



PARSHVANATH CHARITABLE TRUST'S

A. P. SHAH INSTITUTE OF TECHNOLOGY

Department of Information Technology

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Semester: V

Academic Year: 2025-26

Class / Branch: TE IT

Subject: SECURITY LAB

Name of Instructor: Prof. Vishal Badgujar

Name of Student: Suyash Y Mane

Student ID: 24204008

EXPERIMENT NO. 07

Aim: To study Intrusion Detection system SNORT and its log analysis.

```
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:~$ sudo apt-get install snort
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libdaq2 libdumbnet1 liblua5.1-2 liblua5.1-common libnetfilter-queue1
  oinkmaster snort-common snort-common-libraries snort-rules-default
Suggested packages:
  snort-doc
The following NEW packages will be installed:
  libdaq2 libdumbnet1 liblua5.1-2 liblua5.1-common libnetfilter-queue1
  oinkmaster snort snort-common snort-common-libraries snort-rules-default
0 upgraded, 10 newly installed, 0 to remove and 7 not upgraded.
Need to get 2,349 kB of archives.
After this operation, 10.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 liblua5.1-common all 2.1.0-beta3+dfsg-6 [44.3 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 liblua5.1-2 amd64 2.1.0-beta3+dfsg-6 [238 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 snort-common-libraries amd64 2.9.15.1-6build1 [882 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 snort-rules-default all 2.9.15.1-6build1 [146 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 snort-common all 2.9.15.1-6build1 [49.7 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libdumbnet1 amd64 1.12-10 [27.8 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libnetfilter-queue1 amd64 1.0.5-2 [14.4 kB]
Get:8 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libdaq2 amd64 2.0.7-5 [83.5 kB]
Get:9 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 snort amd64 2.9.15.1-6build1 [792 kB]
Get:10 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 oinkmaster all 2.0-4.1 [71.8 kB]
Fetched 2,349 kB in 16s (143 kB/s)
```

```
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:~$ snort -V

  , , _
o" )~
  ' '

-*> Snort! <*-
Version 2.9.15.1 GRE (Build 15125)
By Martin Roesch & The Snort Team: http://www.snort.org/contact#team
Copyright (C) 2014-2019 Cisco and/or its affiliates. All rights reserved.
Copyright (C) 1998-2013 Sourcefire, Inc., et al.
Using libpcap version 1.10.1 (with TPACKET_V3)
Using PCRE version: 8.39 2016-06-14
Using ZLIB version: 1.2.11

apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:~$
```

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```
128 var RULE_PATH /etc/snort/rules
129 var SO_RULE_PATH /etc/snort/so_rules
130 var PREPROC_RULE_PATH /etc/snort/preproc_rules
131
132 # If you are using reputation preprocessor set these
133 # Currently there is a bug with relative paths, they are relative to where snort is
134 # not relative to snort.conf like the above variables
135 # This is completely inconsistent with how other vars work, BUG 89986
136 # Set the absolute path appropriately
137 var WHITE_LIST_PATH /etc/snort/rules/iplists
138 var BLACK_LIST_PATH /etc/snort/rules/iplists
```

```
GNU nano 6.2 local.rules
# $Id: local.rules,v 1.11 2004/07/23 20:15:44 bmc Exp $
# -----
# LOCAL RULES
# -----
# This file intentionally does not come with signatures. Put your local
# additions here.
alert icmp any any -> $HOME_NET any (msg:"ICMP test"; sid:1000001; rev:1;)
```

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```
[ Number of patterns truncated to 20 bytes: 1038 ]
```

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

```
o" )~
' ' '
    -*> Snort! <*-
    Version 2.9.15.1 GRE (Build 15125)
    By Martin Roesch & The Snort Team: http://www.snort.org/contact#team
    Copyright (C) 2014-2019 Cisco and/or its affiliates. All rights reserved.
    Copyright (C) 1998-2013 Sourcefire, Inc., et al.
    Using libpcap version 1.10.1 (with TPACKET_V3)
    Using PCRE version: 8.39 2016-06-14
    Using ZLIB version: 1.2.11
```

```
Rules Engine: SF_SNORT_DETECTION_ENGINE Version 3.1 <Build 1>
Preprocessor Object: appid Version 1.1 <Build 5>
Preprocessor Object: SF_SSH Version 1.1 <Build 3>
Preprocessor Object: SF_REPUTATION Version 1.1 <Build 1>
Preprocessor Object: SF_FTPTELNET Version 1.2 <Build 13>
Preprocessor Object: SF_IMAP Version 1.0 <Build 1>
Preprocessor Object: SF_DNP3 Version 1.1 <Build 1>
Preprocessor Object: SF_POP Version 1.0 <Build 1>
Preprocessor Object: SF_GTP Version 1.1 <Build 1>
Preprocessor Object: SF_DCERPC2 Version 1.0 <Build 3>
Preprocessor Object: SF_SMTP Version 1.1 <Build 9>
Preprocessor Object: SF_MODBUS Version 1.1 <Build 1>
Preprocessor Object: SF_SIP Version 1.1 <Build 1>
Preprocessor Object: SF_SDF Version 1.1 <Build 1>
Preprocessor Object: SF_DNS Version 1.1 <Build 4>
Preprocessor Object: SF_SSLPP Version 1.1 <Build 4>
```

```
Snort successfully validated the configuration!
```

```
Snort exiting
```

```
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:/etc/snort/rules$
```

```
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:/etc/snort/rules$ sudo snort -T -c /etc/snort/rules/local.rules
```

```
Running in Test mode
```

```
--== Initializing Snort ==--
```

```
Initializing Output Plugins!
```

```
Initializing Preprocessors!
```

```
Initializing Plug-ins!
```

```
Parsing Rules file "/etc/snort/rules/local.rules"
```

```
Tagged Packet Limit: 256
```

```
Log directory = /var/log/snort
```

```
+++++
```

```
Initializing rule chains...
```

```
ERROR: /etc/snort/rules/local.rules(7) Undefined variable in the string: $HOME_NET.
```

```
Fatal Error, Quitting..
```

```
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:/etc/snort/rules$
```

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

-*)> Snort! <*-
o" )~
' ' '
Version 2.9.15.1 GRE (Build 15125)
By Martin Roesch & The Snort Team: http://www.snort.org/contact#team
Copyright (C) 2014-2019 Cisco and/or its affiliates. All rights reserved.
Copyright (C) 1998-2013 Sourcefire, Inc., et al.
Using libpcap version 1.10.1 (with TPACKET_V3)
Using PCRE version: 8.39 2016-06-14
Using ZLIB version: 1.2.11

Rules Engine: SF_SNORT_DETECTION_ENGINE Version 3.1 <Build 1>
Preprocessor Object: appid Version 1.1 <Build 5>
Preprocessor Object: SF_SSH Version 1.1 <Build 3>
Preprocessor Object: SF_REPUTATION Version 1.1 <Build 1>
Preprocessor Object: SF_FTPTELNET Version 1.2 <Build 13>
Preprocessor Object: SF_IMAP Version 1.0 <Build 1>
Preprocessor Object: SF_DNP3 Version 1.1 <Build 1>
Preprocessor Object: SF_POP Version 1.0 <Build 1>
Preprocessor Object: SF_GTP Version 1.1 <Build 1>
Preprocessor Object: SF_DCERPC2 Version 1.0 <Build 3>
Preprocessor Object: SF_SMTP Version 1.1 <Build 9>
Preprocessor Object: SF_MODBUS Version 1.1 <Build 1>
Preprocessor Object: SF_SIP Version 1.1 <Build 1>
Preprocessor Object: SF_SDF Version 1.1 <Build 1>
Preprocessor Object: SF_DNS Version 1.1 <Build 4>
Preprocessor Object: SF_SSLPP Version 1.1 <Build 4>
Commencing packet processing (pid=6887)
```

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=====
HTTP Inspect - encodings (Note: stream-reassembled packets included):

```
POST methods: 0
GET methods: 0
HTTP Request Headers extracted: 0
HTTP Request Cookies extracted: 0
Post parameters extracted: 0
HTTP response Headers extracted: 1
HTTP Response Cookies extracted: 0
Unicode: 0
Double unicode: 0
Non-ASCII representable: 0
Directory traversals: 0
Extra slashes ("//"): 0
Self-referencing paths ("."): 0
HTTP Response Gzip packets extracted: 0
Gzip Compressed Data Processed: n/a
Gzip Decompressed Data Processed: n/a
Http/2 Rebuilt Packets: 0
Total packets processed: 2
```

=====
SMTP Preprocessor Statistics

```
Total sessions : 0
Max concurrent sessions : 0
```

=====
dcerpc2 Preprocessor Statistics

```
Total sessions: 0
```

=====
SIP Preprocessor Statistics

```
Total sessions: 0
```

=====
IMAP Preprocessor Statistics

```
Total sessions : 0
Max concurrent sessions : 0
```

=====
POP Preprocessor Statistics

```
Total sessions : 0
Max concurrent sessions : 0
```

=====
Snort exiting

```
Commencing packet processing (pid=7169)
09/11-11:38:43.052562 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:44.076510 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:44.897113 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:45.100491 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:46.124432 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:46.658908 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:47.148451 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:47.291280 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {IPv6-ICMP} :: -> ff02::1:ffbe:3a38
09/11-11:38:48.172386 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:49.196456 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:49.331773 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:49.648576 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:50.228319 [**] [1:1000001:1] "ICMP test" [**] [Priority: 0] {ICMP} 192.168.91.29 -> 192.168.91.30
09/11-11:38:50.858902 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:52.495434 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:52.690657 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:52.695024 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:53.086162 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {IPv6-ICMP} :: -> ff02::1:fff9:5655
09/11-11:38:53.565953 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:54.407631 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:58.294279 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:58.526536 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {IPv6-ICMP} :: -> ff02::1:ffff:a410
09/11-11:38:58.526956 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
09/11-11:38:59.270508 [**] [1:527:8] BAD-TRAFFIC same SRC/DST [**] [Classification: Potentially Bad Traffic] [Priority: 2] {UDP} 0.0.0.0:68 -> 255.255.255.255:67
```

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1. *Journal of the American Medical Association*, 2000; 284: 2689-2695.

```
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:/var/log/snort$
```

```

apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:/var/log/snort$ sudo tcpdump -r snort.log.1757570922
reading from file snort.log.1757570922, link-type EN10MB (Ethernet), snapshot length 1514
11:38:43.052562 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 8, length 64
11:38:44.076510 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 9, length 64
11:38:44.897113 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from dc:1b:a1:d2:22:b0 (oui Unknown), length 322
11:38:45.100491 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 10, length 64
11:38:46.124432 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 11, length 64
11:38:46.658908 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from c8:94:02:48:0e:25 (oui Unknown), length 322
11:38:47.148451 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 12, length 64
11:38:47.291280 IP6 :: > ff02::1:ffbe:3a38: ICMP6, neighbor solicitation, who has fe80::a464:8aa:febe:3a38, length 24
11:38:48.172386 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 13, length 64
11:38:49.196456 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 14, length 64
11:38:49.331773 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from c8:94:02:48:0e:25 (oui Unknown), length 322
11:38:49.648576 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from cc:47:40:bf:0a:61 (oui Unknown), length 289
11:38:50.220319 IP 192.168.91.29 > apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC: ICMP echo request, id 2, seq 15, length 64
11:38:50.858902 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from dc:1b:a1:d2:22:b0 (oui Unknown), length 322
11:38:52.495434 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from cc:47:40:bf:0a:61 (oui Unknown), length 289
11:38:52.690657 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from dc:1b:a1:d2:22:b0 (oui Unknown), length 300
11:38:52.695024 IP 0.0.0.0.bootpc > 255.255.255.255.bootps: BOOTP/DHCP, Request from dc:1b:a1:d2:22:b0 (oui Unknown), length 322
^C11:38:53.086162 IP6 :: > ff02::1:ff99:5655: ICMP6, neighbor solicitation, who has fe80::a0fa:cd6:c99:5655, length 24
apsit@apsit-HP-Pro-Tower-280-G9-E-PCI-Desktop-PC:/var/log/snort$ 

```



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Conclusion:

Hence we have successfully studied Snort which is network intrusion prevention system, capable of performing real-time traffic analysis and packet logging on IP networks. It can perform protocol analysis, content searching/matching, and can be used to detect a variety of attacks and probes, such as buffer overflows, stealth port scans, CGI attacks, SMB probes, OS fingerprinting attempts, and much more. Also we have done analysis of log generated by snort.