

OpenNebula IO limit hook

1.0

Generated by Doxygen 1.7.1

Fri Sep 14 2012 15:56:03

Contents

1	OpenNebula IO limit hook	1
1.1	DESCRIPTION	1
1.2	CONTENTS:	1
2	Setup	3
3	Developer documentation	5
3.1	GLOBAL DEFINITIONS	5
3.2	FUNCTIONS	5
4	File Index	7
4.1	File List	7
5	File Documentation	9
5.1	iolimit.sh File Reference	9
5.1.1	Detailed Description	9

Chapter 1

OpenNebula IO limit hook

1.1 DESCRIPTION

With this hook, specified IO limits can be set for virtual machines (VM) in OpenNebula. The IO limits can be configured in VM's template through the 'IOLIMIT' custom variable. The hooks should be executed after the VM is successfully booted.

The hook uses a program, called *cgroup* to set IO limits. The IO limit settings are handled by the *blkio* subsystem of cgroup, which can be used to specify upper IO rate limits on devices.

1.2 CONTENTS:

- [Setup](#)
- [Developer documentation](#)

Chapter 2

Setup

Requirement of the script is the cgroup program, which is usually in the main Linux repository, so it can be installed by the command: Debian / Ubuntu:

```
# apt-get install cgroup-bin
```

Red Hat Enterprise / Fedora Linux / Suse Linux / Cent OS:

```
# yum install libcgroup.i686
```

or

```
# yum install libcgroup.x86_64
```

Cgroup can set IO limits only on block devices. Recommended to use LVM, for instance:

shared lvm patch: <http://dev.opennebula.org/issues/1341>

Hook configuration

COMMON: Path to scripts_common.sh, used for log functions

DEVICEDIR: Path to the mounted VM devices

CGROUP: Path to cgroup directory

For right behavior 'IOLIMIT' custom variable must be present in VM's template. 'IOLIMIT' variable specifies upper limit on write- and read rate to the device. IO rate is specified in bytes per second.

Options for adding custom variables:

- In Sunstone by VM Template Wizard in section 'Add custom variables'
- Manually by editing a template

Example for template with 1024 byte/sec IO limit:

```
CPU="1"
DISK=[
    IMAGE="ttylinux - kvm",
    IMAGE_UNAME="oneadmin" ]
FEATURES=[
    PAE="no" ]
IOLIMIT="1024"
MEMORY="512"
NAME="example"
OS=[
    ARCH="x86_64",
    BOOT="hd" ]
RAW=[
    TYPE="kvm" ]
TEMPLATE_ID="1"\n
```

After setting 'IOLIMIT' variables in, a VM hook must be defined in \$ONE-LOCATION/etc/oned.conf:

```
VM_HOOK = [
    name      = "iolimit",
    on        = "RUNNING",
    command   = "/var/tmp/one/hooks/iolimit.sh",
    arguments = "$TEMPLATE",
    remote    = "YES" ]
```


Chapter 3

Developer documentation

3.1 GLOBAL DEFINITIONS

COMMON: OpenNebula's helper scripts, used for log functions

Example:

```
COMMON='/var/tmp/one/scripts_common.sh'
```

DEVICEDIR: directory where the devices were mounted

Example:

```
DEVICEDIR='/dev/shared_lvm'
```

CGROUP: path to cgroup directory

Example:

```
CGROUP='/cgroup'
```

3.2 FUNCTIONS

function init(): check if \$DEVICEDIR is readable

function read_dom(): read DOM element value

function get_element(): get DOM element value from DOM elements

Parameters

[in] *entity* DOM element

Returns

DOM element value

function decodebase64(): decode base64 encoded text

Parameters

[in] *text* base64 encoded text

function get_numbers(): get major and minor id of the device, and save cgroup rules in a tempfile

Parameters

[in] *id* virtual machine's ID

[in] *iolimit* IO limit value from virtual machine's template

function cgroup_setup(): mount cgroup's block IO controller, and set it up

function main(): main function

Parameters

[in] *encoded_template* base64 encoded template xml

Chapter 4

File Index

4.1 File List

Here is a list of all files with brief descriptions:

iolimit.sh	9
--------------------------------------	---

Chapter 5

File Documentation

5.1 iolimit.sh File Reference

5.1.1 Detailed Description

Author

Unicsovics Milan, u.milan@gmail.com, MTA SZTAKI

Version

1.0

Definition in file [iolimit.sh](#).

Index

iolimit.sh, [9](#)