the REST API for optimization recommendations for Datstores.

To get datastore information along with sizing details

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datastore
```

The following JSON is returned in the response:

```
{  
  "instancecount" : 20,  
  "instances" : [ {  
    "properties" :  
    {  
      "ParentUUID" : "35353636-3235-4753-4834-303241525843",  
      "SystemVirtType" : "Hyper-V",  
      "SystemID" : "02e045f8-3ea8-4d7d-844b-eb82ea0550bb",  
      "ParentType" : "HOST",  
      "ClusterName" : "",  
      "BelongsToDatacenter" : "",  
      "Type" : "NTFS",  
      "SystemRole" : "DATASTORE",  
      "LSName" : "",  
      "SystemName" : "New Volume (E:)"  
    },  
    "resourcepath" : "/datastore/1",  
    "resourceid" : 1,  
  }  
]
```

```
    "sizing" :  
    {  
        "PO_StorageReclaimable" : 0.0,  
        "PO_StorageAllocationPossibleAfterReclaim" : 48130.54,  
        "PO_DiskUsage" : 917.57  
    }  
}, .....  
{  
    "properties" :  
    {  
        "ParentUUID" : "35353636-3235-4753-4834-303241525843",  
        "SystemVirtType" : "Hyper-V",  
        "SystemID" : "1dfeb6df-4da3-11e3-80b4-806e6f6e6963",  
        "ParentType" : "HOST",  
        "ClusterName" : "",  
        "BelongsToDatacenter" : "",  
        "Type" : "NTFS",  
        "SystemRole" : "DATASTORE",  
        "LSName" : "",  
        "SystemName" : "GOLDRICH6 (C:)"  
    },  
    "resourcepath" : "/datastore/2",  
    "resourceid" : 2,  
    "sizing" : {  
        "PO_StorageReclaimable" : 0.0,  
        "PO_StorageAllocationPossibleAfterReclaim" : 4767.22,  
        "PO_DiskUsage" : 86.3  
    }  
}
```

To get information of a specific datastore

Use the following URL:


```
https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>
```

The following JSON is returned in the response:

```
{
  "instance" : [
    {
      "properties" :
      {
        "ParentUUID" : "35353636-3235-4753-4834-303241525843",
        "SystemVirtType" : "Hyper-V",
        "SystemID" : "1dfeb6df-4da3-11e3-80b4-806e6f6e6963",
        "ParentType" : "HOST",
        "ClusterName" : "",
        "BelongsToDatacenter" : "",
        "Type" : "NTFS",
        "SystemRole" : "DATASTORE",
        "LSName" : "",
        "SystemName" : "GOLDRICH6 (C:)"
      },
      "resourcepath" : "/datastore/2",
      "resourceid" : 2,
      "sizing" :
      {
        "PO_StorageReclaimable" : 0.0,
        "PO_StorageAllocationPossibleAfterReclaim" : 4767.22,
        "PO_DiskUsage" : 86.3
      }
    }
  ]
}
```

To get information about all the VMs on a specific datastore

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>/vm
```

The following JSON is returned in the response:

```
{
  "instancecount" : 3,
  "instances" : [ {
    "properties" : {
      "ParentUUID" : "4ba37e78-d1000676-135b-d8d385ab1163",
      "SystemVirtType" : "VMWARE",
      "SystemID" : "42131097-1760-a71e-87b6-8b3a60178fb4/JMeter4vPVTest",
      "ParentType" : "DATASTORE",
      "SystemRole" : "GUEST",
      "SystemName" : "JMeter4vPVTest",
      "DatastoreID" : "4ba37e78-d1000676-135b-d8d385ab1163",
      "DatastoreName" : "EVA_HPSW-Template002"
    },
    "resourcepath" : "/vm/74",
    "resourceid" : 74,
    "sizing" : {
      "DiskProvisioned" : 18.1,
      "ActivityStatus" : "idle",
      "DiskUsed" : 4.55
    },
    "datastorepath" : ""
  },
  {
    "properties" : {
      "ParentUUID" : "4ba37e78-d1000676-135b-d8d385ab1163",
```

```
        "SystemVirtType" : "VMWARE",
        "SystemID" : "421339d3-4325-e674-a845-f2d38c885045/pmivpv-117-2.1-5-NOV",
        "ParentType" : "DATASTORE",
        "SystemRole" : "GUEST",
        "SystemName" : "pmivpv-117-2.1-5-NOV",
        "DatastoreID" : "4ba37e78-d1000676-135b-d8d385ab1163",
        "DatastoreName" : "EVA_HPSW-Template002"
    },
    "resourcepath" : "/vm/194",
    "resourceid" : 194,
    "sizing" : {
        "DiskProvisioned" : 56.09,
        "ActivityStatus" : "active",
        "DiskUsed" : 22.4
    },
    "datastorepath" : ""
}, {
    "properties" : {
        "ParentUUID" : "4ba37e78-d1000676-135b-d8d385ab1163",
        "SystemVirtType" : "VMWARE",
        "SystemID" : "42139d3b-6e0b-7fbd-e55e-b6580e06ff8a/vpv-kamboji-2.1-13-Nov",
        "ParentType" : "DATASTORE",
        "SystemRole" : "GUEST",
        "SystemName" : "vpv-kamboji-2.1-13-Nov",
        "DatastoreID" : "4ba37e78-d1000676-135b-d8d385ab1163",
        "DatastoreName" : "EVA_HPSW-Template002"
    },
    "resourcepath" : "/vm/509",
    "resourceid" : 509,
    "sizing" : { },
    "datastorepath" : ""
} ]
}
```

To get information of a specific VM in a datastore filtered on the basis of Status

Use the following URL:

```
https://<ip_address>:<port_number>/PV/api/v1/datastore/<instance_id>/vm?status=<vm_status>
```

The following JSON is returned in the response:

```
{  
  "instancecount" : 1,  
  "instances" : [ {  
    "properties" : {  
      "ParentUUID" : "4ba37e78-d1000676-135b-d8d385ab1163",  
      "SystemVirtType" : "VMWARE",  
      "SystemID" : "42131097-1760-a71e-87b6-8b3a60178fb4/JMeter4vPVTest",  
      "ParentType" : "DATASTORE",  
      "SystemRole" : "GUEST",  
      "SystemName" : "JMeter4vPVTest",  
      "DatastoreID" : "4ba37e78-d1000676-135b-d8d385ab1163",  
      "DatastoreName" : "EVA_HPSW-Template002"  
    },  
    "resourcepath" : "/vm/74",  
    "resourceid" : 74,  
    "sizing" : {  
      "DiskProvisioned" : 18.1,  
      "ActivityStatus" : "idle",  
      "DiskUsed" : 4.55  
    },  
    "datastorepath" : ""  
  } ]  
}
```

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Feedback on HP vPV API Reference Guide (Virtualization Performance Viewer 2.10)

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