



Intel Accelerated Storage Manager

System Plugin REST API

INTEL CONFIDENTIAL

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Revision History

Revision	Contributor	Description	Date
0.1	Marek Bielańczuk	Initial version of document.	March, 2015
0.1.1 - 0.1.9	Team	Peer editing	March-December, 2015
0.2	Marek Bielańczuk	Merge and cleanup	December, 2015
0.2.1	Marek Bielańczuk	Changed in list of available plugins request.	December, 2015
0.2.2	Marek Bielańczuk	Added available errors IDs.	December, 2015
0.2.3	Piotr Wróblewski	Host performance logical processors OAuth parameters. Removed partition type. Added device type NVME.	January, 2016
0.2.4	Piotr Wróblewski	Style and language fixes. Response examples indentation.	March, 2016
0.2.5	Marek Bielańczuk	Changed document name.	April 2016
0.2.6	Piotr Wróblewski	Added <i>SerialNumber</i> to host device. Examples fixes.	April 2016
0.2.7	Piotr Wróblewski	Added <i>availableMemory</i> , <i>cachedMemory</i> and <i>memoryUsage</i> to memory performance.	May 2016
0.2.8	Marek Bielańczuk	Updated devices and partition for LVM structure.	July 2016
1.1.0	Marcin Dembiński	Added "NONE" type for device.	July 2017
1.1.1	Marcin Dembiński	Removed "NAS" type of device.	January 2018
2.0	Marcin Dembiński	Global refactor of documentation	April 2018

1. Introduction

This document is a reference for Intel ASM Service API. Scope of this API covers access to system resources of host machine where agent is installed.

2. URI structure

Access to resources is provided via URI paths. Client applications should send requests over the HTTP protocol using standard GET method.

Intel ASM System Plugin URI structure:

```
{protocol}://{host}[:{port}]/v1/info/{resource}
```

Where:

{protocol}	Communication protocol – http or https
{host}	Host machine IP address or domain name where IASM is installed
{port}	Port number on which IASM service is listening. Optional if port is default for its protocol (80 for http, 443 for https)
v1	Stands for first version of API definition
info	Namespace for all resources related to System Plugin host information
{resource}	Name of resource to be returned

3. Response handling

REST API returns responses in wrapper format presented below. Note: Even response with error returns Status 200 OK.

Response format		
data	object or array	Contains the request response. It can be either an array or an object. Null if success is false.
status	object	Contains the response status object.
{}.success	bool	Response status. Determines if the request was successful or end with an error.
{}.errorId	string	<i>[Optional parameter]</i> Identifier of the return error. Present only if success is false.
{}.errorMessage	string	<i>[Optional parameter]</i> Additional, detailed message which describes occurred error and its reason. Present only if success is false.

Response examples:

```
# Successful request's response example
Status: 200 OK
{
  "data": {
    # returned information from REST API
  },
  "status": {
    "success": true
  }
}
```

```
# Failed request's response example
Status: 200 OK
{
  "data": null,
  "status": {
    "errorId": "INVALID_PARAMETER",
    "errorMessage": "Argument: verbose not allowed",
    "success": false
  }
}
```

4. OAuth parameters

To get access to System Plugin resources, the OAuth scope parameter must contain value "info":

scope=info

5. Resources

Below is a list of all available resources for Intel ASM System Plugin.

5.1 Plugin version

[GET] /v1/info/version		
Obtains version of currently installed IASM agent service and System Plugin version.		
Request parameters		
<i>none</i>		
Response parameters (Object)		
agentVersion	string	Installed Intel ASM service version. Version format: Major.Minor.Revision.Build
pluginVersion	string	Installed System Plugin version. Version format: Major.Minor.Revision.Build
Available Errors		
INVALID_PARAMETER		Additional field's been attached with the request.
INTERNAL_ERROR		An unexpected error occurred during request process.

Request Example:

```
GET https://example.com/v1/info/version
```

```
{
  "data": {
    "agentVersion": "2.0.0.1",
    "pluginVersion": "2.0.0.1"
  },
  "status": {
    "success": true
  }
}
```

5.2 List of available plugins

```
[GET] /v1/info/products
```

Obtains all services available on this node according to plugins loaded from agent and plugins directories.

Request parameters

none

Response parameters (Array)

id	string	Service identifier for internal usage.
name	string	Service display name.
state	string	Plugin state. If plugin cannot communicate with the agent, the state will be DISABLED, otherwise ENABLED. Possible values: ENABLED, DISABLED.
version	string	Plugin version. Version format: Major.Minor.Revision.Build

Available Errors

INVALID_PARAMETER	Additional field's been attached with the request.
INTERNAL_ERROR	An unexpected error occurred during request process.

Request Example:

```
GET https://example.com/v1/info/products
```

```

{
  "data": [
    {
      "id": "VROC plugin",
      "name": "Intel Virtual RAID on CPU plugin",
      "state": "ENABLED",
      "version": "6.0.0.1042"
    },
    {
      "id": "System plugin",
      "name": "System plugin",
      "state": "ENABLED",
      "version": "2.0.0.14"
    }
  ],
  "status": {
    "success": true
  }
}

```

5.3 Host general system information

[GET] /v1/info/system		
Obtains system basic information, like OS, architecture and host name.		
Request parameters		
<i>none</i>		
Response parameters (Object)		
arch	string	System architecture. Possible values: x86, x64
domain	string	Platform domain. If platform is not a part of a domain, this field will be empty.
hostname	string	Platform name.
name	string	Full system name in a readable format.
release	string	System released version.
serialNumber	string	Motherboard serial number.
type	string	System type. Possible values: WINDOWS, LINUX
Available Errors		
INVALID_PARAMETER	Additional field's been attached with the request.	
INTERNAL_ERROR	An unexpected error occurred during request process.	

Request Example:

```
GET https://example.com/v1/info/system
```

```
# for Windows
{
  "data": {
    "arch": "x64",
    "domain": "domain.example.com",
    "hostname": "LAB-NODE-58",
    "name": "Microsoft Windows Server 2016 Standard Evaluation",
    "release": "10.0.14393",
    "serialNumber": "SPR003200011",
    "type": "WINDOWS"
  },
  "status": {
    "success": true
  }
}
```

```
# for Linux
{
  "data": {
    "arch": "x64",
    "domain": "",
    "hostname": "LAB-NODE-123",
    "name": "Red Hat Enterprise Linux Server 7.4 (Maipo)",
    "release": "3.10.0-693.el7.x86_64",
    "serialNumber": "SPR003200043",
    "type": "LINUX"
  },
  "status": {
    "success": true
  }
}
```

5.4 Host CPU information

```
[GET] /v1/info/cpu
```

Obtains a list of physical CPUs and its' usage information.

Request parameters

none

Response parameters (Array)

coresNumber	integer	Number of cores.
cpuId	string	CPU identifier.
frequency	integer	CPU nominal frequency (MHz).
modelName	string	CPU model name.
procNumber	integer	Number of logical processors.
vendorId	string	CPU vendor id.

Available Errors

INVALID_PARAMETER	Additional field's been attached with the request.
INTERNAL_ERROR	An unexpected error occurred during request process.

Request Example:

```
GET https://example.com/v1/info/cpu
```

```
{
  "data": [
    {
      "coresNumber": 26,
      "cpuId": "CPU0",
      "frequency": 2400,
      "modelName": "Intel(R) Xeon(R) Platinum 8167M CPU @ 2.00GHz",
      "procNumber": 52,
      "vendorId": "GenuineIntel"
    },
    {
      "coresNumber": 26,
      "cpuId": "CPU1",
      "frequency": 2400,
      "modelName": "Intel(R) Xeon(R) Platinum 8167M CPU @ 2.00GHz",
      "procNumber": 52,
      "vendorId": "GenuineIntel"
    }
  ],
  "status": {
    "success": true
  }
}
```

5.5 Memory information

```
[GET] /v1/info/memory
```

Obtains system memory and usage information.

Request parameters

none

Response parameters (Array)

Parameter	Type	Description
bankLabel	string	Physical bank label.
capacity	string	Physical memory capacity (bytes).
deviceLocator	string	Label of physical memory socket.
manufacturer	string	Manufacturer name.
type	string	Memory type. Possible values: DRAM, Synchronous DRAM, Cache DRAM, EDO, EDRAM, VRAM, SRAM, RAM, ROM, Flash, EEPROM, FEPRM, CDRAM, 3DRAM, SDRAM, SGRAM, DDR, DDR2, DDR3, DD2 FB-DIMM, FB-DIMM, FBD2, DDR4, LP DDR, LP DDR2, LP DDR3, LP DDR4, Other, Reserved, Unknown

Available Errors

INVALID_PARAMETER	Additional field's been attached with the request.
INTERNAL_ERROR	An unexpected error occurred during request process.

Request Example:

```
GET https://example.com/v1/info/memory
```

```
{
  "data": [
    {
      "bankLabel": "NODE 1",
      "capacity": "17179869184",
      "deviceLocator": "CPU1_DIMM_A1",
      "manufacturer": "Micron",
      "type": "DDR4"
    }
  ],
  "status": {
    "success": true
  }
}
```

5.6 Host device and partitions

```
[GET] /v1/info/device
```

Obtains a list of all disks with partitions from the machine.

Request parameters

none

Response parameters (Array)

device	string	Device identifier. Windows: It is a unique name of the physical device, e.g. \\.\PHYSICALDRIVE0 Linux: It is a representation within /dev pseudo file system, e.g. /dev/sda
model	string	Device model.
partitions	array	Array of disk partitions. Can be empty.
[].fileSystem	string	Partition filesystem.
[].freeSpace	string	Partition free space in bytes.
[].label	string	Partition label. Can be empty.
[].mountPoints	array	Array of strings pointing to locations where partition is logically attached. Windows: At least main mountpoint (e.g. C:\) is present. Linux: Can be empty.
[].name	string	Partition name. Windows: A letter of the main mountpoint with ':'. Linux: /dev pseudo file representation (e.g. /dev/sda1)
[].size	string	Partition size in bytes.
[].system	bool	True if partition holds an OS.

serialNumber	string	Device serial number.
size	string	Size of the device in bytes.
type	string	Device type. Possible values: SSD, HDD, NVMe , NONE, UNKNOWN.
Available Errors		
INVALID_PARAMETER	Additional field's been attached with the request.	
INTERNAL_ERROR	An unexpected error occurred during request process.	

Request Example:

```
GET https://example.com/v1/info/device
```

```
# Windows example
{
  "data": [
    {
      "device": "\\.\PHYSICALDRIVE7",
      "model": "NVMe INTEL SSDPEDME40",
      "partitions": [
        {
          "fileSystem": "ntfs",
          "freeSpace": "7922966528",
          "label": "",
          "mountPoints": [
            "D:\"
          ],
          "name": "D:",
          "size": "46935306240",
          "system": false
        },
        {
          "fileSystem": "ntfs",
          "freeSpace": "4628955136",
          "label": "",
          "mountPoints": [
            "C:\"
          ],
          "name": "C:",
          "size": "58289287168",
          "system": true
        }
      ],
      "serialNumber": "CVMD52410011400AGN",
      "size": "400085844480",
      "type": "NVMe"
    }
  ],
  "status": {
    "success": true
  }
}
```

```

# Linux example
{
  "data": [
    {
      "device": "/dev/sda",
      "model": "INTEL SSDSC2BA200G3",
      "partitions": [
        {
          "fileSystem": "ext4",
          "freeSpace": "3484069888",
          "label": "RedHat",
          "mountPoints": [
            "/"
          ],
          "name": "/dev/sda1",
          "size": "10430504960",
          "system": true
        },
        {
          "fileSystem": "swap",
          "freeSpace": "8210505728",
          "label": "DUT-SWAP",
          "mountPoints": [],
          "name": "/dev/sda2",
          "size": "8210505728",
          "system": false
        }
      ],
      "serialNumber": "BTTV335509AS200GGN",
      "size": "200049647616",
      "type": "SSD"
    }
  ],
  "status": {
    "success": true
  }
}

```

5.7 Host performance information

[GET] /v1/info/performance[/cpu|/memory|/partitions]

Gathers system performance information like CPU load and memory usage. Optional URL parameters allows to limit response to queried data type only.

Request parameters

none

Response parameters (Object)

cpu	object	CPU performance information.
{}.cpus	array	Array of CPUs.
{}.[].cpuId	string	Identifier of the CPU.
{}.[].frequency	integer	CPU current frequency in MHz.
{}.[].logicalProcessors	array	Array of logical CPUs.
{}.[].[].id	integer	Logical CPU identifier.
{}.[].[].value	integer	The average utilization of logical CPU in percent (0-100).

<code>{}.total</code>	integer	The average load of all CPUs in percent (0-100).
<code>memory</code>	object	Memory performance information.
<code>{}.availableMemory</code>	string	Current available physical memory in bytes.
<code>{}.cachedMemory</code>	string	Current cached memory in bytes. Windows: Memory used by the file system cache. Linux: Memory used by kernel buffers, page cache and slabs.
<code>{}.memoryUsage</code>	integer	Memory usage in percent (0-100).
<code>partitions</code>	array	List of partitions performance.
<code>[].name</code>	string	Partition name.
<code>[].percentFreeSpace</code>	integer	Partition free space in percent (0-100).
Available Errors		
<code>INVALID_PARAMETER</code>		Additional field's been attached with the request.
<code>INTERNAL_ERROR</code>		An unexpected error occurred during request process.

Request Example:

```
GET https://example.com/v1/info/performance/cpu
```

```
{
  "data": {
    "cpu": {
      "cpus": [
        {
          "cpuId": "CPU0",
          "frequency": 698,
          "logicalProcessors": [
            {
              "id": 0,
              "value": 23
            },
            {
              "id": 1,
              "value": 0
            },
            {
              "id": 2,
              "value": 5
            }
          ]
        }
      ]
    },
    "total": 9
  },
  "status": {
    "success": true
  }
}
```

```
GET https://example.com/v1/info/performance/memory
```

```
{
  "data": {
    "memory": {
      "availableMemory": "9705992192",
      "cachedMemory": "191963136",
      "memoryUsage": 20
    }
  },
  "status": {
    "success": true
  }
}
```

```
GET https://example.com/v1/info/performance/partitions
```

```
{
  "data": {
    "partitions": [
      {
        "name": "D:",
        "percentFreeSpace": 16
      },
      {
        "name": "C:",
        "percentFreeSpace": 7
      }
    ]
  },
  "status": {
    "success": true
  }
}
```

```
GET https://example.com/v1/info/performance
```

```
{
  "data": {
    "cpu": {
      # like in the above example for cpu
    },
    "memory": {
      # like in the above example for memory
    },
    "partitions": [
      # like in the above example for partitions
    ]
  },
  "status": {
    "success": true
  }
}
```