

DAFTAR PUSTAKA

- Agustian, Hari. (2020). Implementasi Keamanan Wireless LAN Menggunakan Snort dan IPTables. Universitas Dehasen Bengkulu.
- Bangga, I Gede Walid. (2022). Simulasi Snort Sebagai Alat Pendeteksi Intrusi Pada Web DAMN Vulnerable Web Application. Jurnal Rekayasa Informasi.
- Banjo, Chika Yinka. (2022). Intrusion Detection Using Anomaly Detection Algorithm and Snort. LNDECT Vol 109.
- Dar, Muhammad Halmi. (2018). Implementasi Snort Intrusion Detection System Pada Sistem Jaringan Komputer. Jurnal Rekayasa Informasi. Jurnal ULB.
- Dasmen, Rahmat Novrianda. (2022). Penerapan Snort Sebagai Sistem PendeteksiSerangan Keamanan Jaringan. Universitas Bina Darma.
- Erlansari, Aan. (2020). Early Intrusion Detection System (IDS) Using Snort And Telegram Approach. SISFORMA.
- Fachri, Barani. (2020). Simulasi Penggunaan *Intrusion Detection System* (IDS) Sebagai Kemanan Jaringan dan Komputer. STMIK Budidarma.
- Fauzi, Raihan. (2023). Sistem Keamanan Jaringan Komputer Berbasis Teknik *Intrusion Detection System* (IDS) Untuk Mendeteksi Serangan *Distributed Denial of Service* (DDOS). Repository Tunas Bangsa.
- Gupta, Alka. (2020). Performance Analysis and Comparison of Snort on Various Platform. International Journal of Computer Information Syste and Industrial Management Applications.
- Jain, G. (2021). Application of Snort and Wireshark in Network Traffic Analysis. IOP Publishing Ltd.
- Kunhare, Nilesh. (2020). Network Packet Analysis in Real Time Traffic and Study of Snort IDS During the Variants of DoS Attacks. AISC Vol 1179.



bin. (2019). Implementasi *Network Intrusion Detection System* (NIDS) am Sitem Keamanan *Open Cloud Computing*. Akademi Maritim gyakarta.

- Purba, Winrou Wesley. (2021). Perancangan dan Analisis Sistem Keamanan Jaringan Komputer Menggunakan Snort. Satya Wacana Christian University.
- Ramadhan, Idrus. (2019). Keamanan Jaringan Dengan Snort IDS Menggunakan Metode Forensic Jaringan. Jurnal Ilmiah MIKA AMIK Al Muslim.
- Razak, Shukor. (2021). Anomaly Based Intrusion Detection System in IoT Using Deep Learning: A Systematic Literature Review. IEEE.
- Santoso, Joko Dwi. (2019). Keamanan Jaringan Nirkabel Menggunakan Wireless Intrusion Detection System. INFOS Journal.
- Sharma, Shubham. (2022). Intrusion Detection and Prevention System Using Snort. LNDECT Vol 86.
- Stephani, Elsa. (2020). Implementasi dan Analisa Keamanan Jaringan IDS (*Intrusion Detection System*). Jurnal ITSI.
- Triandini, Rizki. (2020). Implementasi Intrusion Detection System Menggunakan Banyard dan Base Pada Sistem Operasi Linux. Repository Unikom.
- Usama, Usama. (2019). Analisis Kinerja Sitem Pencegahan Penyusupan Jaringan Menggunakan Honeypot Pada Windows. Repository ITN Malang.
- Wang, Shaoqian. (2020). Intrusion Detection System for WiFi Network: A Deep Learning Approach. IEEE.



LAMPIRAN

Lampiran 1

Konfigurasi rules yang digunakan pada Snort

```
C: > Snort > etc > snort.conf
1  # Setup the network addresses you are protecting
2  Ipv4var HOME_NET 192.168.1.9
3  # Setup the external network addresses. Leave as "any" in most situations
4  Ipv4var EXTERNAL_NET !$HOME_NET
5  var RULE_PATH /etc/snort/rules
6  var SO_RULE_PATH /etc/snort/so_rules
7  var PREPROC_RULE_PATH
8  /etc/snort/preproc_rules
9  var WHITE_LIST_PATH /etc/snort/rules/iplists
10 var BLACK_LIST_PATH /etc/snort/rules/iplists
11 config daq: afpacket
12 config daq_dir: /usr/local/lib/snort_dynamicrules
13 config daq_mode: inline
14 config policy_mode: inline
15 config daq_var: queue=0
16 # path to dynamic preprocessor libraries
17 dynamicpreprocessor dictionary c:\snort\lib\snort_dynamicpreprocessor
18 # path to base preprocessor engine
19 dynamicengine c:\snort\lib\snort_dynamicengine\sfe.engine.dll
20 # path to dynamic rules libraries
21 # dynamicdetection directory
22 /usr/local/lib/snort_dynamicrules
23
24 # Setup the network addresses you are protecting
25 ipvar HOME_NET 192.168.1.9
26
27 # FTP / Telnet normalization and anomaly detection. For more information, see README.ftptelnet
28 preprocessor ftp_telnet: global inspection_type stateful encrypted_traffic no check_encrypted
29 preprocessor ftp_telnet_protocol: telnet \
30     ayt_attack_thresh 20 \
31     normalize ports { 23 } \
32     detect_anomalies
```

```
33 preprocessor ftp_telnet_protocol: ftp server default \
34     def_max_param_len 100 \
35     ports { 21 2100 3535 } \
36     telnet_cmds yes \
37     ignore_telnet_erase_cmds yes \
38     ftp_cmds { ABOR ACCT ADAT ALLO APPE AUTH CCC CDUP } \
39     ftp_cmds { CEL CLNT CMD CONF CWD DELE ENC EPRT } \
40     ftp_cmds { EPSV ESTA ESTP FEAT HELP LANG LIST LPRT } \
41     ftp_cmds { LPSV MACB MAIL MDTM MIC MKD MLSD MLST } \
42     ftp_cmds { MODE NLST NOOP OPTS PASS PASV PBSZ PORT } \
43     ftp_cmds { PROT PWD QUIT REIN REST RETR RMD RNFR } \
44     ftp_cmds { RNTD SDUP SITE SIZE SMNT STAT STOR STOU } \
45     ftp_cmds { STRU SYST TEST TYPE USER XCUP XCRC XCWD } \
46     ftp_cmds { XMAS XMD5 XMKD XPWD XRCF XRMK XRSQ XSEM } \
47     ftp_cmds { XSEN XSHA1 XSHA256 } \
48     alt_max_param_len 0 { ABOR CCC CDUP ESTA FEAT LPSV NOOP PASV PWD QUIT REIN STOU SYST XCUP XPWD } \
49     alt_max_param_len 200 { ALLO APPE CMD HELP NLST RETR RNFR STOR STOU XMKD } \
50     alt_max_param_len 256 { CWD RNTD } \
51     alt_max_param_len 400 { PORT } \
52     alt_max_param_len 512 { SIZE } \
53     chk_str_fmt { ACCT ADAT ALLO APPE AUTH CEL CLNT CMD } \
54     chk_str_fmt { CONF CWD DELE ENC EPRT EPSV ESTP HELP } \
55     chk_str_fmt { LANG LIST LPRT MACB MAIL MDTM MIC MKD } \
56     chk_str_fmt { MLSD MLST MODE NLST OPTS PASS PBSZ PORT } \
57     chk_str_fmt { PROT REST RETR RMD RNFR RNTD SDUP SITE } \
58     chk_str_fmt { SIZE SMNT STAT STOR STRU TEST TYPE USER } \
59     chk_str_fmt { XCRC XCWD XMAS XMD5 XMKD XRCF XRMK XRSQ } \
60     chk_str_fmt { XSEM XSEN XSHA1 XSHA256 } \
61     cmd_validity ALLO < int [ char R int ] > \
62     cmd_validity EPSV < [ { char 12 | char A char L char L } ] > \
63     cmd_validity MACB < string > \
```



```

C: > Snort > etc > snort.conf

64 cmd_validity MDTM < [ date nnnnnnnnnnnnnn[.n[n[n]]] ] string > \
65 cmd_validity MODE < char ASBCZ > \
66 cmd_validity PORT < host_port > \
67 cmd_validity PROT < char CSEP > \
68 cmd_validity STRU < char FRPO [ string ] > \
69 cmd_validity TYPE < { char AE [ char NTC ] | char I | char L [ number ] } >
70 preprocessor ftp_telnet_protocol: ftp client default \
71 max_resp_len 256 \
72 bounce yes \
73 ignore_telnet_erase_cmds yes \
74 telnet_cmds yes
75
76
77 # SMTP normalization and anomaly detection. For more information, see README.SMTP
78 preprocessor smtp: ports { 25 465 587 691 } \
79 inspection_type stateful \
80 b64_decode_depth 0 \
81 qp_decode_depth 0 \
82 bitenc_decode_depth 0 \
83 uu_decode_depth 0 \
84 log_mailfrom \
85 log_rcptto \
86 log_filename \
87 log_email_hdrs \
88 normalize_cmds \
89 normalize_cmds { ATRN AUTH BDAT CHUNKING DATA DEBUG EHLO EMAL ESAM ESND ESOM ETRN EVFY } \
90 normalize_cmds { EXPN HELO HELP IDENT MAIL NOOP ONEX QUEU QUIT RCPT RSET SAML SEND SOML } \
91 normalize_cmds { STARTTLS TICK TIME TURN TURNME VERB VRFY X-ADAT X-DRCP X-ERCP X-EXCH50 } \
92 normalize_cmds { X-EXPS X-LINK2STATE XADR XAUTH XCIR XEXCH50 XGEN XLICENSE XQUE XSTA XTRN XUSR } \
93 max_command_line_len 512 \
94 max_header_line_len 1000 \
95
96 max_response_line_len 512 \
97 alt_max_command_line_len 260 { MAIL } \
98 alt_max_command_line_len 300 { RCPT } \
99 alt_max_command_line_len 500 { HELP HELO ETRN EHLO } \
100 alt_max_command_line_len 255 { EXPN VRFY ATRN SIZE BDAT DEBUG EMAL ESAM ESND ESOM EVFY IDENT NOOP RSET } \
101 alt_max_command_line_len 248 { SEND SAML SOML AUTH TURN ETRN DATA RSET QUIT ONEX QUEU STARTTLS TICK TIME TURNME VERB X-EXPS X-LINK2STATE } \
102 valid_cmds { ATRN AUTH BDAT CHUNKING DATA DEBUG EHLO EMAL ESAM ESND ESOM ETRN EVFY } \
103 valid_cmds { EXPN HELO HELP IDENT MAIL NOOP ONEX QUEU QUIT RCPT RSET SAML SEND SOML } \
104 valid_cmds { STARTTLS TICK TIME TURN TURNME VERB VRFY X-ADAT X-DRCP X-ERCP X-EXCH50 } \
105 valid_cmds { X-EXPS X-LINK2STATE XADR XAUTH XCIR XEXCH50 XGEN XLICENSE XQUE XSTA XTRN XUSR } \
106 xlink2state { enabled }
107
108
109 # SSH anomaly detection. For more information, see README.ssh
110 preprocessor ssh: server_ports { 22 } \
111 autodetect \
112 max_client_bytes 65500 \
113 max_encrypted_packets 20 \
114 max_server_version_len 100 \
115 enable_responderflow enable_sshlrc32 \
116 enable_srvoverflow enable_protomismatch
117
118 # SMB / DCE-RPC normalization and anomaly detection. For more information, see README.dcerpc2
119 preprocessor dcerpc2: memcap 102400, events { co }
120 preprocessor dcerpc2_server: default, policy MinXP, \
121 detect [smb [139,445], tcp 135, udp 135, rpc-over-http-server 593], \
122 autodetect [tcp 1025:, udp 1025:, rpc-over-http-server 1025:], \
123 smb_max_chain 3, smb_invalid_shares ["CS", "DS", "ADMIN$"]
124

```



```

C:\> Snort > etc > @ snort.conf
125 # DNS anomaly detection. For more information, see README.dns
126 preprocessor dns: ports { 53 } enable_rdata_overflow
127
128 # SSL anomaly detection and traffic bypass. For more information, see README.ssl
129 preprocessor ssl: ports { 443 465 563 636 989 992 993 994 995 7881 7882 7900 7901 7902 7903 7904 7905 7906 7907 7908 7909 7910 7911 7912 79
130
131 # SDF sensitive data preprocessor. For more information see README.sensitive_data
132 preprocessor sensitive_data: alert_threshold 25
133
134 # SIP Session Initiation Protocol preprocessor. For more information see README.sip
135 preprocessor sip: max_sessions 40000, \
136   ports { 135 139 445 }, \
137   methods { invite \
138     cancel \
139     ack \
140     bye \
141     register \
142     options \
143     refer \
144     subscribe \
145     update \
146     join \
147     info \
148     message \
149     notify \
150     benotify \
151     do \
152     qauth \
153     sprack \
154     publish \
155     service \

```

```

C:\> Snort > etc > @ snort.conf
155   service \
156   unsubscribe \
157   prack }, \
158   max_uri_len 512, \
159   max_call_id_len 80, \
160   max_requestName_len 20, \
161   max_from_len 256, \
162   max_to_len 256, \
163   max_via_len 1024, \
164   max_contact_len 512, \
165   max_content_len 2048
166
167 # IMAP preprocessor. For more information see README.imap
168 preprocessor imap: \
169   ports { 143 } \
170   b64_decode_depth 0 \
171   qp_decode_depth 0 \
172   bitenc_decode_depth 0 \
173   uu_decode_depth 0
174
175 # POP preprocessor. For more information see README.pop
176 preprocessor pop: \
177   ports { 110 } \
178   b64_decode_depth 0 \
179   qp_decode_depth 0 \
180   bitenc_decode_depth 0 \
181   uu_decode_depth 0
182
183 # Modbus preprocessor. For more information see README.modbus
184 preprocessor modbus: ports { 502 }
185

```



```

C: > Snort > etc > ⚙️ snort.conf
186 # DNP3 preprocessor. For more information see README.dnp3
187 preprocessor dnp3: ports { 20000 } \
188     memcap 262144 \
189     check_crc
190
191 # Reputation preprocessor. For more information see README.reputation
192 preprocessor reputation: \
193     memcap 500, \
194     priority whitelist, \
195     nested_ip inner#, \
196
197 # metadata reference data. do not modify these lines
198 include classification.config
199 include reference.config
200
201 include c:\snort\etc\classification.config
202 include c:\snort\etc\reference.config
203
204 # site specific rules
205 include c:\snort\rules\snort3-community.rules
206 include c:\snort\rules\local.rules
207
208 include $RULE_PATH/app-detect.rules
209 include $RULE_PATH/attack-responses.rules
210 include $RULE_PATH/backdoor.rules
211 include $RULE_PATH/bad-traffic.rules
212 include $RULE_PATH/blacklist.rules
213 include $RULE_PATH/botnet-cnc.rules
214 include $RULE_PATH/browser-chrome.rules
215 include $RULE_PATH/browser-firefox.rules
216 include $RULE_PATH/browser-ie.rules
217 include $RULE_PATH/browser-other.rules

```



C: > Snort > etc > ⚙ snort.conf

```
217 include $RULE_PATH/browser-other.rules
218 include $RULE_PATH/browser-plugins.rules
219 include $RULE_PATH/browser-webkit.rules
220 include $RULE_PATH/chat.rules
221 include $RULE_PATH/content-replace.rules
222 include $RULE_PATH/ddos.rules
223 include $RULE_PATH/dns.rules
224 include $RULE_PATH/dos.rules
225 include $RULE_PATH/experimental.rules
226 include $RULE_PATH/exploit-kit.rules
227 include $RULE_PATH/exploit.rules
228 include $RULE_PATH/file-executable.rules
229 include $RULE_PATH/file-flash.rules
230 include $RULE_PATH/file-identify.rules
231 include $RULE_PATH/file-image.rules
232 include $RULE_PATH/file-multimedia.rules
233 include $RULE_PATH/file-office.rules
234 include $RULE_PATH/file-other.rules
235 include $RULE_PATH/file-pdf.rules
236 include $RULE_PATH/finger.rules
237 include $RULE_PATH/ftp.rules
238 include $RULE_PATH/icmp-info.rules
239 include $RULE_PATH/icmp.rules
240 include $RULE_PATH/imap.rules
241 include $RULE_PATH/indicator-compromise.rules
242 include $RULE_PATH/indicator-obfuscation.rules
243 include $RULE_PATH/indicator-shellcode.rules
244 include $RULE_PATH/info.rules
245 include $RULE_PATH/malware-backdoor.rules
246 include $RULE_PATH/malware-cnc.rules
247 include $RULE_PATH/malware-other.rules
248 include $RULE_PATH/malware-tools.rules
```



C: > Snort > etc > ⚙ snort.conf

```
249 include $RULE_PATH/misc.rules
250 include $RULE_PATH/multimedia.rules
251 include $RULE_PATH/mysql.rules
252 include $RULE_PATH/netbios.rules
253 include $RULE_PATH/nntp.rules
254 include $RULE_PATH/oracle.rules
255 include $RULE_PATH/os-linux.rules
256 include $RULE_PATH/os-other.rules
257 include $RULE_PATH/os-solaris.rules
258 include $RULE_PATH/os-windows.rules
259 include $RULE_PATH/other-ids.rules
260 include $RULE_PATH/p2p.rules
261 include $RULE_PATH/phishing-spam.rules
262 include $RULE_PATH/policy-multimedia.rules
263 include $RULE_PATH/policy-other.rules
264 include $RULE_PATH/policy.rules
265 include $RULE_PATH/policy-social.rules
266 include $RULE_PATH/policy-spam.rules
267 include $RULE_PATH/pop2.rules
268 include $RULE_PATH/pop3.rules
269 include $RULE_PATH/protocol-finger.rules
270 include $RULE_PATH/protocol-ftp.rules
271 include $RULE_PATH/protocol-icmp.rules
272 include $RULE_PATH/protocol-imap.rules
273 include $RULE_PATH/protocol-pop.rules
274 include $RULE_PATH/protocol-services.rules
275 include $RULE_PATH/protocol-voip.rules
276 include $RULE_PATH/pua-adware.rules
277 include $RULE_PATH/pua-other.rules
278 include $RULE_PATH/pua-p2p.rules
279 include $RULE_PATH/pua-toolbars.rules
```



C: > Snort > etc >  snort.conf

```

280 include $RULE_PATH/rpc.rules
281 include $RULE_PATH/rservices.rules
282 include $RULE_PATH/scada.rules
283 include $RULE_PATH/scan.rules
284 include $RULE_PATH/server-apache.rules
285 include $RULE_PATH/server-iis.rules
286 include $RULE_PATH/server-mail.rules
287 include $RULE_PATH/server-mssql.rules
288 include $RULE_PATH/server-mysql.rules
289 include $RULE_PATH/server-oracle.rules
290 include $RULE_PATH/server-other.rules
291 include $RULE_PATH/server-webapp.rules
292 include $RULE_PATH/shellcode.rules
293 include $RULE_PATH/smtp.rules
294 include $RULE_PATH/snmp.rules
295 include $RULE_PATH/specific-threats.rules
296 include $RULE_PATH/spyware-put.rules
297 include $RULE_PATH/sql.rules
298 include $RULE_PATH/telnet.rules
299 include $RULE_PATH/tftp.rules
300 include $RULE_PATH/virus.rules
301 include $RULE_PATH/voip.rules
302 include $RULE_PATH/web-activex.rules
303 include $RULE_PATH/web-attacks.rules
304 include $RULE_PATH/web-cgi.rules
305 include $RULE_PATH/web-client.rules
306 include $RULE_PATH/web-coldfusion.rules
307 include $RULE_PATH/web-frontpage.rules
308 include $RULE_PATH/web-iis.rules
309 include $RULE_PATH/web-misc.rules
310 include $RULE_PATH/web-php.rules

```

C: > Snort > rules >  local.rules

```

1 #LOCAL RULES
2
3
4 alert icmp any any -> any any (msg:"PING OF DEATH"; fragoffset:0; fragbits:65500; content:"abcdefgh"; depth:8; sid:100001;)
5 alert icmp any any -> any any (msg:"PING FLOOD"; icode:0; itype:8; threshold: type both, track by_src, count 10, seconds 60; sid:100002;)
6 alert tcp any any -> any any (msg:"PORT SCANNING"; flags:S; threshold: type both, track by_src, count 3, seconds 60; sid:100003;)
7
8

```

