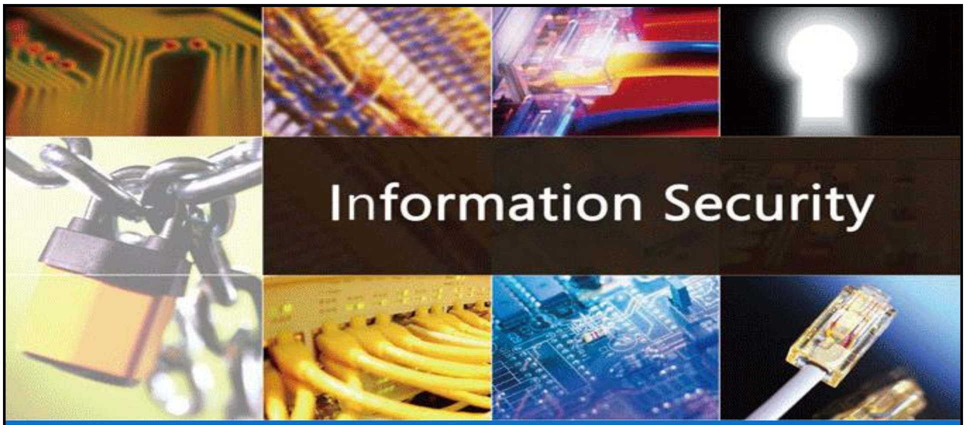


Information Security

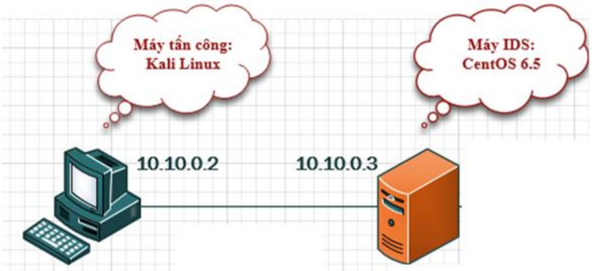
Chapter 10:
LAB - IDS/IPS

Lecturer: Nguyễn Thị Thanh Vân – FIT - HCMUTE

Practice

- Set up an IDS using:
  - **Snort**
- Simulate attacks and use IDS above to detect
  - **Ping**
  - **DDOS**

IDS



Process

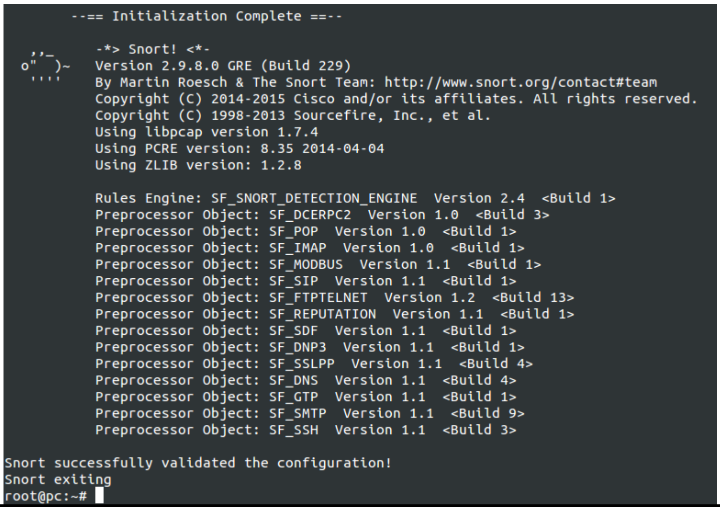
- Set up IDS with Snort
  - Download and install Snort
  - Database: MySQL – install, create, GRANT….
  - Graphic Interface for Snort:
    - Web server, PHP
    - pear
    - **ADODB:** ***http://nchc.dl.sourceforge.net/sourceforge/adodb/***
    - **BASE:** ***http://nchc.dl.sourceforge.net/sourceforge/secureideas/base-1.4.2.tar.gz***
- Set up attacker machine (DOS, Brute Force)
  - **Ping: ping**
  - **DDOS:** hping3

Cấu hình cơ bản

```
$ nano /etc/snort/snort.conf
   ipvar HOME_NET <IP/subnemask>
   ipvar EXTERNAL_NET !$HOME_NET
   var RULE_PATH /etc/snort/rules
   var SO_RULE_PATH /etc/snort/so_rules
   var PREPROC_RULE_PATH /etc/snort/preproc_rules
   var WHITE_LIST_PATH /etc/snort/rules
   var BLACK_LIST_PATH /etc/snort/rules
```

Kiểm tra file cấu hình

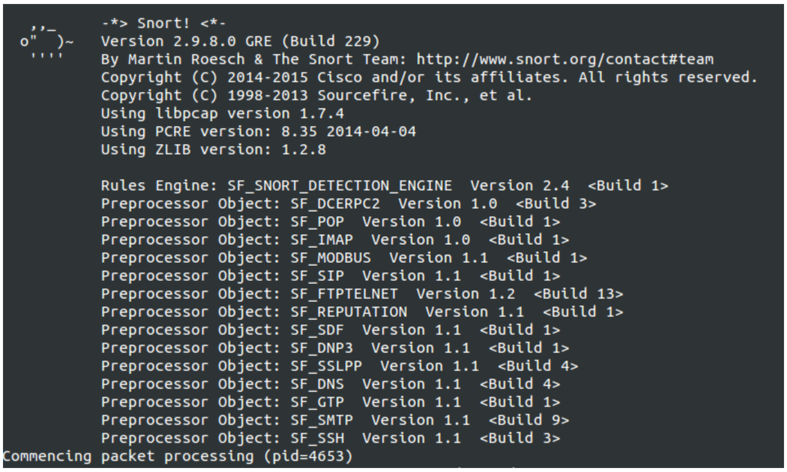
```
$ snort -T -c /etc/snort/snort.conf
```



```
        --== Initialization Complete ==--

   ,,_     -*> Snort! <*-
  o"  )~   Version 2.9.8.0 GRE (Build 229)
   ''''    By Martin Roesch & The Snort Team: http://www.snort.org/contact#team
           Copyright (C) 2014-2015 Cisco and/or its affiliates. All rights reserved.
           Copyright (C) 1998-2013 Sourcefire, Inc., et al.
           Using libpcap version 1.7.4
           Using PCRE version: 8.35 2014-04-04
           Using ZLIB version: 1.2.8

           Rules Engine: SF_SNORT_DETECTION_ENGINE  Version 2.4  <Build 1>
           Preprocessor Object: SF_DCERPC2  Version 1.0  <Build 3>
           Preprocessor Object: SF_POP  Version 1.0  <Build 1>
           Preprocessor Object: SF_IMAP  Version 1.0  <Build 1>
           Preprocessor Object: SF_MODBUS  Version 1.1  <Build 1>
           Preprocessor Object: SF_SIP  Version 1.1  <Build 1>
           Preprocessor Object: SF_FTPTELNET  Version 1.2  <Build 13>
           Preprocessor Object: SF_REPUTATION  Version 1.1  <Build 1>
           Preprocessor Object: SF_SDF  Version 1.1  <Build 1>
           Preprocessor Object: SF_DNP3  Version 1.1  <Build 1>
           Preprocessor Object: SF_SSLPP  Version 1.1  <Build 4>
           Preprocessor Object: SF_DNS  Version 1.1  <Build 4>
           Preprocessor Object: SF_GTP  Version 1.1  <Build 1>
           Preprocessor Object: SF_SMTP  Version 1.1  <Build 9>
           Preprocessor Object: SF_SSH  Version 1.1  <Build 3>

Snort successfully validated the configuration!
Snort exiting
root@pc:~# 
```

chạy Snort

```
$ /usr/local/bin/snort -A console -c /etc/snort/snort.conf -i eth0
```



```
   ,,_     -*> Snort! <*-
  o"  )~   Version 2.9.8.0 GRE (Build 229)
   ''''    By Martin Roesch & The Snort Team: http://www.snort.org/contact#team
           Copyright (C) 2014-2015 Cisco and/or its affiliates. All rights reserved.
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           Using libpcap version 1.7.4
           Using PCRE version: 8.35 2014-04-04
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           Rules Engine: SF_SNORT_DETECTION_ENGINE  Version 2.4  <Build 1>
           Preprocessor Object: SF_DCERPC2  Version 1.0  <Build 3>
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           Preprocessor Object: SF_IMAP  Version 1.0  <Build 1>
           Preprocessor Object: SF_MODBUS  Version 1.1  <Build 1>
           Preprocessor Object: SF_SIP  Version 1.1  <Build 1>
           Preprocessor Object: SF_FTPTELNET  Version 1.2  <Build 13>
           Preprocessor Object: SF_REPUTATION  Version 1.1  <Build 1>
           Preprocessor Object: SF_SDF  Version 1.1  <Build 1>
           Preprocessor Object: SF_DNP3  Version 1.1  <Build 1>
           Preprocessor Object: SF_SSLPP  Version 1.1  <Build 4>
           Preprocessor Object: SF_DNS  Version 1.1  <Build 4>
           Preprocessor Object: SF_GTP  Version 1.1  <Build 1>
           Preprocessor Object: SF_SMTP  Version 1.1  <Build 9>
           Preprocessor Object: SF_SSH  Version 1.1  <Build 3>
Commencing packet processing (pid=4653)
```

ping

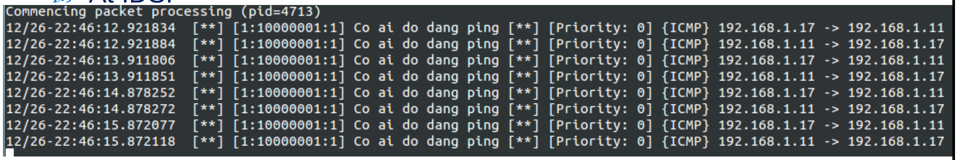
- Create rule icmp – ping:

```
$ nano /etc/snort/rules/icmp.rules
   alert icmp any any -> $HOME_NET any (msg:"Co ai do dang
   ping"; sid:10000001; rev:001;)
```

- Add rule path in snort.conf

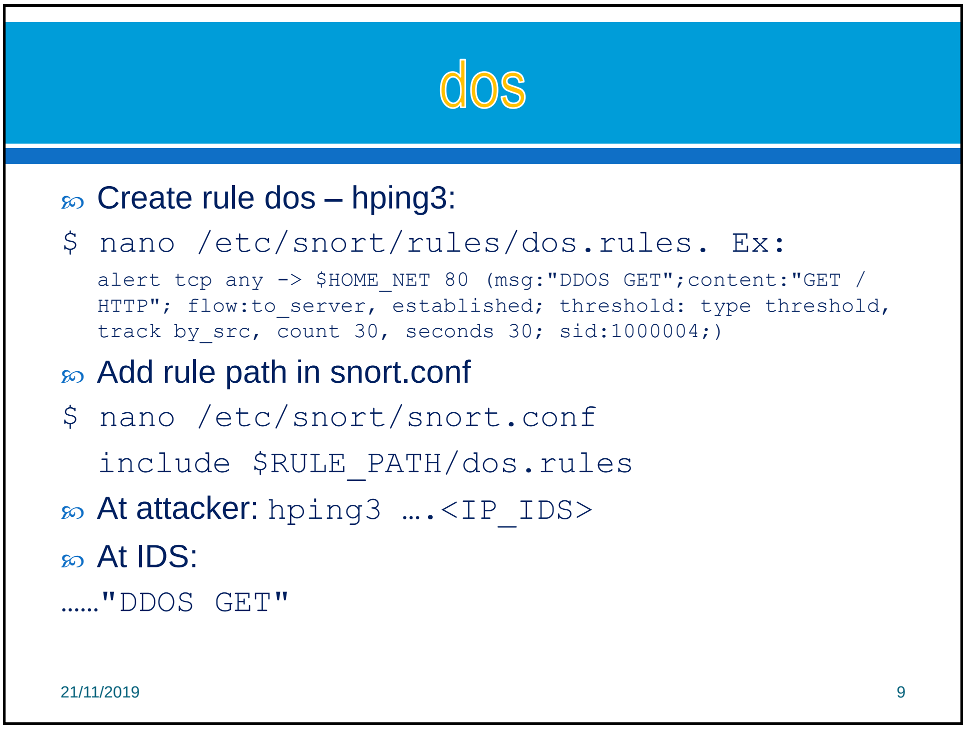
```
$ nano /etc/snort/snort.conf
   include $RULE_PATH/icmp.rules
```

- At attacker: `ping <IP_IDS>`
- At IDS:



```
Commencing packet processing (pid=4713)
12/26-22:46:12.921834  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.17 -> 192.168.1.11
12/26-22:46:12.921884  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.11 -> 192.168.1.17
12/26-22:46:13.911806  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.17 -> 192.168.1.11
12/26-22:46:13.911851  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.11 -> 192.168.1.17
12/26-22:46:14.878252  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.17 -> 192.168.1.11
12/26-22:46:14.878272  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.11 -> 192.168.1.17
12/26-22:46:15.872077  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.17 -> 192.168.1.11
12/26-22:46:15.872118  [**] [1:10000001:1] Co ai do dang ping [**] [Priority: 0] {ICMP} 192.168.1.11 -> 192.168.1.17
```

- Ref: https://adminvietnam.org/cai-dat-snort-ids-tren-ubuntu/1210/



dos

- Create rule dos – hping3:

```
$ nano /etc/snort/rules/dos.rules. Ex:
  alert tcp any -> $HOME_NET 80 (msg:"DDOS GET";content:"GET /
  HTTP"; flow:to_server, established; threshold: type threshold,
  track by_src, count 30, seconds 30; sid:1000004;)
```

- Add rule path in snort.conf

```
$ nano /etc/snort/snort.conf
  include $RULE_PATH/dos.rules
```

- At attacker: `hping3 ….<IP_IDS>`
- At IDS:

……"DDOS GET"

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