

SNA Lab - Storage & Monitoring

Choice 3 - DIY alerting

I created two instances with Ubuntu 18.04.2 LTS in AWS. One to monitor, another one to be monitored

<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
<input checked="" type="checkbox"/>	Monitor	i-0ced2ef96e59069ab	t2.micro	us-east-2c	 running	 2/2 checks ...	None	 ec2-18-188-77-206
<input type="checkbox"/>	Machine	i-00b64e5314dd19bc5	t2.micro	us-east-2c	 running	 2/2 checks ...	None	 ec2-18-217-178-77

- Setup outgoing emails on a remote server and check that you receive those (date | mail -s \$(uname -n) root)

Configured Postfix to use Gmail as a Mail Relay

```
$ apt-get update && apt-get install postfix mailutils
```

Edited such that:

```
[smtp.gmail.com]:587 username@gmail.com:password
```

(in my case totallytrueeducationdepartment@gmail.com)

```
$ chmod 600 /etc/postfix/sasl_passwd
```

```
$ nano /etc/postfix/main.cf
```

Added the following values:

```
relayhost = [smtp.gmail.com]:587
```

```
smtp_use_tls = yes
```

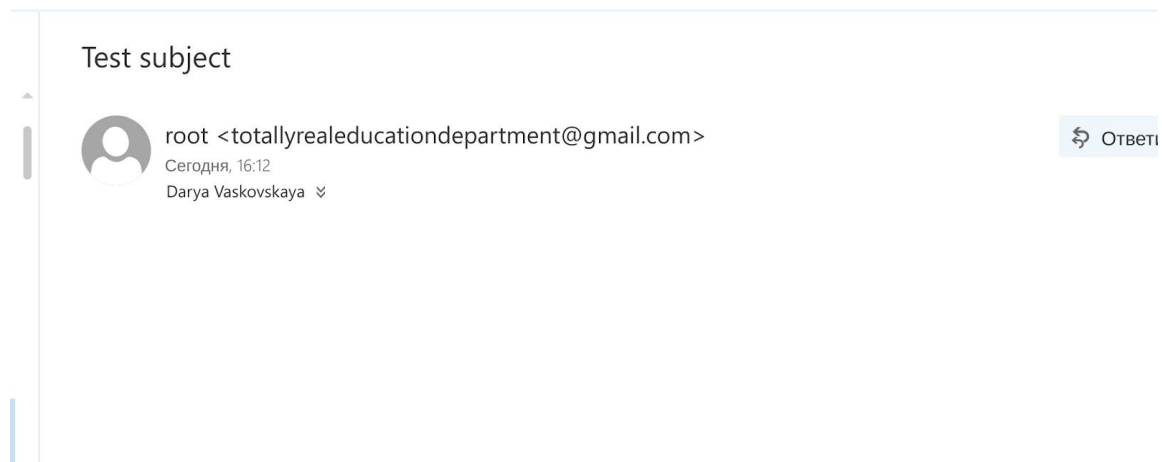
```
smtp_sasl_auth_enable = yes
```

```
smtp_sasl_security_options =  
smtp_sasl_password_maps = hash:/etc/postfix/sasl_passwd  
smtp_tls_CAfile = /etc/ssl/certs/ca-certificates.crt  
$ postmap /etc/postfix/sasl_passwd  
$ systemctl restart postfix.service
```

[Enabled "Less Secure Apps" In Gmail](#)

Tested (under root):

```
mail -s "Test subject" ] d.vaskovskaya@innopolis.ru
```



Changed aliases to make e (date | mail -s \$(uname -n) root) work.

Added **root**: d.vaskovskaya@innopolis.ru to /etc/aliases

```
$ newaliases
```

```
$service postfix restart
```

ip-172-31-37-17



Ubuntu <totallyrealeducationdepartment@gmail.com>

Сегодня, 22:29

root@ip-172-31-37-17.us-east-2.compute.internal ↵

Tue Nov 5 19:28:48 UTC 2019

- Create a small fake disk, a file-system on it and mount it

```
$ sudo dd if=/dev/zero of=VHD.img bs=1M count=1200
```

```
$ sudo mkfs -t ext4 VHD.img
```

```
$ sudo mkdir /mnt/VHD/
```

```
$ sudo mount -t auto -o loop VHD.img /mnt/VHD/
```

```
$df -hT
```

```
ubuntu@ip-172-31-41-24:/mnt/VHD$ df -hT
```

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
udev	devtmpfs	481M	0	481M	0%	/dev
tmpfs	tmpfs	99M	748K	98M	1%	/run
/dev/xvda1	ext4	7.7G	1.3G	6.5G	16%	/
tmpfs	tmpfs	492M	0	492M	0%	/dev/shm
tmpfs	tmpfs	5.0M	0	5.0M	0%	/run/lock
tmpfs	tmpfs	492M	0	492M	0%	/sys/fs/cgroup
/dev/loop0	squashfs	89M	89M	0	100%	/snap/core/7270
/dev/loop1	squashfs	18M	18M	0	100%	/snap/amazon-ssm-agent/1455
tmpfs	tmpfs	99M	0	99M	0%	/run/user/1000
/dev/loop2	ext4	681M	1.4M	630M	1%	/mnt/VHD

- From a monitoring station, check that you can run a script remotely with SSH, ClusterIt2 or any other remote - ideally distributed - shell

disk_usage_impl.bash:

```
#!/bin/bash

temp=`df --output=pcent /dev/loop2 | grep -o '[0-9]*'`

echo $temp


#!/bin/bash
```

disk_usage.bash:

```
temp=`/usr/bin/ssh -i /home/ubuntu/.ssh/id_rsa
ubuntu@ec2-18-217-178-77.us-east-2.compute.amazonaws.com '/bin/bash -s'
</home/ubuntu/monitor/disk_usage_impl.bash`

if [ $temp -gt 85 ]

then

    echo "Alert, disk usage: $temp %" | mail -s "Alert"
    d.vaskovskaya@innopolis.ru

fi
```

It does not send email then disk usage ~0%

• Then run the remote DIY monitoring script as a cron job

Added to the /tmp/crontab.QwzJvm/crontab through (\$crontab -e):

```
*/15 * * * * /home/ubuntu/monitor/disk_usage.bash
```

• Fill the small fake file-system with DD and check that you receive an email alert

```
$ cd /mnt/VHD
```

```
$ sudo fallocate -l 0.68G file
```

(Alternatively: `$ dd if=/dev/zero of=filename bs=$((1024*1024)) count=$((10*1024))`)

```
$df -hT
```

```
ubuntu@ip-172-31-41-24:/mnt/VHD$ df -hT
Filesystem      Type      Size  Used Avail Use% Mounted on
udev            devtmpfs  481M   0    481M   0% /dev
tmpfs           tmpfs     99M   748K  98M    1% /run
/dev/xvda1      ext4      7.7G  1.3G  6.5G   16% /
tmpfs           tmpfs     492M   0    492M   0% /dev/shm
tmpfs           tmpfs     5.0M   0    5.0M   0% /run/lock
tmpfs           tmpfs     492M   0    492M   0% /sys/fs/cgroup
/dev/loop0      squashfs  89M   89M   0    100% /snap/core/7270
/dev/loop1      squashfs  18M   18M   0    100% /snap/amazon-ssm-agent/
1455
tmpfs           tmpfs     99M   0    99M    0% /run/user/1000
/dev/loop2      ext4      681M  667M   0    100% /mnt/VHD
```

Mail:

Alert



Ubuntu <totallyrealeducationdepartment@gmail.com>

Сегодня, 22:06

Darya Vaskovskaya ✉

Alert, disk usage: 100 %

- **Bonus: monitor something else than disk usage**

cpu_usage_impl.bash:

```
#!/bin/bash
```

```
temp=`awk '{u=$2+$4; t=$2+$4+$5; if (NR==1){u1=u; t1=t;} else
print ($2+$4-u1) * 100 / (t-t1); }' <(grep 'cpu '
/proc/stat)<(sleep 1;grep 'cpu ' /proc/stat)`

echo $temp
```

cpu_usage.bash:

```
#!/bin/bash

temp=`/usr/bin/ssh -i /home/ubuntu/.ssh/id_rsa
ubuntu@ec2-18-217-178-77.us-east-2.compute.amazonaws.com
'/bin/bash -s' < /home/ubuntu/monitor/cpu_usage_impl.bash`

if [ $temp -gt 85 ]

then

    echo "Alert, cpu usage: $temp %" | mail -s "Alert"
d.vaskovskaya@innopolis.ru

fi
```

Added through (\$crontab -e):

```
*/15 * * * * /home/ubuntu/monitor/cpu_usage.bash
```

Stressed with:

```
yes > /dev/null &
```

```
$ htop
```

```
> (ubuntu) ec2-18-217-178-77.us-east-2.compute.amazonaws.com — Konsole
File Edit View Bookmarks Settings Help

CPU[|||||||||||||||||100.0%] Tasks: 30, 28 thr; 1 running
Mem[|||||||||||||98.5M/984M] Load average: 1.00 1.00 1.00
Swp[|||||0K/0K] Uptime: 02:02:19

  PID USER      PRI  NI  VIRT   RES   SHR  S  CPU%  MEM%   TIME+  Com
7818 ubuntu      20   0  7924    732    668  R  98.0   0.1  57:54.11 yes
8482 ubuntu      20   0 32124   4208   3640  R   0.0   0.4   0:00.08 hto
  1 root         20   0   156M   9188   6792  S   0.0   0.9   0:02.72 /sb
 410 root        19  -1  94844 12532 11732  S   0.0   1.2   0:00.80 /li
 411 root        20   0  97708   1736   1564  S   0.0   0.2   0:00.00 /sb
 422 root        20   0  34244   4172   2784  S   0.0   0.4   0:00.37 /li
 578 systemd-t    20   0   138M   3164   2632  S   0.0   0.3   0:00.00 /li
 559 systemd-t    20   0   138M   3164   2632  S   0.0   0.3   0:00.03 /li
 834 systemd-n    20   0  80040   4992   4396  S   0.0   0.5   0:00.03 /li
 857 systemd-r    20   0  70624   4820   4252  S   0.0   0.5   0:00.04 /li
1020 root         20   0   229M   1536   1404  S   0.0   0.2   0:00.00 /us
1021 root         20   0   229M   1536   1404  S   0.0   0.2   0:00.00 /us
1917 root         20   0   229M   1536   1404  S   0.0   0.2   0:00.00 /us
1001 root         20   0   229M   1536   1404  S   0.0   0.2   0:00.00 /us
1010 root         20   0  70576   5908   5148  S   0.0   0.6   0:00.10 /li
```

Got message:

Alert



Ubuntu <totallyrealeducationdepartment@gmail.com>

Сегодня, 22:10

Darya Vaskovskaya

Alert, cpu usage: 100 %

