COURSE: Code Path Cybersecurity

WEEK(S): 10,11

PROJECT: Honeypot

AUTHOR: Rohit Chandra Tejaswi Kashibatla

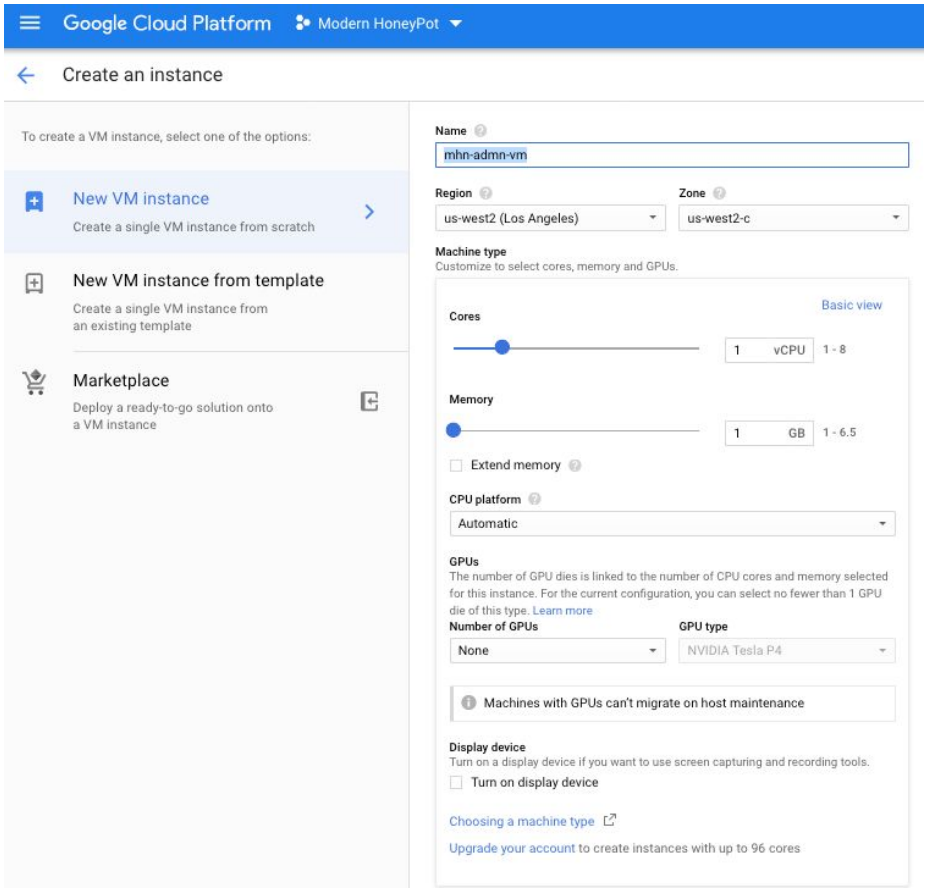
STUDENT ID: 012530830

EMAIL: rohitchandratejaswi.kashibatla@sjsu.edu

Cloud Hosting Provider: Google Cloud Platform

MHN ADMIN VM

1) Instance Creation: Using Compute Engine Create an Ubuntu 14.04 VM Instance to deploy the MHN Admin VM.



Boot disk

New 10 GB standard persistent disk

Image

Ubuntu 14.04 LTS

Change

Identity and API access

Service account

Compute Engine default service account

Access scopes

- (•) Allow default access
- ( ) Allow full access to all Cloud APIs
- ( ) Set access for each API

Firewall

Add tags and firewall rules to allow specific network traffic from the Internet

- [x] Allow HTTP traffic
- [ ] Allow HTTPS traffic

Management Security Disks Networking Sole Tenancy

Network tags (Optional)

mhn-admn-vm

Hostname

Set a custom hostname for this instance or leave it default

mhn-admn-vm.us-west2-c.c.vertical-backup-240509.internal

Network interfaces

default default (10.168.0.0/20)

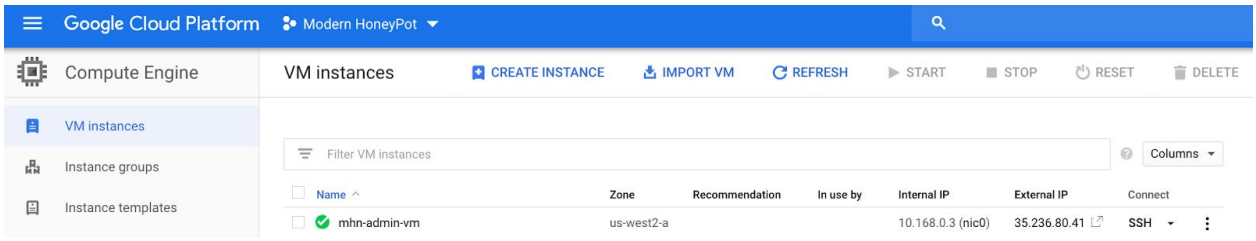
+ Add network interface

To create another network interface you need to have a new network first.

Less

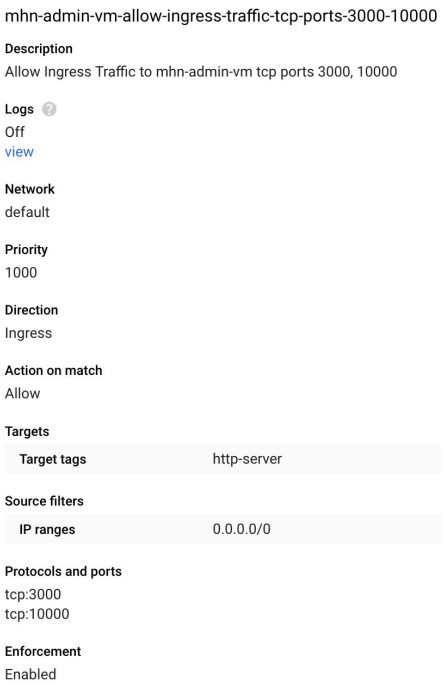
Your free trial credit will be used for this VM instance. GCP Free Tier

Create Cancel



MHN Admin VM Successfully Created

2) Create Firewall Rules: Using the VPC Network's Firewall Rules create Firewall Rules to allow Ingress Traffic to the TCP Ports 80,3000, 10000 used by the Conpot Industrial Control System Honeypot.

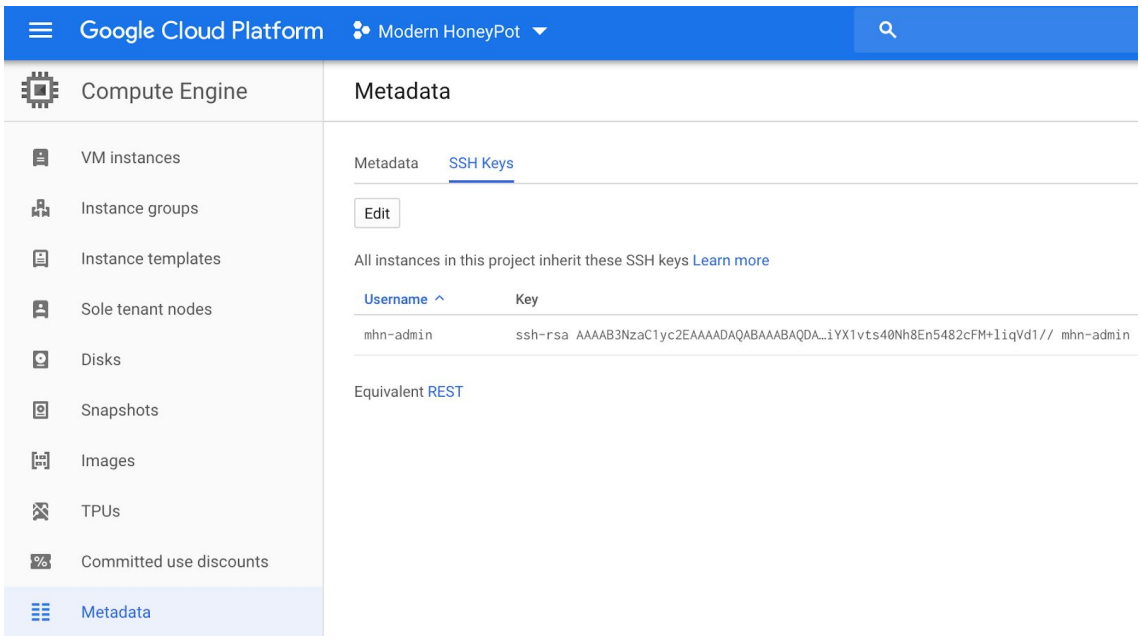


Name	Type	Targets	Filters	Protocols / ports	Action	Priority	Network
mhn-allow-any-traffic-dionaea-honeypot	Ingress	dionaea-honeypot, 3 more	IP ranges: 0.0.0.0/0	all	Allow	1	default
default-allow-http	Ingress	http-server	IP ranges: 0.0.0.0/0	tcp:80	Allow	1000	default
default-allow-https	Ingress	https-server	IP ranges: 0.0.0.0/0	tcp:443	Allow	1000	default
mhn-admin-vm-allow-ingress-traffic-tcp-ports-3000-10000	Ingress	http-server	IP ranges: 0.0.0.0/0	tcp:3000,10000	Allow	1000	default
default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default
default-allow-internal	Ingress	Apply to all	IP ranges: 10.128.0.0/9, 10.168.0.0/24	tcp:0-65535 udp:0-65535 icmp	Allow	65534	default
default-allow-ssh	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	65534	default

3) Basic NMAP Scan to test the Deployed Firewall Rule

```
rkashi@Rohits-MacBook-Pro:~$ nmap 35.236.80.41
Starting Nmap 7.70 ( https://nmap.org ) at 2019-05-14 22:55 PDT
Nmap scan report for 41.80.236.35.bc.googleusercontent.com (35.236.80.41)
Host is up (0.050s latency).
Not shown: 996 filtered ports
PORT      STATE SERVICE
22/tcp    open  ssh
80/tcp    open  http
3000/tcp  open  ppp
10000/tcp open  snet-sensor-mgmt

Nmap done: 1 IP address (1 host up) scanned in 6.35 seconds
```

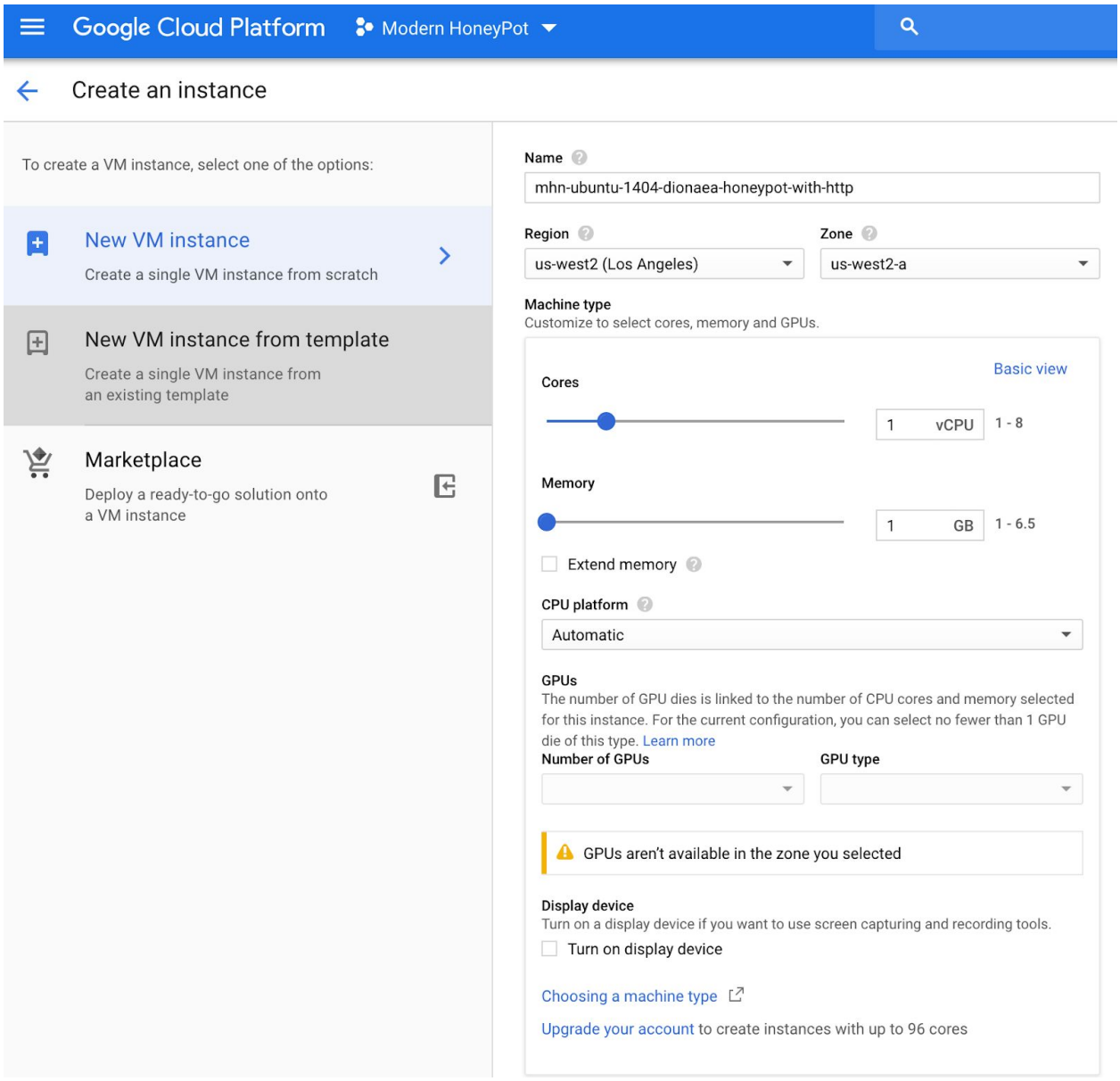
4) Remote Administration of the MHN Admin VM using the SSH (Secure Shell) Protocol: An SSH Public Key was added to the Project's Metadata Section.



Honeypot 1 Combo

Dionaea Honeypot with HTTP
Snort IDS Sensor
P0f TCP/IP Fingerprinting Sensor

1) Instance Creation: Using Compute Engine Create an Ubuntu 14.04 VM Instance


Google Cloud Platform
Modern HoneyPot
Create an instance
To create a VM instance, select one of the options:
New VM instance
Create a single VM instance from scratch
New VM instance from template
Create a single VM instance from an existing template
Marketplace
Deploy a ready-to-go solution onto a VM instance
Name
mhn-ubuntu-1404-dionaea-honeypot-with-http
Region
us-west2 (Los Angeles)
Zone
us-west2-a
Machine type
Customize to select cores, memory and GPUs.
Basic view
Cores
1 vCPU
1 - 8
Memory
1 GB
1 - 6.5
Extend memory
CPU platform
Automatic
GPUs
The number of GPU dies is linked to the number of CPU cores and memory selected for this instance. For the current configuration, you can select no fewer than 1 GPU die of this type. Learn more
Number of GPUs
GPU type
GPUs aren't available in the zone you selected
Display device
Turn on a display device if you want to use screen capturing and recording tools.
Turn on display device
Choosing a machine type
Upgrade your account to create instances with up to 96 cores

Boot disk

New 10 GB standard persistent disk

Image

Ubuntu 14.04 LTS

Change

Identity and API access

Service account

Compute Engine default service account

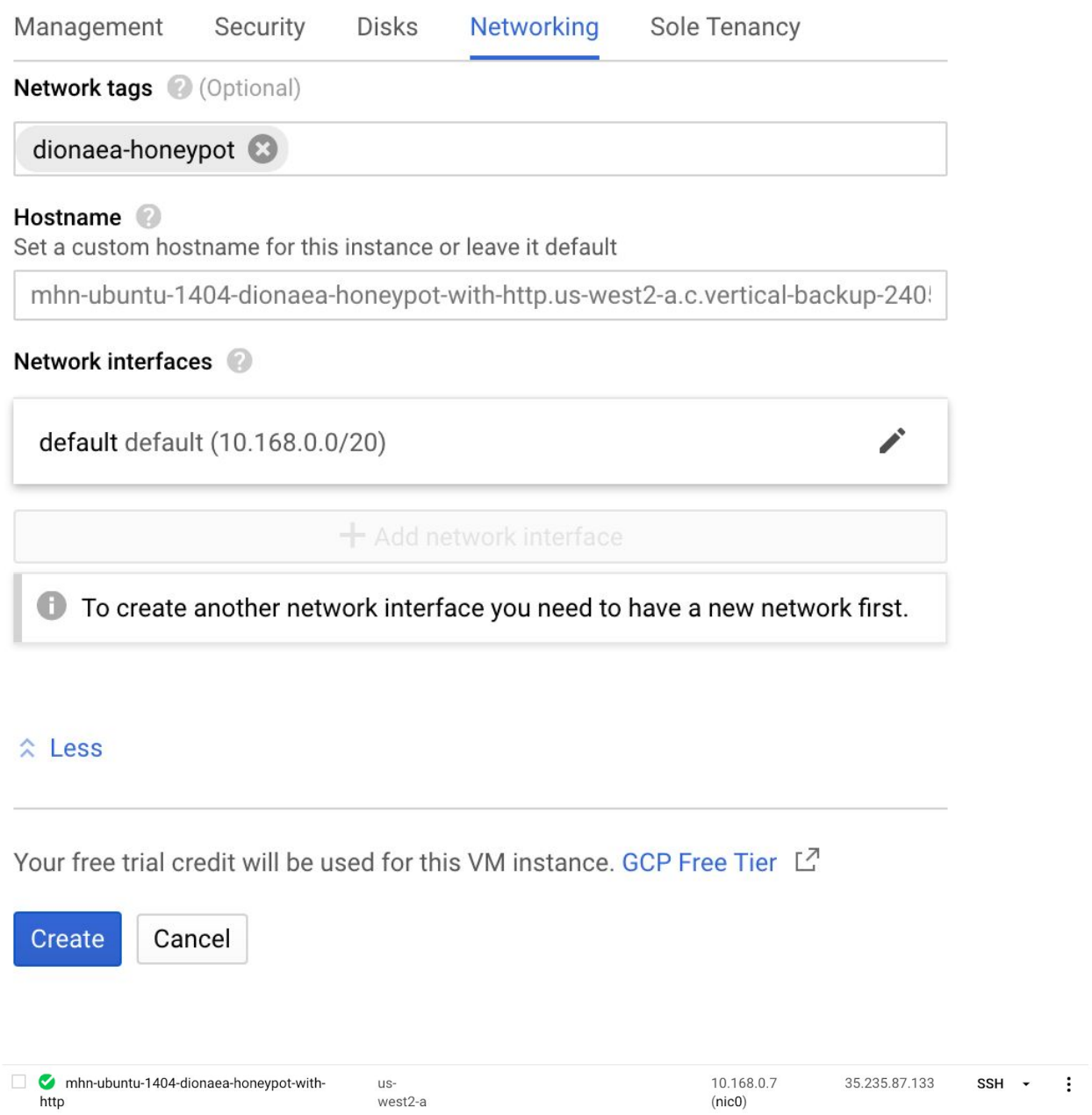
Access scopes

- (•) Allow default access
- ( ) Allow full access to all Cloud APIs
- ( ) Set access for each API

Firewall

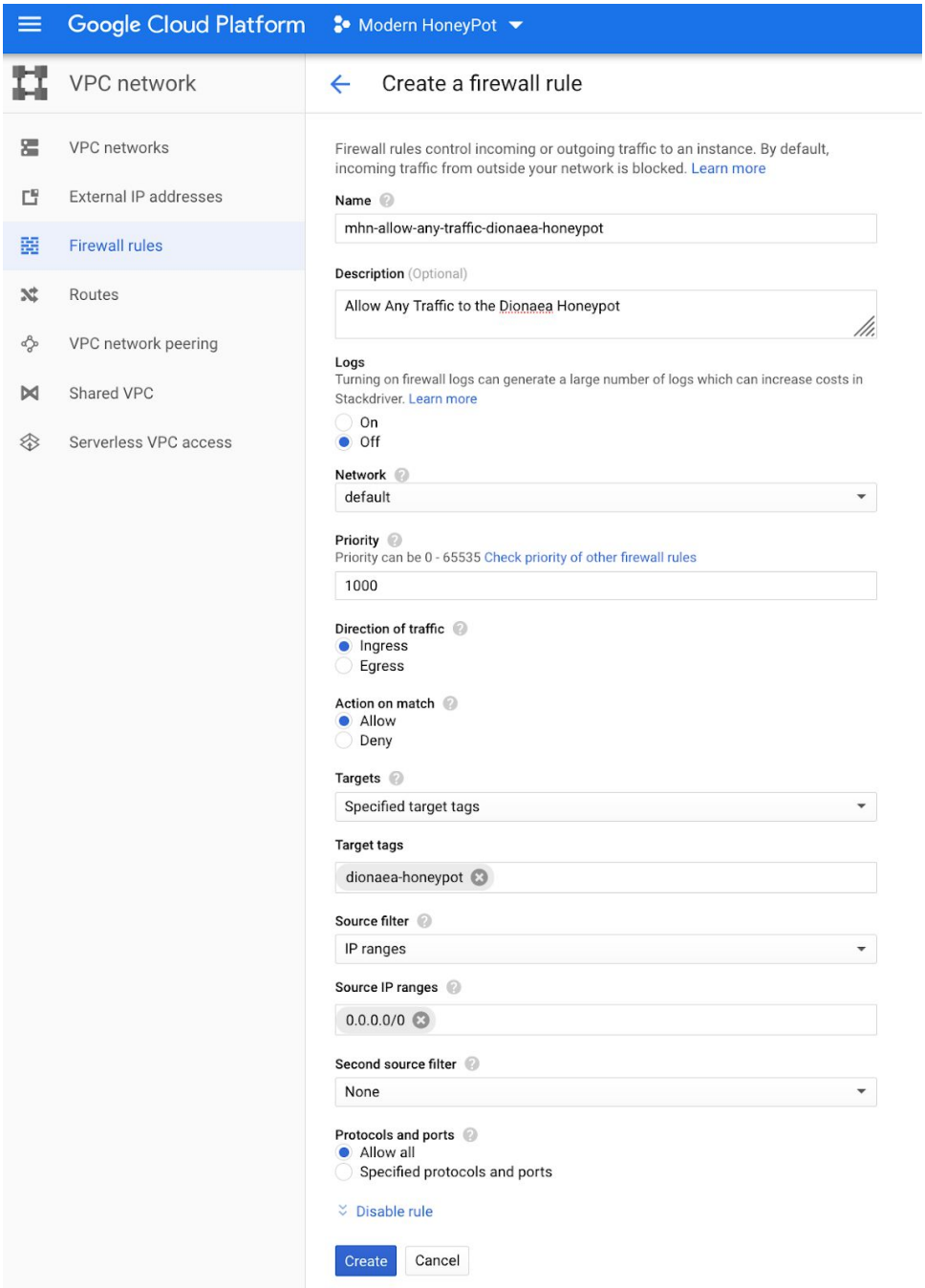
Add tags and firewall rules to allow specific network traffic from the Internet

- [ ] Allow HTTP traffic
- [ ] Allow HTTPS traffic

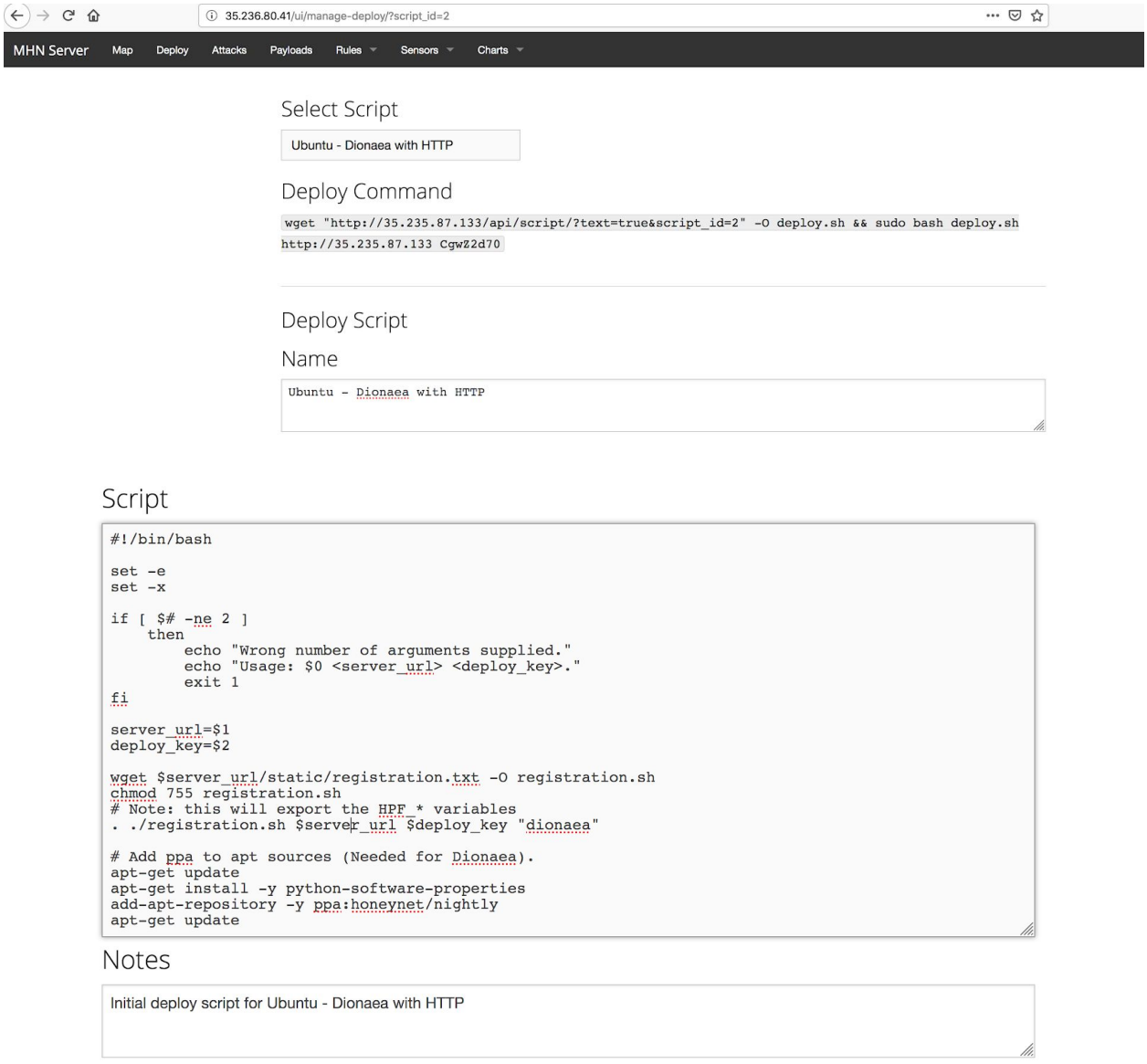


Dionaea Honeypot with HTTP VM Successfully Created

2) Create A Firewall Rule: Using the VPC Network's Firewall Rules create a Firewall Rule to allow any Ingress Traffic to Dionaea Honeypot with HTTP.



3a) Deploy the Ubuntu Dionaea Script from the MHN Admin VM to the Honeypot VM: The Conpot ICS Honeypot can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-dionaea-honeypot-with-http" virtual machine.

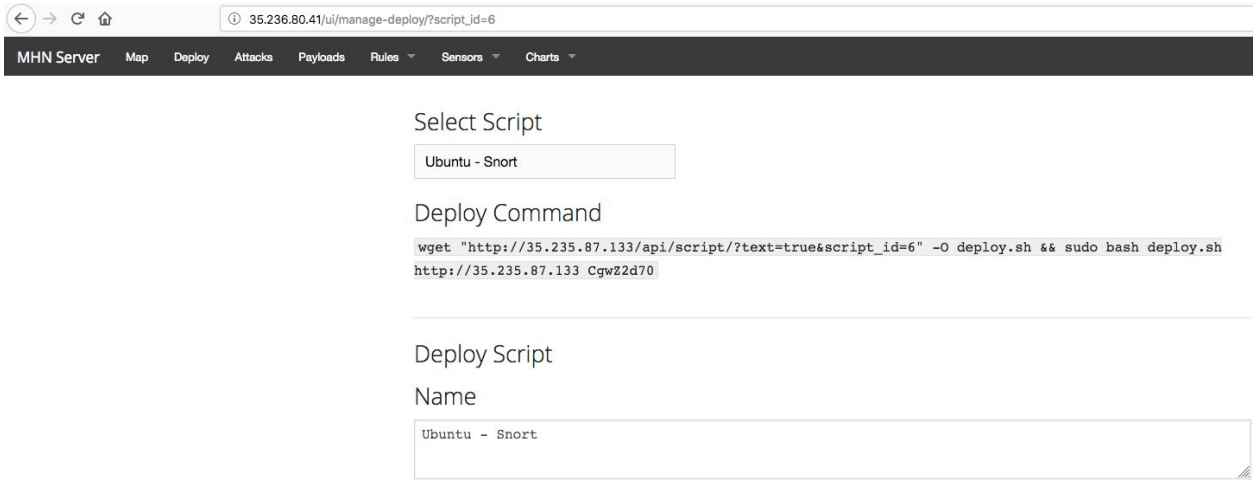


Command to Deploy the Dionaea with HTTP Sensor:
wget "http://35.236.80.41/api/script/?text=true&script_id=2" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70

```
mhn-admin@mhn-ubuntu-1404-dionaea-honeypot-with-http:~$ ps -eaf | grep "dionaea"
mhn-adm+ 17186 17165  0 06:14 pts/0    00:00:00 grep --color=auto dionaea
nobody   22429  2292  0 01:18 ?        00:00:11 dionaea -c /etc/dionaea/dionaea.conf -w /var/dionaea -u nobody -g nogroup
root     22430 22429  0 01:18 ?        00:00:00 dionaea -c /etc/dionaea/dionaea.conf -w /var/dionaea -u nobody -g nogroup
```

Additionally the Ubuntu Snort IDS Sensor was deployed rom the MHN Admin VM to the Honeypot VM

3b) Deploy the Ubuntu Snort IDS Sensor from the MHN Admin VM to the Honeypot VM: The Snort IDS Sensor can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-dionaea-honeypot-with-http" virtual machine.



Deploy Script

Name

```
Ubuntu - Snort
```

Script

```
#!/bin/bash

INTERFACE=eth0

set -e
set -x

if [ $# -ne 2 ]
    then
        echo "Wrong number of arguments supplied."
        echo "Usage: $0 <server_url> <deploy_key>."
        exit 1
fi

server_url=$1
deploy_key=$2

apt-get update
DEBIAN_FRONTEND=noninteractive apt-get -y install build-essential libpcap-dev libjansson-dev
libpcre3-dev libdnet-dev libdumbnet-dev libdaq-dev flex bison python-pip git make automake libtool
zlib1g-dev

pip install --upgrade distribute
pip install virtualenv
```

Notes

```
Initial deploy script for Ubuntu - Snort
```

Deployment Command:
wget "http://35.236.80.41/api/script/?text=true&script_id=6" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70

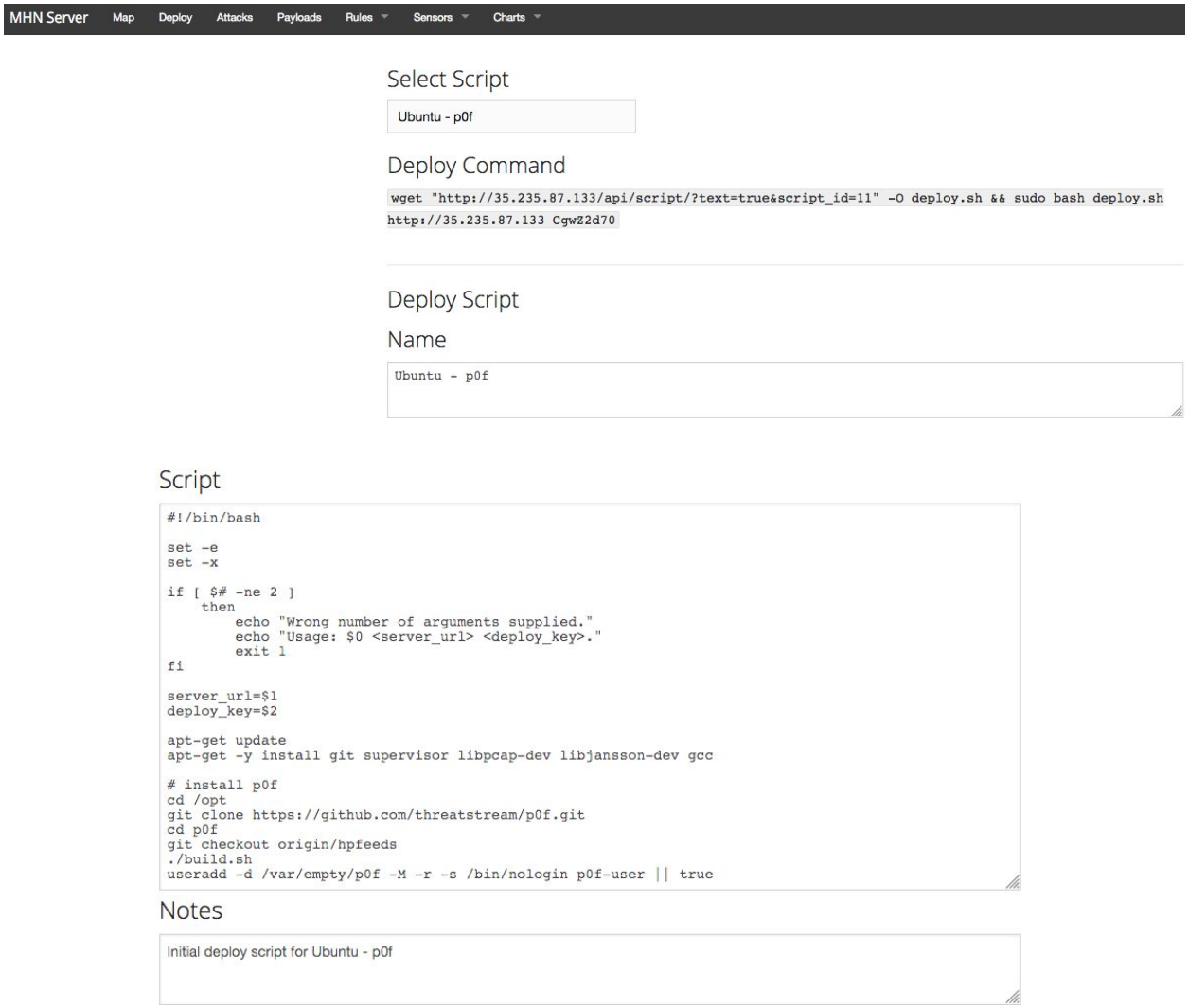
```
mhn-admin@mhn-ubuntu-1404-dionaea-honeypot-with-http:~$ wget "http://35.236.80.41/api/script/?text=true&script_id=6" -O deploy.sh
                                                    && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70
```

```
mhn-admin@mhn-ubuntu-1404-dionaea-honeypot-with-http:~$ ps -eaf | grep "snort"
root     15638  2292 90 04:24 ?        00:00:20 /opt/snort/bin/snort -c /opt/snort/etc/snort.conf -i eth0
```

Snort IDS Sensor Successfully Deployed

Additionally the Ubuntu p0f Sensor was deployed rom the MHN Admin VM to the Honeypot VM

3c) Deploy the Ubuntu p0f Sensor from the MHN Admin VM to the Honeypot VM: The p0f Sensor can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-dionaea-honeypot-with-http" virtual machine.



Deployment Command:

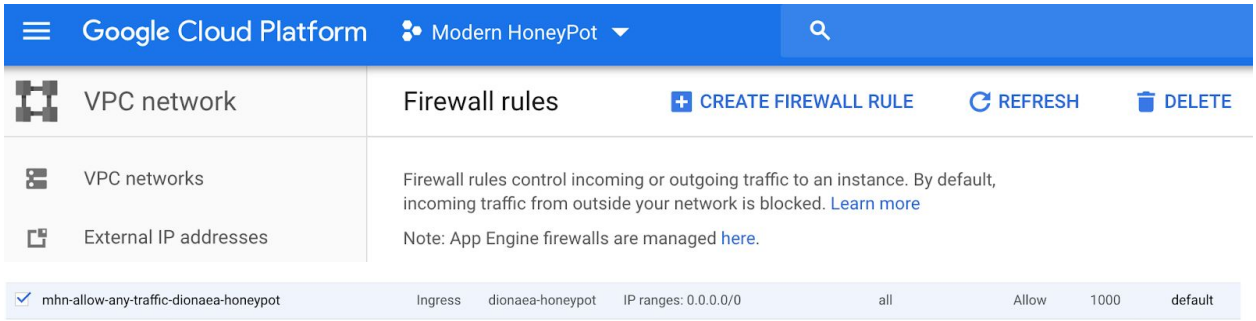
wget "http://35.236.80.41/api/script/?text=true&script_id=11" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41/ CgwZ2d70

```
mhn-admin@mhn-admin-vm:~$ wget "http://35.236.80.41/api/script/?text=true&script_id=11" -O deploy.sh
                          && sudo bash deploy.sh http://35.236.80.41/ CgwZ2d70
```

```
+ supervisorctl update
p0f: added process group
```

```
mhn-admin@mhn-admin-vm:~$ ps -eaf | grep "p0f"
p0f-user 28594  1491  0 05:24 ?        00:00:00 /opt/p0f/p0f -i eth0 -u p0f-user -h -H 35.236.80.41 -P 10000 -I ed9f2186-779a-11e9-95b5-42010aa80003 -K 3ryNMf9sg7a4X5oX -C p0f.events !(src host 10.168.0.3)
mhn-adm+ 29028 29011  0 06:00 pts/0    00:00:00 grep --color=auto p0f
```

p0f Sensor Successfully Deployed




```
rkashi@Rohits-MacBook-Pro:~$ nmap 35.235.87.133
Starting Nmap 7.70 ( https://nmap.org ) at 2019-05-14 22:51 PDT
Nmap scan report for 133.87.235.35.bc.googleusercontent.com (35.235.87.133)
Host is up (0.038s latency).
Not shown: 987 closed ports
PORT     STATE    SERVICE
21/tcp   open     ftp
22/tcp   open     ssh
25/tcp   filtered smtp
42/tcp   open     nameserver
80/tcp   open     http
135/tcp  filtered msrpc
139/tcp  filtered netbios-ssn
443/tcp  open     https
445/tcp  filtered microsoft-ds
1433/tcp open     ms-sql-s
3306/tcp open     mysql
5060/tcp open     sip
5061/tcp open     sip-tls

Nmap done: 1 IP address (1 host up) scanned in 2.44 seconds
```

Attack Stats

Attacks in the last 24 hours: **7,276**

TOP 5 Attacker IPs:

1. 38.141.45.50 (2,359 attacks)
2. 77.247.110.36 (989 attacks)
3. 111.230.73.43 (615 attacks)
4. 75.25.131.207 (344 attacks)
5. 193.188.22.115 (199 attacks)

TOP 5 Attacked ports:

1. 5060 (3,463 times)
2. 80 (706 times)
3. 8088 (497 times)
4. 3389 (273 times)
5. 23 (223 times)

TOP 5 Honey Pots:

1. dionaea (6,319 attacks)
2. drupot (626 attacks)
3. snort (186 attacks)
4. p0f (113 attacks)
5. conpot (32 attacks)

TOP 5 Sensors:

1. mhn-ubuntu-1404-dionaea-honeypot-with-http (6,319 attacks)
2. mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot (626 attacks)
3. mhn-ubuntu-1404-dionaea-honeypot-with-http (165 attacks)
4. mhn-admin-vm (71 attacks)
5. mhn-ubuntu-1404-conpot-ics-honeypot (41 attacks)

TOP 5 Attacks Signatures:

1. ET SCAN SipCLI VOIP Scan (89 times)
2. ET DROP Dshield Block Listed Source group 1 (45 times)
3. ET CINS Active Threat Intelligence Poor Reputation IP TCP group 81 (14 times)
4. ET CINS Active Threat Intelligence Poor Reputation IP TCP group 80 (9 times)
5. ET CINS Active Threat Intelligence Poor Reputation IP TCP group 37 (4 times)

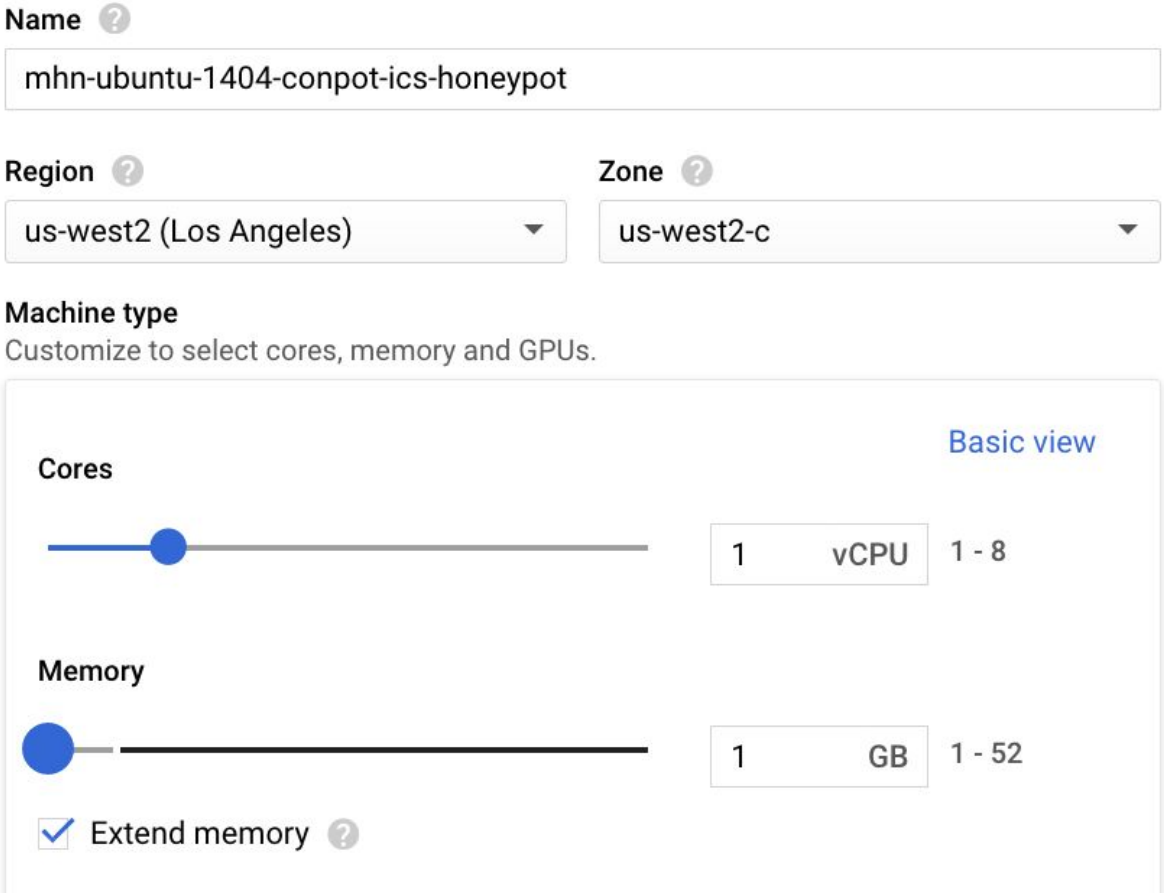
Honeypot 2 Combo

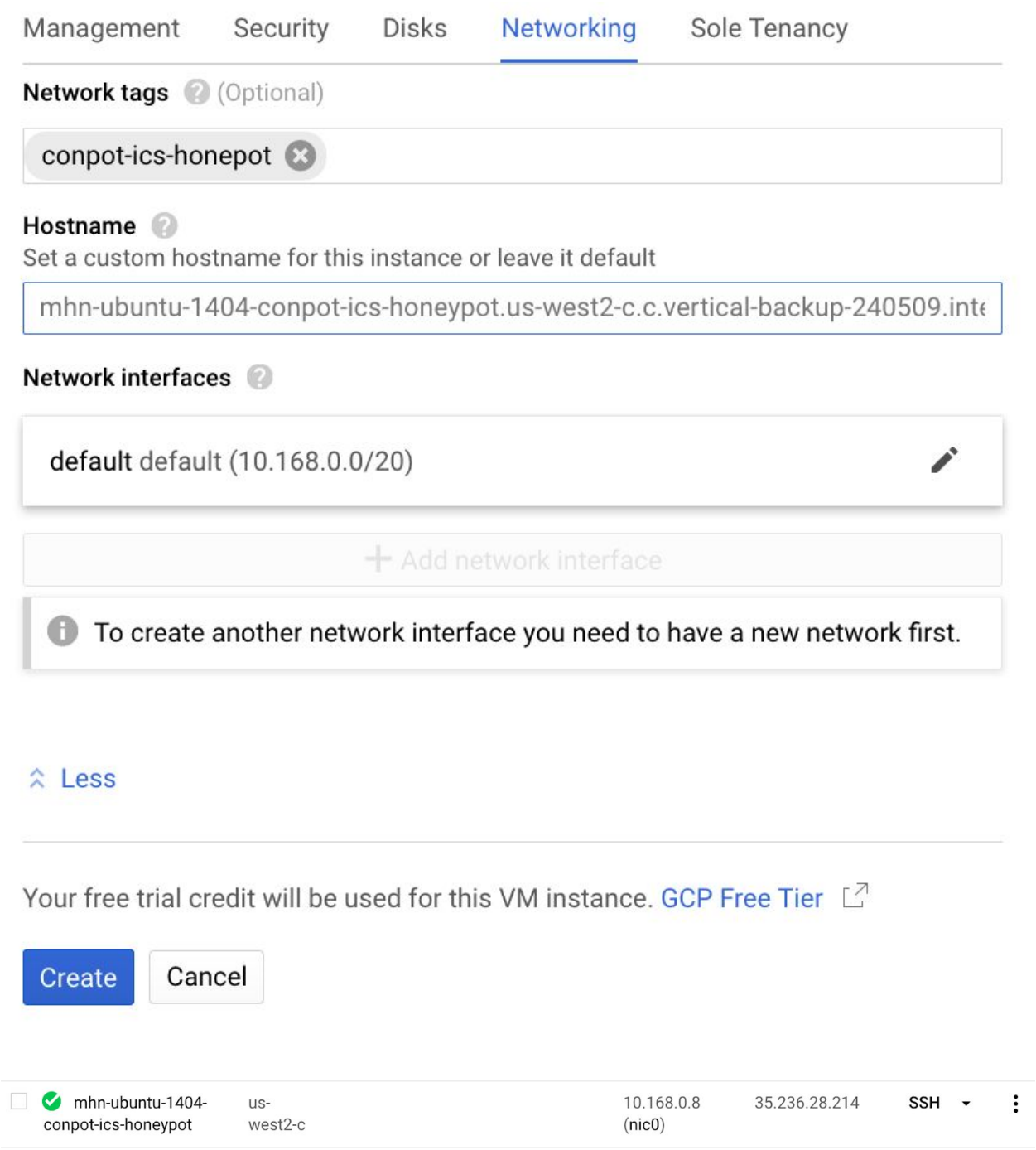
Conpot Industrial Control Systems Honeypot

Snort IDS Sensor

P0f TCP/IP Fingerprinting Sensor

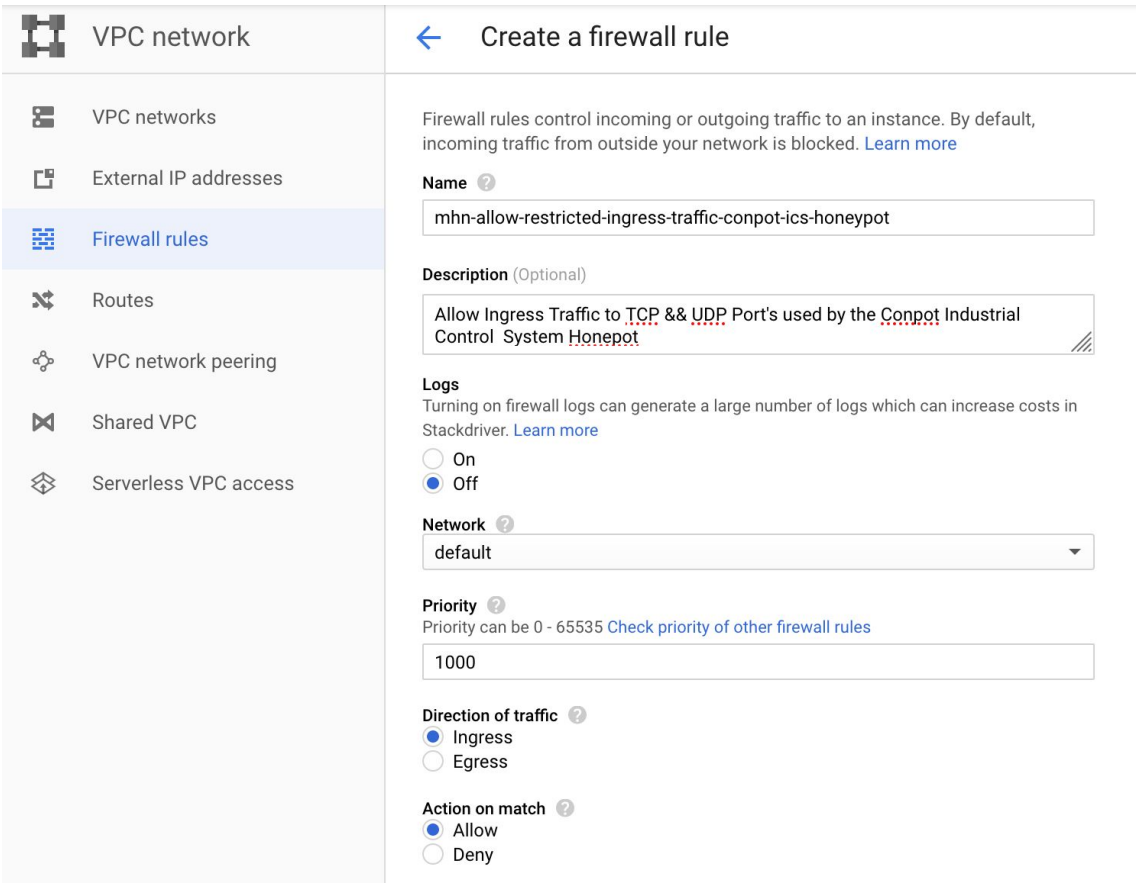
1) Instance Creation: Using Compute Engine Create an Ubuntu 14.04 VM Instance

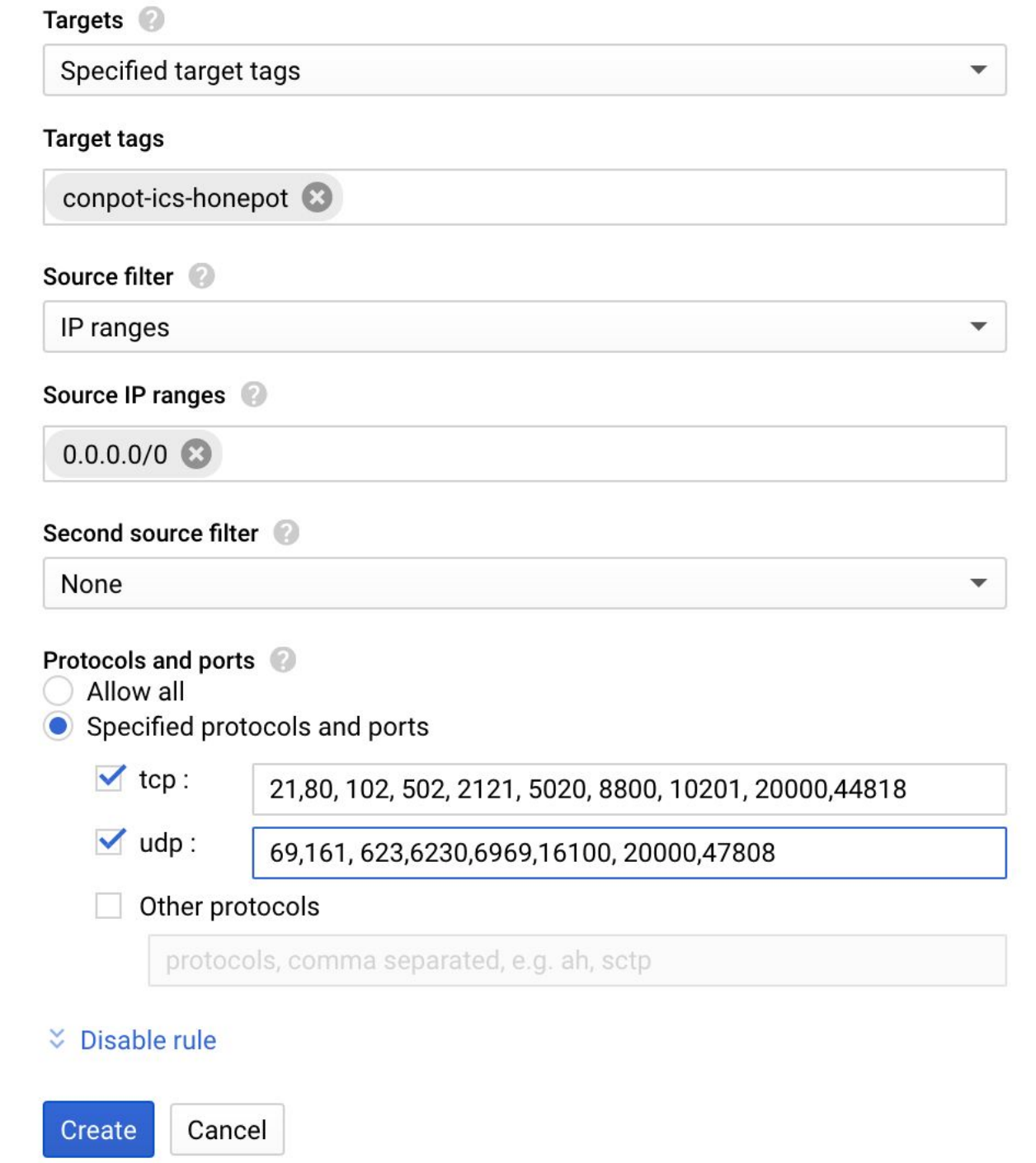


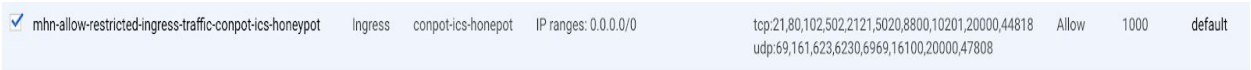


Conpot ICS Honeypot VM Successfully Created

2) Create A Firewall Rule: Using the VPC Network's Firewall Rules create a Firewall Rule to allow Ingress Traffic to the TCP and UDP Ports used by the Conpot Industrial Control System Honeypot.





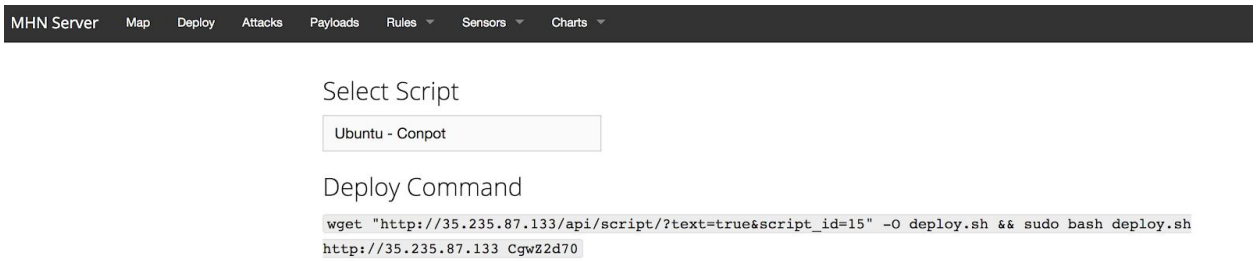


Firewall Rule

References:

- https://buildmedia.readthedocs.org/media/pdf/conpot/latest/conpot.pdf
- https://pythonhosted.org/Conpot/installation/ubuntu.html

3a) Deploy the Ubuntu Conpot Script from the MHN Admin VM to the Honeypot VM: The Conpot ICS Honeypot can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-conpot-ics-honeypot" virtual machine.



Deploy Script

Name

```
Ubuntu - Conpot
```

Script

```
#!/bin/bash

if [ $# -ne 2 ]
    then
        echo "Wrong number of arguments supplied."
        echo "Usage: $0 <server_url> <deploy_key>."
        exit 1
fi

server_url=$1
deploy_key=$2

echo "deb http://en.archive.ubuntu.com/ubuntu precise main multiverse" | sudo tee -a /etc/apt
/sources.list
apt-get update
apt-get install -y git libmysqlclient-dev libsmi2ldbl snmp-mibs-downloader python-dev libevent-dev
libxslt1-dev libxml2-dev python-pip python-mysqldb pkg-config libvirt-dev supervisor
apt-get install -y zlib1g-dev # needed for Ubuntu 14.04
pip install --upgrade distribute
pip install virtualenv

CONPOT_HOME=/opt/conpot
mkdir -p $CONPOT_HOME
cd $CONPOT_HOME
virtualenv env
```

Notes

```
Initial deploy script for Ubuntu - Conpot
```

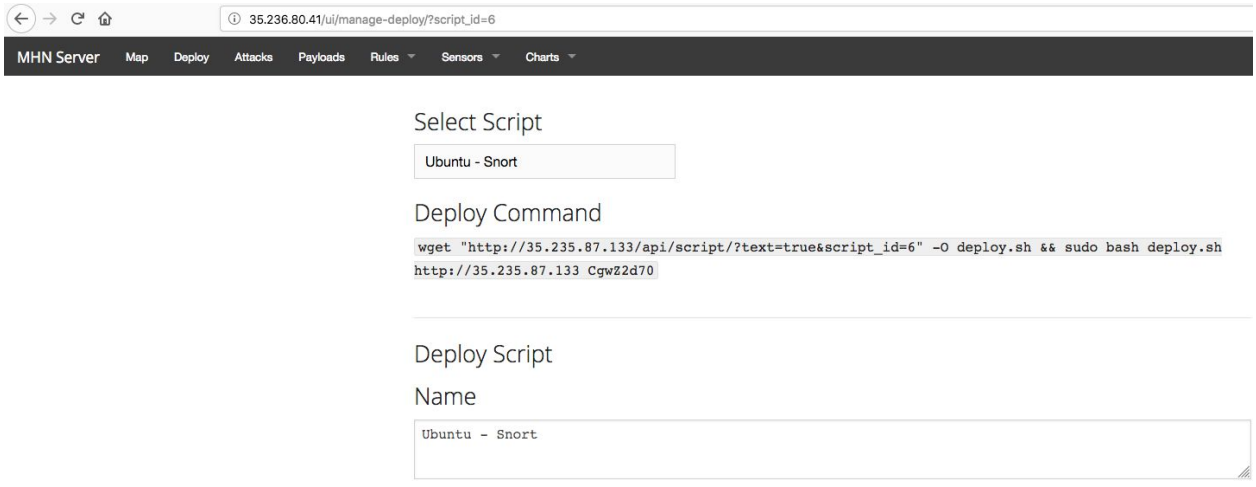
wget "http://35.236.80.41/api/script/?text=true&script_id=15" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70

```
mhn-admin@mhn-ubuntu-1404-conpot-ics-honeypot:~$ wget "http://35.236.80.41/api/script/?text=true&script_id=15" -O deploy.sh
                                                 && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70
```

```
--2019-05-15 07:19:56--  http://35.236.80.41/static/registration.txt
Connecting to 35.236.80.41:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1430 (1.4K) [text/plain]
Saving to: 'registration.sh'

100%[=======================================================================================>] 1,430       --.-K/s   in 0s

2019-05-15 07:19:56 (177 MB/s) - 'registration.sh' saved [1430/1430]

Reading package lists... Done
Building dependency tree
Reading state information... Done
python is already the newest version.
curl is already the newest version.
0 upgraded, 0 newly installed, 0 to remove and 4 not upgraded.
Created sensor:  d7fffb7a-76e1-11e9-95b5-42010aa80003
conpot: added process group
mhn-admin@mhn-ubuntu-1404-conpot-ics-honeypot:~$
```

Conpot Honeypot Successfully Registered
Sensor UID d7fffb7a-76e1-11e9-95b5-42010aa80003

3b) Deploy the Ubuntu Snort IDS Sensor from the MHN Admin VM to the Honeypot VM: The Snort IDS Sensor can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-conpot-ics-honeypot" virtual machine.



Deploy Script

Name

```
Ubuntu - Snort
```

Script

```
#!/bin/bash

INTERFACE=eth0

set -e
set -x

if [ $# -ne 2 ]
    then
        echo "Wrong number of arguments supplied."
        echo "Usage: $0 <server_url> <deploy_key>."
        exit 1
fi

server_url=$1
deploy_key=$2

apt-get update
DEBIAN_FRONTEND=noninteractive apt-get -y install build-essential libpcap-dev libjansson-dev
libpcre3-dev libdnet-dev libdumbnet-dev libdaq-dev flex bison python-pip git make automake libtool
zlib1g-dev

pip install --upgrade distribute
pip install virtualenv
```

Notes

```
Initial deploy script for Ubuntu - Snort
```

Deployment Command:
wget "http://35.236.80.41/api/script/?text=true&script_id=6" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70

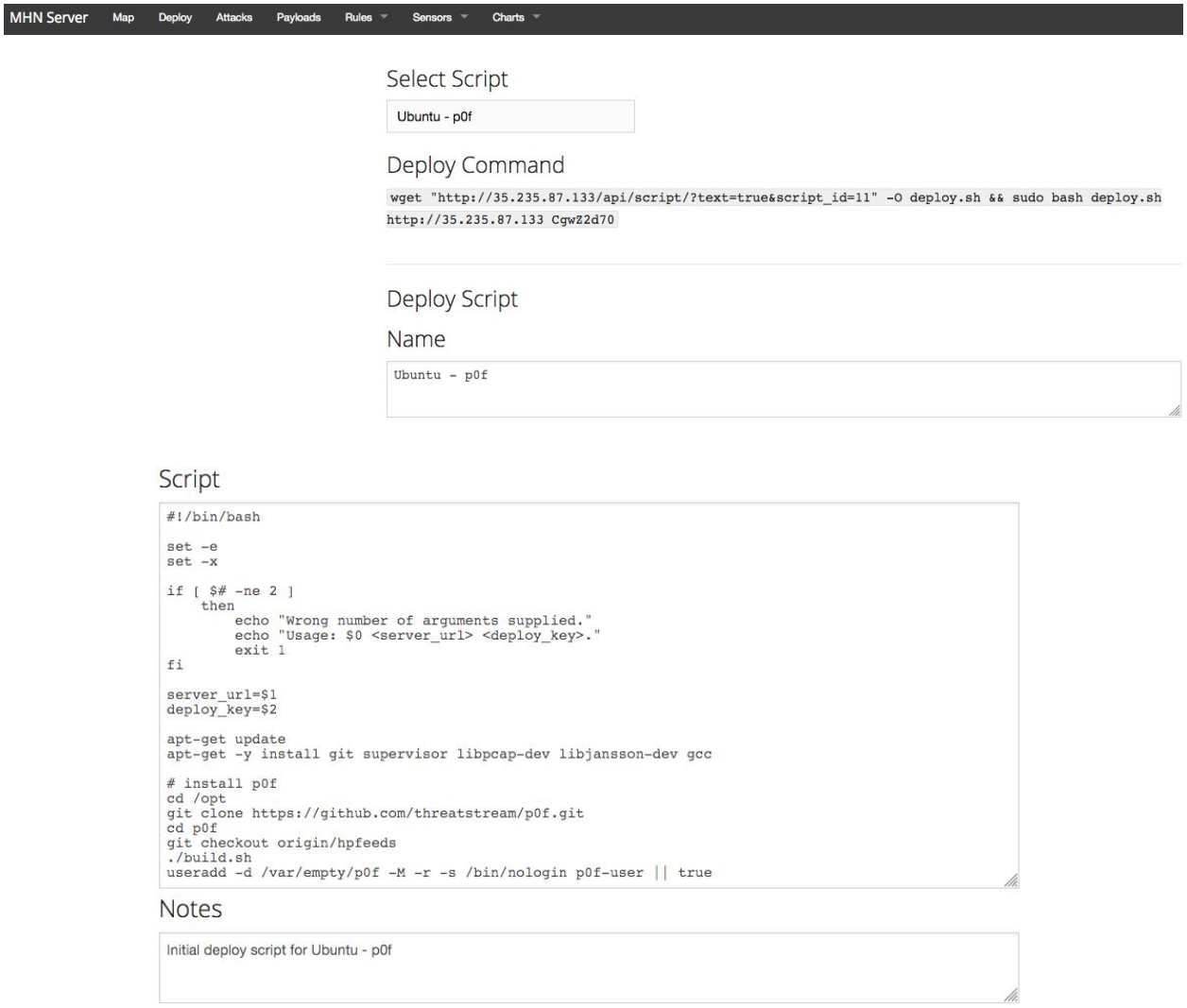
```
mhn-admin@mhn-ubuntu-1404-conpot-ics-honeypot:~$ wget "http://35.236.80.41/api/script/?text=true&script_id=6" -O deploy.sh
                                                 && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70
```

```
mhn-admin@mhn-ubuntu-1404-conpot-ics-honeypot:~$ ps -eaf | grep "snort"
root     16652 11149  9 05:51 ?        00:00:24 /opt/snort/bin/snort -c /opt/snort/etc/snort.conf -i eth0
```

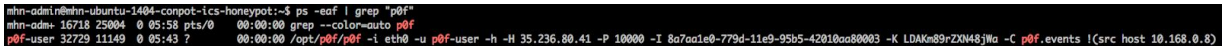
Snort IDS Sensor Successfully Deployed

Additionally the Ubuntu p0f Sensor was deployed rom the MHN Admin VM to the Honeypot VM

3c) Deploy the Ubuntu p0f Sensor from the MHN Admin VM to the Honeypot VM: The p0f Sensor can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-conpot-ics-honeypot" virtual machine.



Deployment Command:
wget "http://35.236.80.41/api/script/?text=true&script_id=11" -O deploy.sh
&& sudo bash deploy.sh http://35.236.80.41/ CgwZ2d70



p0f Sensor Successfully Deployed

4) Perform a Network Port Scan using the NMAP Utility: An NMAP Scan was performed to simulate a Basic Port Scan Attack which would reflect in the MHN Server Dashboard.

```
rkashi@Rohits-MacBook-Pro:~$ nmap 35.236.28.214
Starting Nmap 7.70 ( https://nmap.org ) at 2019-05-15 00:23 PDT
Nmap scan report for 214.28.236.35.bc.googleusercontent.com (35.236.28.214)
Host is up (0.052s latency).
Not shown: 994 filtered ports
PORT      STATE  SERVICE
21/tcp    closed ftp
22/tcp    open   ssh
80/tcp    open   http
2121/tcp  closed ccproxy-ftp
8800/tcp  closed sunwebadmin
20000/tcp closed dnp

Nmap done: 1 IP address (1 host up) scanned in 7.37 seconds
```

Sensors

2-	mhn-ubuntu-1404-conpot-ics	mhn-ubuntu-1404-conpot-ics-honeypot	35.236.28.214	conpot	d7fffb7a-76e1-11e9-95b5-42010aa80003	32

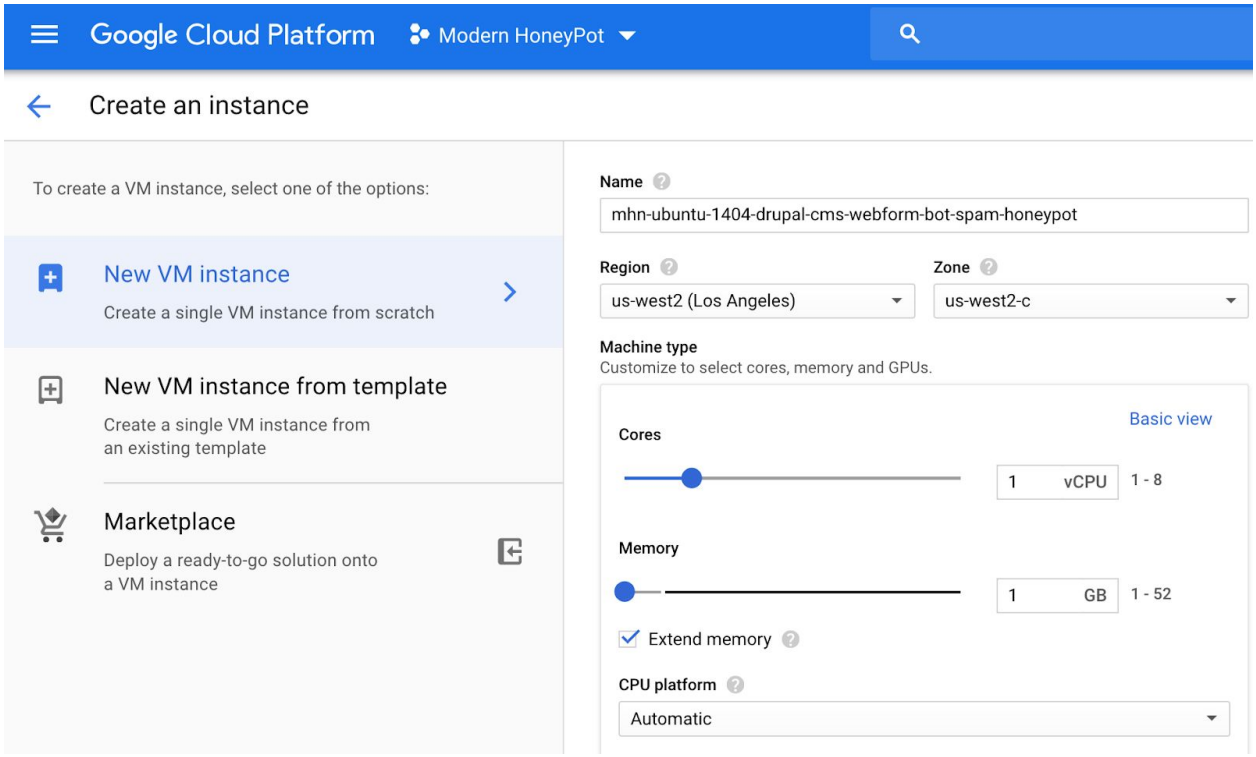
Honeypot 3 Combo

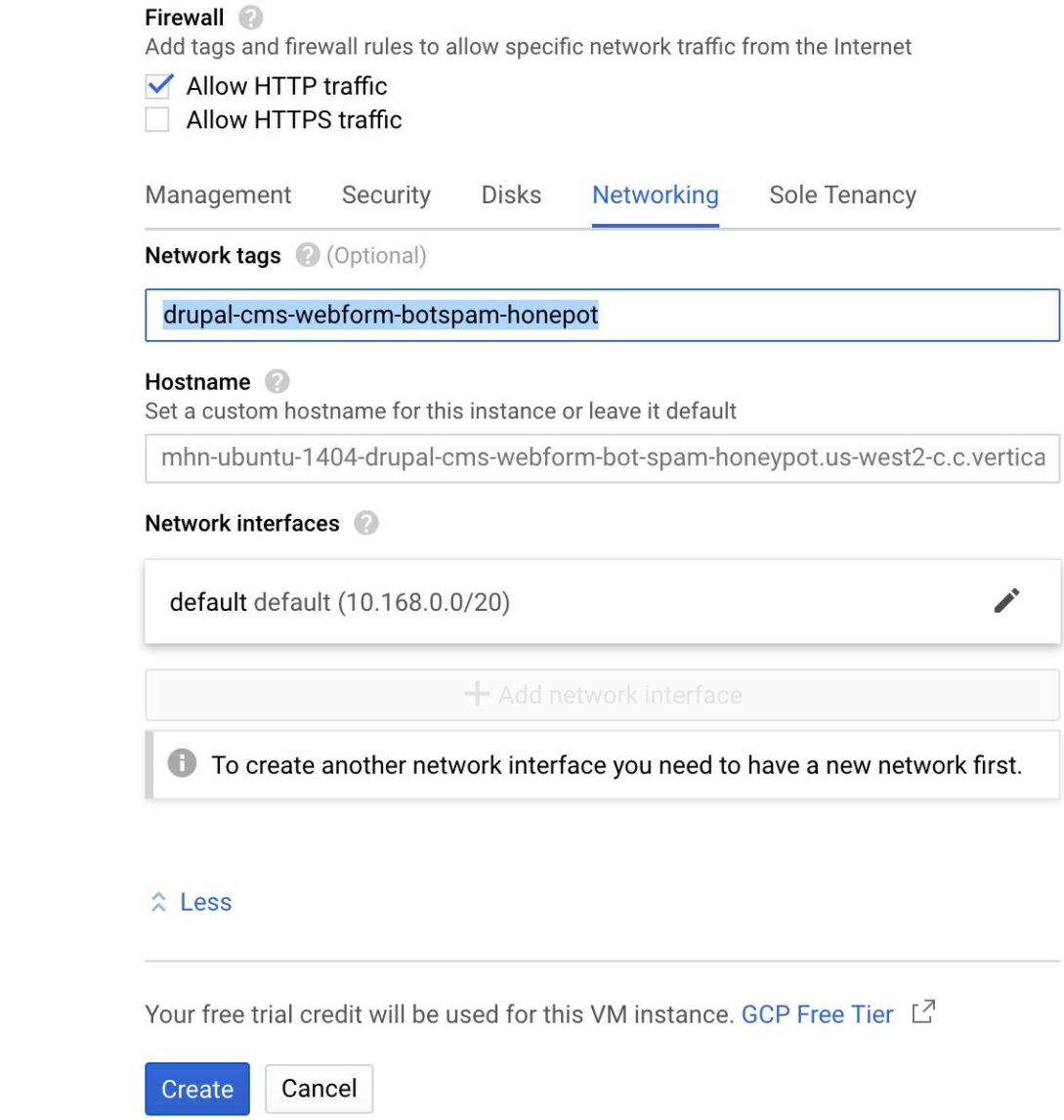
Drupot (Drupal CMS Webform Bot Spam Honeypot)

Snort IDS Sensor

P0f TCP/IP Fingerprinting Sensor

Instance Creation: Using Compute Engine Create an Ubuntu 14.04 VM Instance
Firewall Rules: Firewall Rules were created to allow HTTP and HTTPS Traffic to this VM.



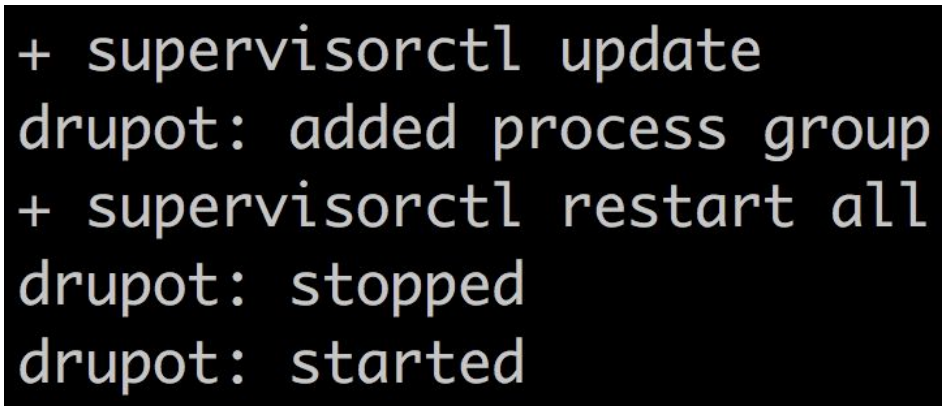


Drupal CMS Webform Spambot Honeypot VM Successfully Created

2a) Deploy the Ubuntu Drupal Script from the MHN Admin VM to the Honeypot VM:

The Drupal Honeypot can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot" virtual machine.

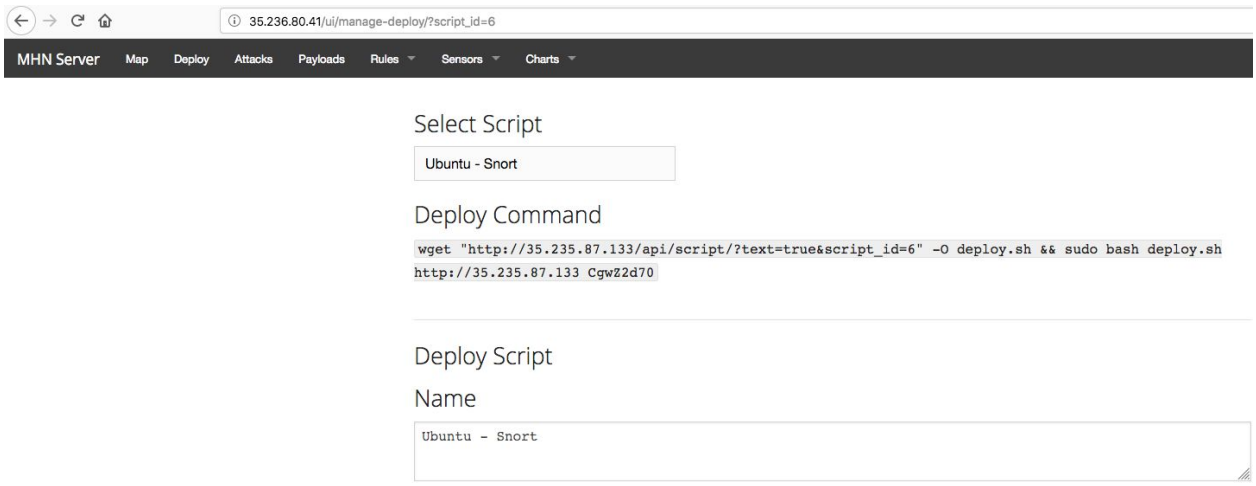

MHN Server
Map
Deploy
Attacks
Payloads
Rules
Sensors
Charts
Select Script
Ubuntu - Drupot
Deploy Command
wget "http://35.235.87.133/api/script/?text=true&script_id=14" -O deploy.sh && sudo bash deploy.sh http://35.235.87.133 CgwZ2d70
Deploy Script
Name
Ubuntu - Drupot
Script
set -e
set -x
if [$# -ne 2]
then
echo "Wrong number of arguments supplied."
echo "Usage: $0 <server_url> <deploy_key>."
exit 1
fi
server_url=$1
deploy_key=$2
apt-get update
apt-get -y install git supervisor
if ["$(uname -m)" == "x86_64"] ;
then
GO_PACKAGE="go1.12.1.linux-amd64.tar.gz"
else
GO_PACKAGE="go1.12.1.linux-386.tar.gz"
fi
cd /usr/local/
wget https://storage.googleapis.com/golang/${GO_PACKAGE}
Notes
Initial deploy script for Ubuntu - Drupot
mhn-admin@mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot:~$ wget "http://35.236.80.41/api/script/?text=true&script_id=14" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70



Drupot Honeypot Successfully Registered

Additionally the Ubuntu Snort IDS Sensor was deployed rom the MHN Admin VM to the Honeypot VM

2b) Deploy the Ubuntu Snort IDS Sensor from the MHN Admin VM to the Honeypot VM: The Snort IDS Sensor can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot" virtual machine.



Deploy Script

Name

```
Ubuntu - Snort
```

Script

```
#!/bin/bash

INTERFACE=eth0

set -e
set -x

if [ $# -ne 2 ]
    then
        echo "Wrong number of arguments supplied."
        echo "Usage: $0 <server_url> <deploy_key>."
        exit 1
fi

server_url=$1
deploy_key=$2

apt-get update
DEBIAN_FRONTEND=noninteractive apt-get -y install build-essential libpcap-dev libjansson-dev
libpcre3-dev libdnet-dev libdumbnet-dev libdaq-dev flex bison python-pip git make automake libtool
zlib1g-dev

pip install --upgrade distribute
pip install virtualenv
```

Notes

```
Initial deploy script for Ubuntu - Snort
```

Deployment Command:
wget "http://35.236.80.41/api/script/?text=true&script_id=6" -O deploy.sh && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70

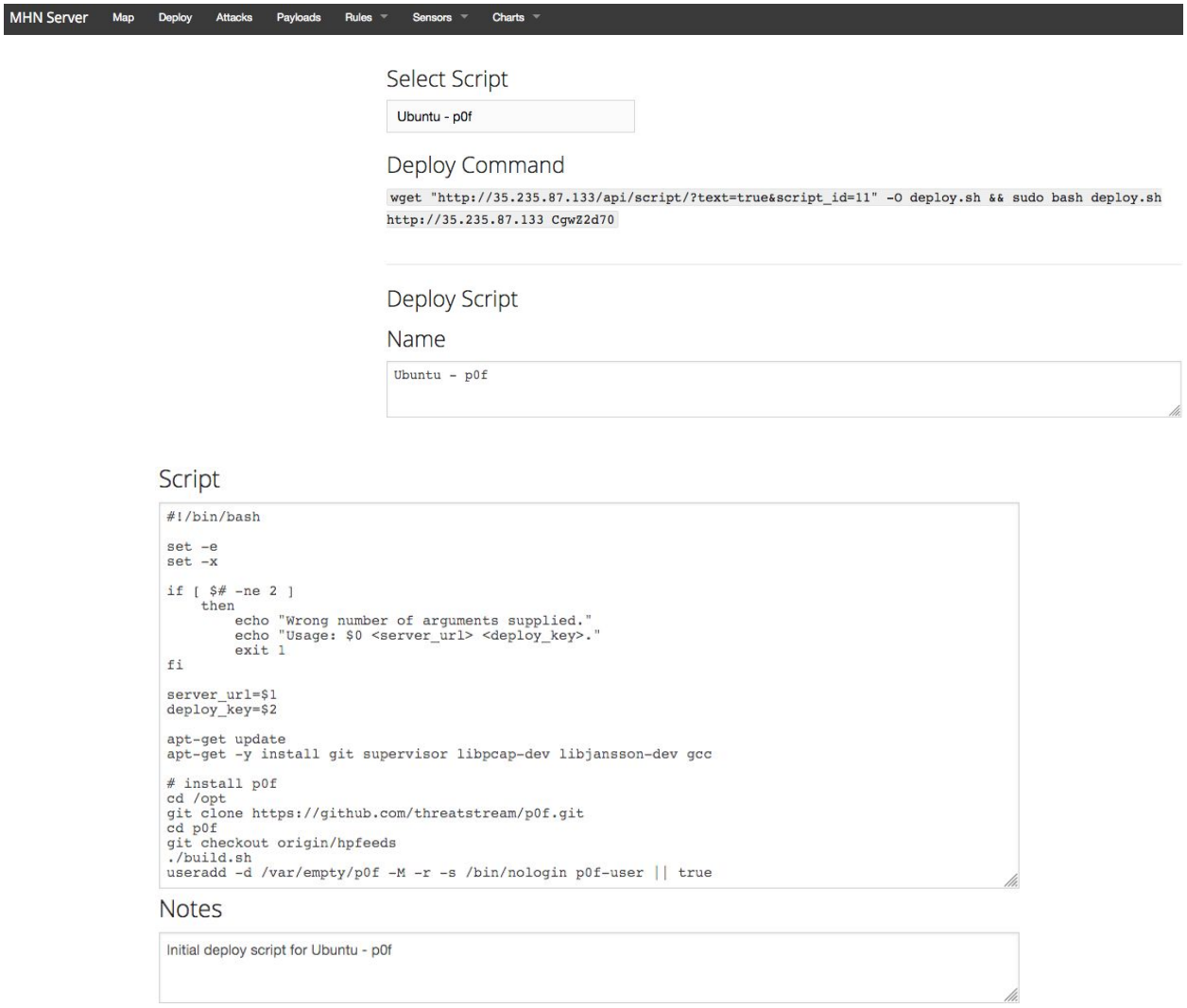
```
mhn-admin@mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot:~$ wget "http://35.236.80.41/api/script/?text=true&script_id=6" -O deploy.sh
                                                    && sudo bash deploy.sh http://35.236.80.41 CgwZ2d70
```

```
mhn-admin@mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot:~$ ps -eaf | grep "snort"
mhn-adm+  1286 17702  0 06:42 pts/1    00:00:00 grep --color=auto snort
root     24320  3027  1 06:13 ?        00:00:22 /opt/snort/bin/snort -c /opt/snort/etc/snort.conf -i eth0
```

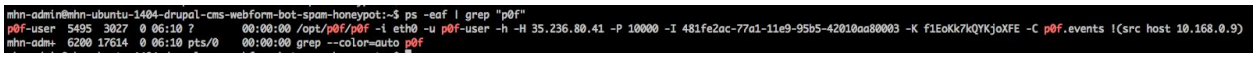
Snort IDS Sensor Successfully Deployed

Additionally the Ubuntu p0f Sensor was deployed rom the MHN Admin VM to the Honeypot VM

3c) Deploy the Ubuntu p0f Sensor from the MHN Admin VM to the Honeypot VM: The p0f Sensor can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot" virtual machine.



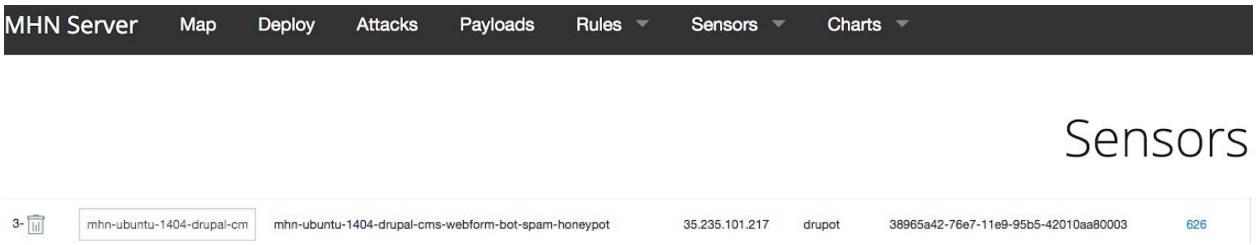
Deployment Command:
wget "http://35.236.80.41/api/script/?text=true&script_id=11" -O deploy.sh
&& sudo bash deploy.sh http://35.236.80.41/ CgwZ2d70



p0f Sensor Successfully Deployed

3) Perform a Network Port Scan using the NMAP Utility: An NMAP Scan was performed to simulate a Basic Port Scan Attack which would reflect in the MHN Server Dashboard.

```
rkashi@Rohits-MacBook-Pro:~$ nmap 35.235.101.217
Starting Nmap 7.70 ( https://nmap.org ) at 2019-05-15 01:08 PDT
Nmap scan report for 217.101.235.35.bc.googleusercontent.com (35.235.101.217)
Host is up (0.051s latency).
Not shown: 995 filtered ports
PORT      STATE  SERVICE
22/tcp    open   ssh
80/tcp    closed http
443/tcp   closed https
3000/tcp  closed ppp
10000/tcp closed snet-sensor-mgmt

Nmap done: 1 IP address (1 host up) scanned in 7.32 seconds
```



References:

https://www.drupal.org/project/honeypot

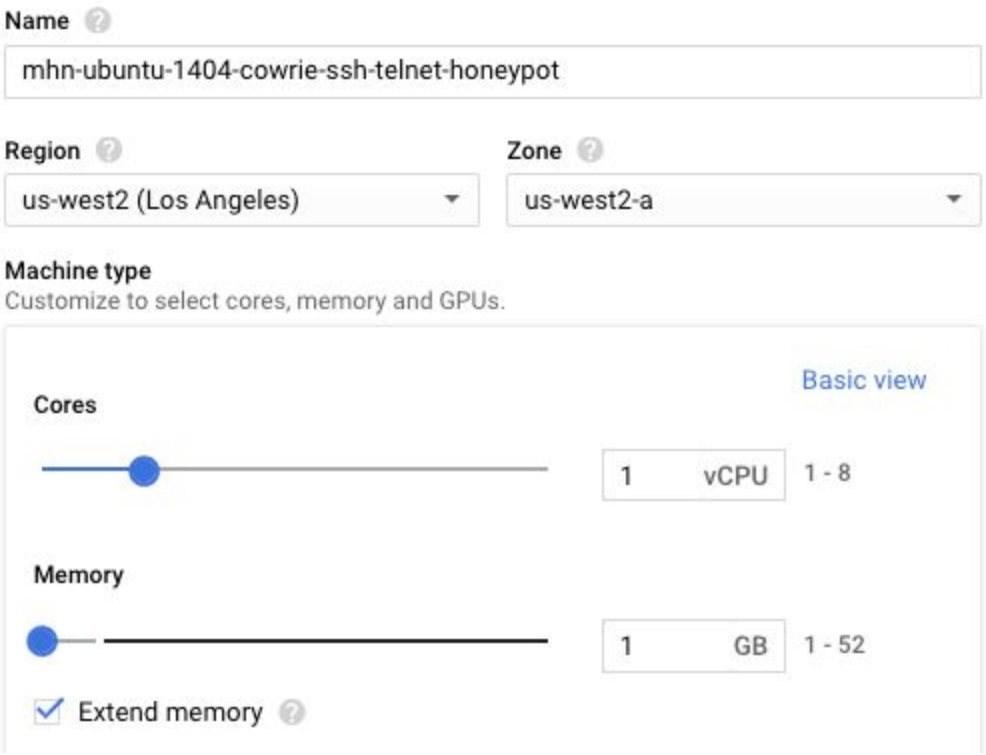
https://www.drupal.org/docs/8/modules/honeypot/using-honeypot

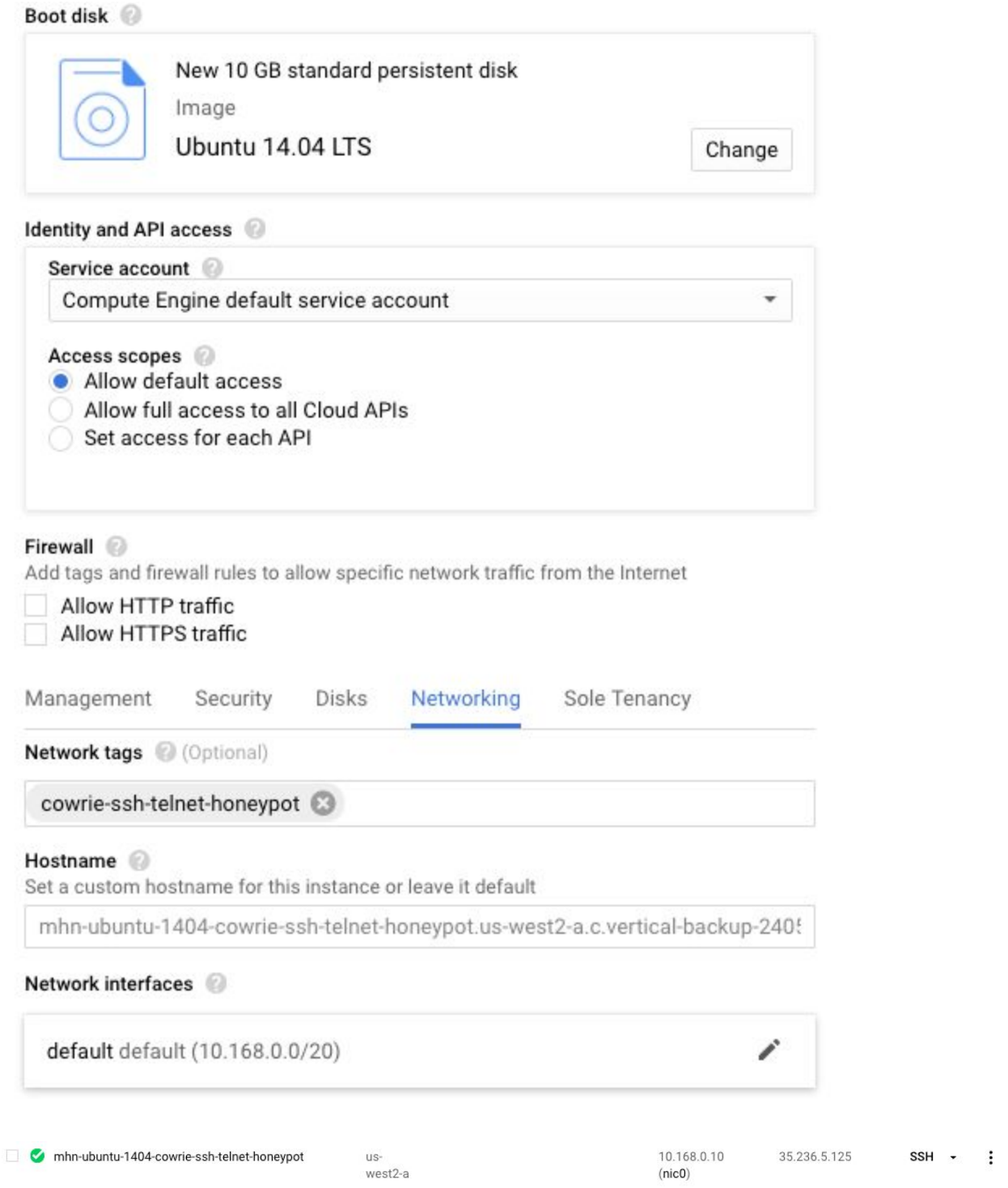
https://github.com/geerlingguy/drupal-honeypot

https://www.drupal.org/docs/8/modules/honeypot/honeypot-success-stories

Honeypot 4: Cowrie SSH/Telnet Honeypot

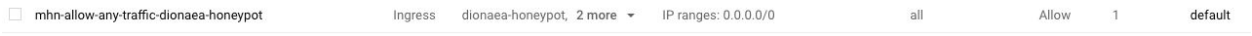
1) Instance Creation: Using Compute Engine Create an Ubuntu 14.04 VM Instance



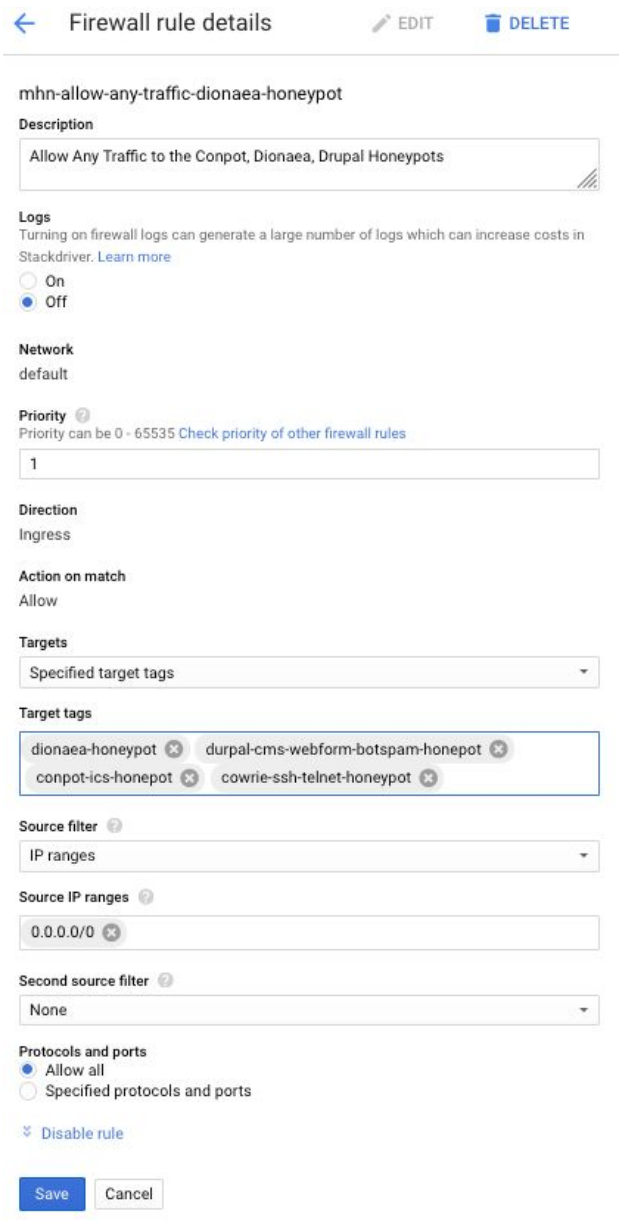


Cowrie SSH, Telnet Honeypot VM Successfully Created

2) Firewall Rule: Modify the Existing Firewall Rule to allow any Ingress Traffic to this VM.



Since this virtual machine has the network tag "cowrie-ssh-telnet-honeypot" all that needs to be done is to add this network tag to the existing firewall rule to allow any ingress traffic to the to the newly created "mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot".



3) Deploy the Ubuntu Cowrie Script from the MHN Admin VM to the Cowrie Honeypot VM:
The Drupal Honeypot can be Installed by Executing the following command on the newly created "mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot" virtual machine.

```
+ supervisorctl update
cowrie: added process group
```

Cowrie Honeypot Successfully Registered

Issue: The cowrie process is in a FATAL State which means that there is an issue

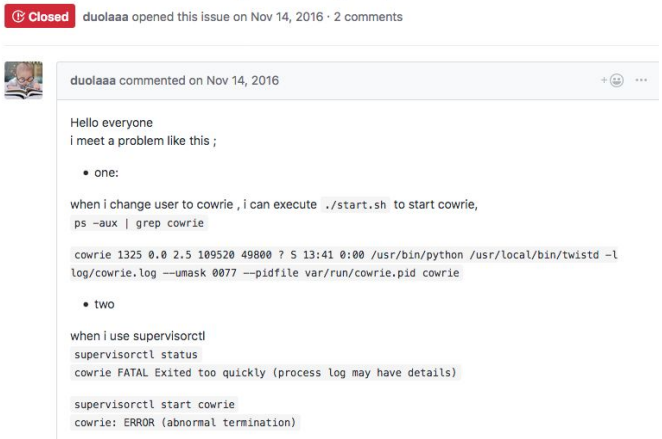
```
mhn-admin@mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot:~$ sudo supervisorctl status
cowrie                           FATAL     Exited too quickly (process log may have details)
```

Error

```
Unhandled Error
Traceback (most recent call last):
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/python/usage.py", line 447, in __str__
    return self.getSynopsis() + '\n' + self.getUsage(width=None)
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/python/usage.py", line 484, in getUsage
    for (cmd, short, parser, desc) in self.subCommands:
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/application/app.py", line 653, in subCommands
    for plug in sorted(plugins, key=attrgetter('tapname')):
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/plugin.py", line 213, in getPlugins
    allDropins = getCache(package)
--- <exception caught here> ---
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/plugin.py", line 171, in getCache
    provider = pluginModule.load()
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/python/modules.py", line 392, in load
    return self.pathEntry.pythonPath.moduleLoader(self.name)
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/python/reflect.py", line 308, in namedAny
    topLevelPackage = _importAndCheckStack(trialname)
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/python/reflect.py", line 255, in _importAndCheckStack
    reraise(excValue, excTraceback)
  File "/opt/cowrie/src/twisted/plugins/cowrie_plugin.py", line 45, in <module>
    import cowrie.core.checkers
  File "/opt/cowrie/src/cowrie/core/checkers.py", line 13, in <module>
    from twisted.conch.ssh import keys
  File "/opt/cowrie/cowrie-env/local/lib/python2.7/site-packages/twisted/conch/ssh/keys.py", line 18, in <module>
    import bcrypt
exceptions.ImportError: No module named bcrypt
```

/opt/cowrie/var/log/cowrie/cowrie.err

https://github.com/cowrie/cowrie/issues/349 : Is a similar issue about start cowrie by the way supervisorctl and start.sh



Closed duolaaa opened this issue on Nov 14, 2016 · 2 comments

duolaaa commented on Nov 14, 2016

Hello everyone
i meet a problem like this ;

- one:

when i change user to cowrie , i can execute `./start.sh` to start cowrie,
`ps -aux | grep cowrie`

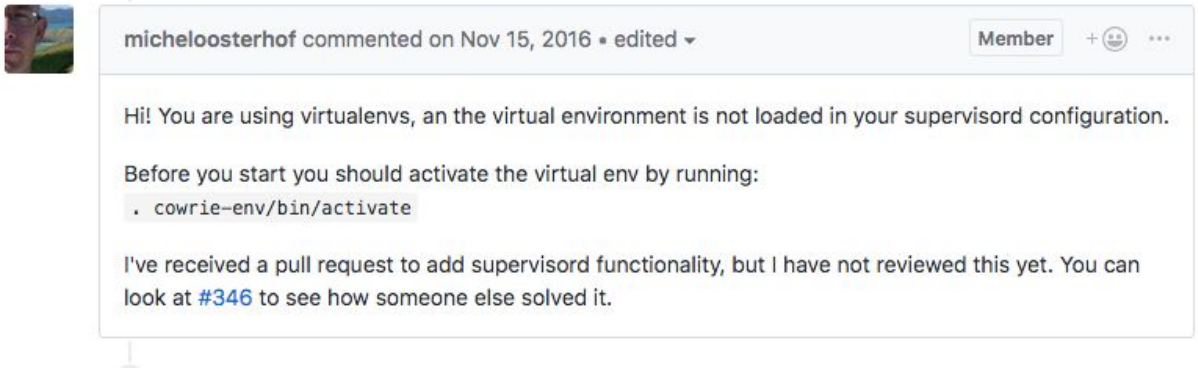
```
cowrie 1325 0.0 2.5 109520 49800 ? S 13:41 0:00 /usr/bin/python /usr/local/bin/twistd -l
log/cowrie.log --umask 0077 --pidfile var/run/cowrie.pid cowrie
```

- two

when i use supervisorctl
`supervisorctl status`
`cowrie FATAL Exited too quickly (process log may have details)`

`supervisorctl start cowrie`
`cowrie: ERROR (abnormal termination)`

I tried the suggestion from the github forum but it did not work



Suggested Solution

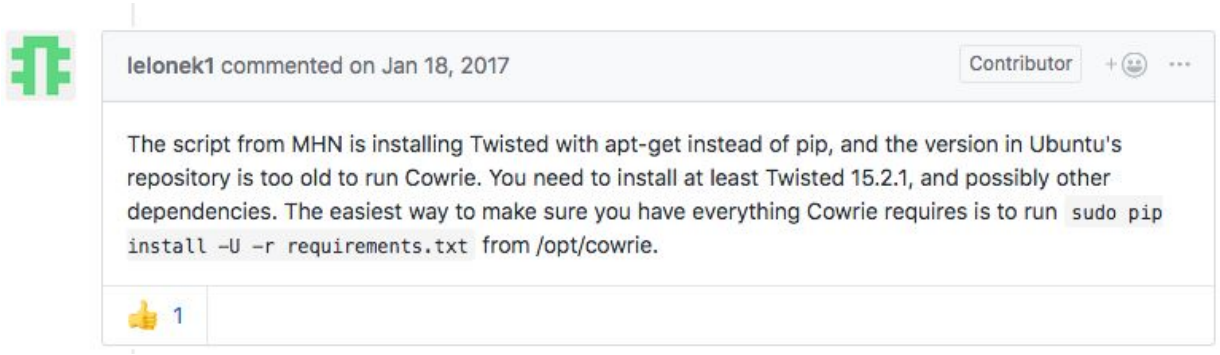
```
mhn-admin@mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot:/$ sudo cat /etc/supervisor/conf.d/cowrie.conf
[program:cowrie]
. /opt/cowrie/cowrie-env/bin/activate
command=/opt/cowrie/bin/cowrie start
directory=/opt/cowrie
stdout_logfile=/opt/cowrie/var/log/cowrie/cowrie.out
stderr_logfile=/opt/cowrie/var/log/cowrie/cowrie.err
autostart=true
autorestart=true
stopasgroup=true
killasgroup=true
user=cowrie
mhn-admin@mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot:/$ sudo supervisorctl restart all
cowrie: ERROR (abnormal termination)
```

/etc/supervisor/conf.d/cowrie.conf

Issue 2: https://github.com/cowrie/cowrie/issues/412


```
/opt/cowrie/cowrie-env/bin/twistd: Unknown command: cowrie
(cowrie-env)mhn-admin@mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot:/opt/cowrie$ /opt/cowrie/bin/cowrie
```

Tried the suggestion listed in the github forum, but it did not work



Suggestion Solution

```
(cowrie-env)mhn-admin@mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot:/opt/cowrie$ cat requirements.txt
twisted>=17.1.0
cryptography>=0.9.1,<=1.8
configparser
pyopenssl
pyparsing
packaging
appdirs>=1.4.0
pyasn1_modules
attrs
service_identity
python-dateutil
tftpy
```

None of the suggested solution worked for me

Note: The Issue was persistent even when the Ubuntu 16.04 was used as a Base Image.

Sensors

4-	mhn-ubuntu-1404-cowrie-ssh	mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot	35.236.5.125	cowrie	6de848d6-7778-11e9-95b5-42010aa80003	0

RESULTS SUMMARY

Attack Stats

Attacks in the last 24 hours: **7,866**

TOP 5 Attacker IPs:

1. 38.141.45.50 (2,664 attacks)
2. 77.247.110.36 (989 attacks)
3. 111.230.73.43 (615 attacks)
4. 75.25.131.207 (344 attacks)
5. 193.188.22.115 (214 attacks)

TOP 5 Attacked ports:

1. 5060 (3,761 times)
2. 80 (729 times)
3. 8088 (530 times)
4. 3389 (290 times)
5. 23 (233 times)

TOP 5 Honey Pots:

1. dionaea (6,677 attacks)
2. drupot (626 attacks)
3. snort (295 attacks)
4. p0f (234 attacks)
5. conpot (34 attacks)

TOP 5 Sensors:

1. mhn-ubuntu-1404-dionaea-honeypot-with-http (6,677 attacks)
2. mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot (626 attacks)
3. mhn-ubuntu-1404-dionaea-honeypot-with-http (243 attacks)
4. mhn-ubuntu-1404-conpot-ics-honeypot (131 attacks)
5. mhn-admin-vm (100 attacks)

TOP 5 Attacks Signatures:

1. ET SCAN SipCLI VOIP Scan (131 times)
2. ET DROP Dshield Block Listed Source group 1 (72 times)
3. ET CINS Active Threat Intelligence Poor Reputation IP TCP group 81 (20 times)
4. ET CINS Active Threat Intelligence Poor Reputation IP TCP group 80 (15 times)
5. ET SCAN Potential SSH Scan (9 times)

ATTACK STATS

Attacks Report

Search Filters

Sensor: All | Honeypot: All | Date: MM-DD-YYYY | Port: 445 | IP Address: 8.8.8.8 | GO

	Date	Sensor	Country	Src IP	Dst port	Protocol	Honeypot
1	2019-05-16 07:05:10	mhn-ubuntu-1404-dionaea-honeypot-with-http		38.141.45.50	5060	UDP	snort
2	2019-05-16 07:05:09	mhn-ubuntu-1404-dionaea-honeypot-with-http		38.141.45.50	5060	SipCall	dionaea
3	2019-05-16 07:05:09	mhn-ubuntu-1404-dionaea-honeypot-with-http		38.141.45.50	5060	SipSession	dionaea
4	2019-05-16 07:04:56	mhn-ubuntu-1404-conpot-ics-honeypot		68.183.16.108	8088	pcap	p0f
5	2019-05-16 07:04:49	mhn-ubuntu-1404-dionaea-honeypot-with-http		38.141.45.50	5060	SipCall	dionaea
6	2019-05-16 07:04:49	mhn-ubuntu-1404-dionaea-honeypot-with-http		38.141.45.50	5060	SipSession	dionaea
7	2019-05-16 07:04:31	mhn-ubuntu-1404-dionaea-honeypot-with-http		27.92.117.238	22	TCP	snort
8	2019-05-16 07:04:31	mhn-ubuntu-1404-dionaea-honeypot-with-http		27.92.117.238	22	TCP	snort
9	2019-05-16 07:04:30	mhn-ubuntu-1404-conpot-ics-honeypot		185.176.27.50	8956	TCP	snort
10	2019-05-16 07:04:30	mhn-ubuntu-1404-conpot-ics-honeypot		185.176.27.50	8956	pcap	p0f

1 2 3 4 5 ... 789 790 »

ATTACKS

Payloads Report

Search Filters

Payload: snort.alerts | Regex Term: pcre regex | GO

date	sensor	source_ip	destination_port	priority	classification	signature
	7e2382be-7792-11e9-95b5-42010aa80003	81.22.45.193	7876	2	30	ET DROP Dshield Block Listed Source group 1
	7e2382be-7792-11e9-95b5-42010aa80003	81.22.45.193	7876	2	30	ET CINS Active Threat Intelligence Poor Reputation IP TCP group 80
	7e2382be-7792-11e9-95b5-42010aa80003	38.141.45.50	5060	2	4	ET SCAN SipCLI VOIP Scan
	7e2382be-7792-11e9-95b5-42010aa80003	27.92.117.238	22	2	30	ET CINS Active Threat Intelligence Poor Reputation IP TCP group 17
	7e2382be-7792-11e9-95b5-42010aa80003	27.92.117.238	22	2	30	ET COMPROMISED Known Compromised or Hostile Host Traffic TCP group 16
	a564a496-779e-11e9-95b5-42010aa80003	185.176.27.50	8956	2	30	ET DROP Dshield Block Listed Source group 1
	7e2382be-7792-11e9-95b5-42010aa80003	38.141.45.50	5060	2	4	ET SCAN SipCLI VOIP Scan
	7e2382be-7792-11e9-95b5-42010aa80003	38.141.45.50	5060	2	4	ET SCAN SipCLI VOIP Scan
	7e2382be-7792-11e9-95b5-42010aa80003	38.141.45.50	5060	2	4	ET SCAN SipCLI VOIP Scan
	7e2382be-7792-11e9-95b5-42010aa80003	77.247.109.231	5059	2	30	ET CINS Active Threat Intelligence Poor Reputation IP UDP group 70

1 2 3 4 5 ... 29 30 »

SNORT IDS ALERTS

Sensors

	Name	Hostname	IP	Honeypot	UUID	Attacks
1-	mhn-ubuntu-1404-dionaea-h	mhn-ubuntu-1404-dionaea-honeypot-with-http	35.235.87.133	dionaea	6f905700-76d3-11e9-95b5-42010aa80003	6713
2-	mhn-ubuntu-1404-conpot-ics	mhn-ubuntu-1404-conpot-ics-honeypot	35.236.28.214	conpot	d7fffb7a-76e1-11e9-95b5-42010aa80003	34
3-	mhn-ubuntu-1404-drupal-cm	mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot	35.235.101.217	drupot	38965a42-76e7-11e9-95b5-42010aa80003	626
4-	mhn-ubuntu-1404-cowrie-ssl	mhn-ubuntu-1404-cowrie-ssh-telnet-honeypot	35.236.5.125	cowrie	c79b1e7c-7790-11e9-95b5-42010aa80003	0
5-	mhn-ubuntu-1404-dionaea-h	mhn-ubuntu-1404-dionaea-honeypot-with-http	35.235.87.133	snort	7e2382be-7792-11e9-95b5-42010aa80003	250
6-	mhn-admin-vm-p0f	mhn-admin-vm	35.236.80.41	p0f	ed9f2186-779a-11e9-95b5-42010aa80003	106
7-	mhn-ubuntu-1404-conpot-ics	mhn-ubuntu-1404-conpot-ics-honeypot	35.236.28.214	p0f	8a7aa1e0-779d-11e9-95b5-42010aa80003	134
8-	mhn-ubuntu-1404-conpot-ics	mhn-ubuntu-1404-conpot-ics-honeypot	35.236.28.214	snort	a564a496-779e-11e9-95b5-42010aa80003	54
9-	mhn-ubuntu-1404-drupal-cm	mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot	35.235.101.217	p0f	481fe2ac-77a1-11e9-95b5-42010aa80003	3
10-	mhn-ubuntu-1404-drupal-cm	mhn-ubuntu-1404-drupal-cms-webform-bot-spam-honeypot	35.235.101.217	snort	b9953c2a-77a1-11e9-95b5-42010aa80003	0

SENSORS

REFERENCES

+ https://stackoverflow.com/questions/1434451/what-does-connection-reset-by-peer-mean
+ https://www.sqlite.org/cli.html
+ https://cloud.google.com/compute/docs/instances/adding-removing-ssh-keys#edit-ssh-metadata
+ https://cloud.google.com/compute/docs/instances/adding-removing-ssh-keys#edit-ssh-metadata
+ https://stackoverflow.com/questions/20568216/python-handling-socket-error-errno-104-connection-reset-by-peer
+ https://cloud.google.com/resource-manager/docs/creating-managing-projects
+ https://cloud.google.com/vpc/docs/add-remove-network-tags
+ https://unix.stackexchange.com/questions/401547/gpg-keyserver-receive-failed-no-dirmngr
+ https://askubuntu.com/questions/347788/how-can-i-install-libpcap-header-files-on-ubuntu-12-04

END OF REPORT