

Keamanan Jaringan Komputer



Disusun Oleh

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**JURUSAN SISTEM KOMPUTER
FAKULTAS ILMU KOMPUTER
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2017

INSTRUCTION DETECTION SYSTEM (IDS) USING SNORT

Target : www.21cinex.com (202.59.161.235)
Waktu Scanning : 7 Maret 2017 pukul 11:10 PM-00:29 AM
Tools yang digunakan : -Nessus
 -Wireshark
 -Snort

Tahapan-tahapannya adalah sebagai berikut :

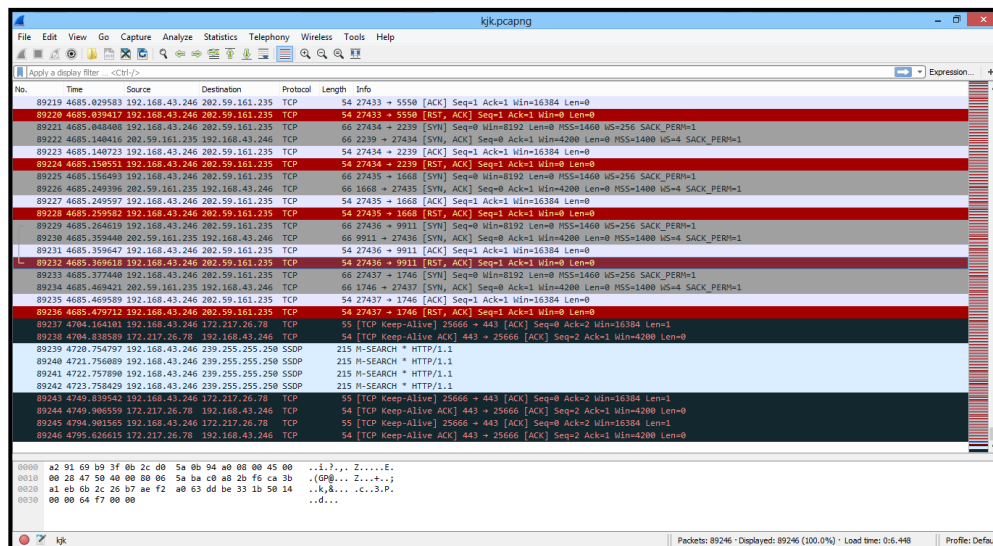
1. Scanning menggunakan Nessus dan buka aplikasi Wireshark secara bersamaan. Tunggu proses Scanning pada Nessus hingga selesai, seperti pada gambar 1.

The image shows two overlapping windows. The top window is the Nessus interface, displaying the results of a scan for host 202.59.161.235. The scan is completed, and the status is 'Completed'. The scan details show the name 'task3_kusuma', policy 'Basic Network Scan', scanner 'Local Scanner', folder 'My Scans', start time 'Today at 11:10 PM', end time 'March 7 at 12:29 AM', elapsed time 'an hour', and target '202.59.161.235'. A donut chart shows the vulnerability distribution: High (red), Medium (orange), Low (green), and Info (blue).

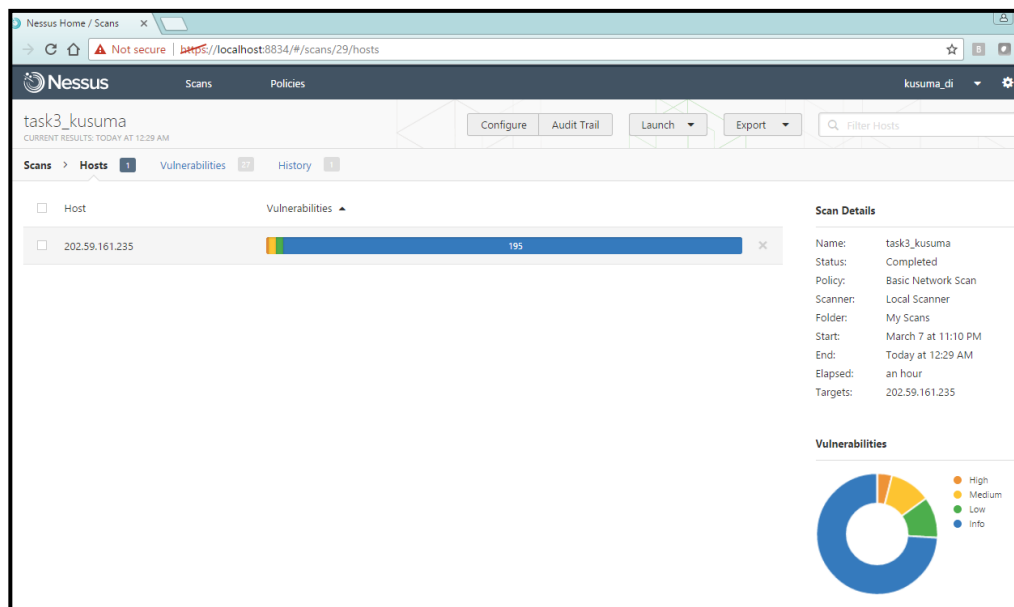
The bottom window is Wireshark, showing a packet capture. The packet list pane shows several TCP and SSDP packets. The packet details pane shows the structure of a User Datagram Protocol (UDP) packet, including the source and destination ports and the payload.

No.	Time	Source	Destination	Protocol	Length	Info
89221	4685.048468	192.168.43.246	202.59.161.235	TCP	66	27434 → 2239 [S]
89222	4685.140416	202.59.161.235	192.168.43.246	TCP	66	2239 → 27434 [A]
89223	4685.140723	192.168.43.246	202.59.161.235	TCP	54	27434 → 2239 [R]
89224	4685.150551	192.168.43.246	202.59.161.235	TCP	54	27434 → 2239 [R]
89225	4685.156493	192.168.43.246	202.59.161.235	TCP	66	27435 → 1668 [S]
89226	4685.249396	202.59.161.235	192.168.43.246	TCP	66	1668 → 27435 [S]
89227	4685.249597	192.168.43.246	202.59.161.235	TCP	54	27435 → 1668 [R]
89228	4685.259582	192.168.43.246	202.59.161.235	TCP	54	27435 → 1668 [R]
89229	4685.264619	192.168.43.246	202.59.161.235	TCP	66	27436 → 9911 [S]
89230	4685.359440	202.59.161.235	192.168.43.246	TCP	66	9911 → 27436 [S]
89231	4685.359647	192.168.43.246	202.59.161.235	TCP	54	27436 → 9911 [A]
89232	4685.369618	192.168.43.246	202.59.161.235	TCP	54	27436 → 9911 [R]
89233	4685.377440	192.168.43.246	202.59.161.235	TCP	66	27437 → 1746 [S]
89234	4685.469421	202.59.161.235	192.168.43.246	TCP	66	1746 → 27437 [S]
89235	4685.469589	192.168.43.246	202.59.161.235	TCP	54	27437 → 1746 [R]
89236	4685.479712	192.168.43.246	202.59.161.235	TCP	54	27437 → 1746 [R]
89237	4704.164101	192.168.43.246	172.217.26.78	TCP	55	[TCP Keep-Alive]
89238	4704.838589	172.217.26.78	192.168.43.246	TCP	54	[TCP Keep-Alive]
89239	4720.754797	192.168.43.246	239.255.255.250	SSDP	215	M-SEARCH * HTTP
89240	4721.756089	192.168.43.246	239.255.255.250	SSDP	215	M-SEARCH * HTTP
89241	4722.757890	192.168.43.246	239.255.255.250	SSDP	215	M-SEARCH * HTTP
89242	4723.758420	192.168.43.246	239.255.255.250	SSDP	215	M-SEARCH * HTTP
89243	4749.839542	192.168.43.246	172.217.26.78	TCP	55	[TCP Keep-Alive]
89244	4749.906559	172.217.26.78	192.168.43.246	TCP	54	[TCP Keep-Alive]
89245	4794.901565	192.168.43.246	172.217.26.78	TCP	55	[TCP Keep-Alive]
89246	4795.626615	172.217.26.78	192.168.43.246	TCP	54	[TCP Keep-Alive]

Gambar 1. Proses scanning selesai



Gambar 2. Hasil pcap aplikasi Wireshark saat memantau proses scanning



Gambar 3. Hasil scanning pada aplikasi Nessus

Saat melakukan proses scanning aplikasi wireshark menangkap paket-paket yang didapat saat melakukan scanning pada Nessus. Paket yang ditangkap saat proses scanning telah selesai sebanyak 89.246. protokol yang didapat diantaranya DNS, ARP, ICMP, TCP, HTTP, SNMP, DCERPC, SMB dan SSDP.

- File pcap yang telah disimpan kemudian buka menggunakan aplikasi snort di linux dengan perintah :

```
Snort -A fast -c /etc/snort/snort.conf -r
/home/linda/documents/kjk.pcapng -l /var/log/snort
```

Hasil yang akan didapatkan dari hasil snort adalah seperti gambar 4. Pada gambar hasil yang ditunjukkan, hampir terlihat seperti file pcap pada wireshark akan tetapi jumlah paket yang ada pada hasil *compile* file tidak sama dengan file pcap. Jumlahnya adalah 1229. Jauh lebih sedikit jika dibandingkan dengan jumlah paket ada pada file pcap wireshark.

```

1198 03/08-00:26:19.973601 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1199 03/08-00:26:20.563533 [**] [1:1411:10] SNMP public access udp [**] [Classification: Attempted Information Leak] [Priority: 2] (UDP) 192.168.43.246:4
1200 03/08-00:26:20.563533 [**] [1:1417:9] SNMP request udp [**] [Classification: Attempted Information Leak] [Priority: 2] (UDP) 192.168.43.246:5
1201 03/08-00:26:21.295062 [**] [1:1411:10] SNMP public access udp [**] [Classification: Attempted Information Leak] [Priority: 2] (UDP) 192.168.43.246:4
1202 03/08-00:26:21.295062 [**] [1:1417:9] SNMP request udp [**] [Classification: Attempted Information Leak] [Priority: 2] (UDP) 192.168.43.246:5
1203 03/08-00:26:22.973584 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1204 03/08-00:27:36.963486 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1205 03/08-00:27:37.789805 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1206 03/08-00:27:37.964658 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1207 03/08-00:27:38.965353 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1208 03/08-00:27:39.965928 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1209 03/08-00:27:40.790477 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1210 03/08-00:27:43.791456 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1211 03/08-00:27:46.800935 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1212 03/08-00:27:49.801464 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1213 03/08-00:27:52.801463 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1214 03/08-00:28:23.249308 [**] [1:1418:11] SNMP request tcp [**] [Classification: Attempted Information Leak] [Priority: 2] (TCP) 192.168.43.246:
1215 03/08-00:28:23.325984 [**] [1:1418:11] SNMP request tcp [**] [Classification: Attempted Information Leak] [Priority: 2] (TCP) 192.168.43.246:
1216 03/08-00:28:23.326183 [**] [1:1418:11] SNMP request tcp [**] [Classification: Attempted Information Leak] [Priority: 2] (TCP) 192.168.43.246:
1217 03/08-00:28:35.087366 [**] [1:1421:11] SNMP AgentX/tcp request [**] [Classification: Attempted Information Leak] [Priority: 2] (TCP) 192.168.
1218 03/08-00:28:35.202989 [**] [1:1421:11] SNMP AgentX/tcp request [**] [Classification: Attempted Information Leak] [Priority: 2] (TCP) 192.168.
1219 03/08-00:28:35.212640 [**] [1:1421:11] SNMP AgentX/tcp request [**] [Classification: Attempted Information Leak] [Priority: 2] (TCP) 192.168.
1220 03/08-00:28:39.623756 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1221 03/08-00:28:42.623662 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1222 03/08-00:28:45.623697 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1223 03/08-00:28:48.634191 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1224 03/08-00:28:51.635754 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1225 03/08-00:28:54.63717 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1226 03/08-00:29:36.964300 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1227 03/08-00:29:37.965592 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1228 03/08-00:29:38.967393 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1229 03/08-00:29:39.967932 [**] [1:1917:6] SCAN UPnP service discover attempt [**] [Classification: Detection of a Network Scan] [Priority: 3] (UD)
1230

```

Gambar 4. Hasil Alert dari file pcap yang di *compile* dengan snort

Hal tersebut dikarenakan wireshark mengolah paket yang masuk satu demi satu sedangkan snort mengklasifikasikan dalam beberapa jenis beserta prioritasnya.

- Dibutuhkan suatu aplikasi yang dapat menglompokkan hasil alert yang ada agar lebih mudah dibaca dan dianalisa maka digunakan phyton. Hasil tersebut dapat dilihat pada tabel 1.

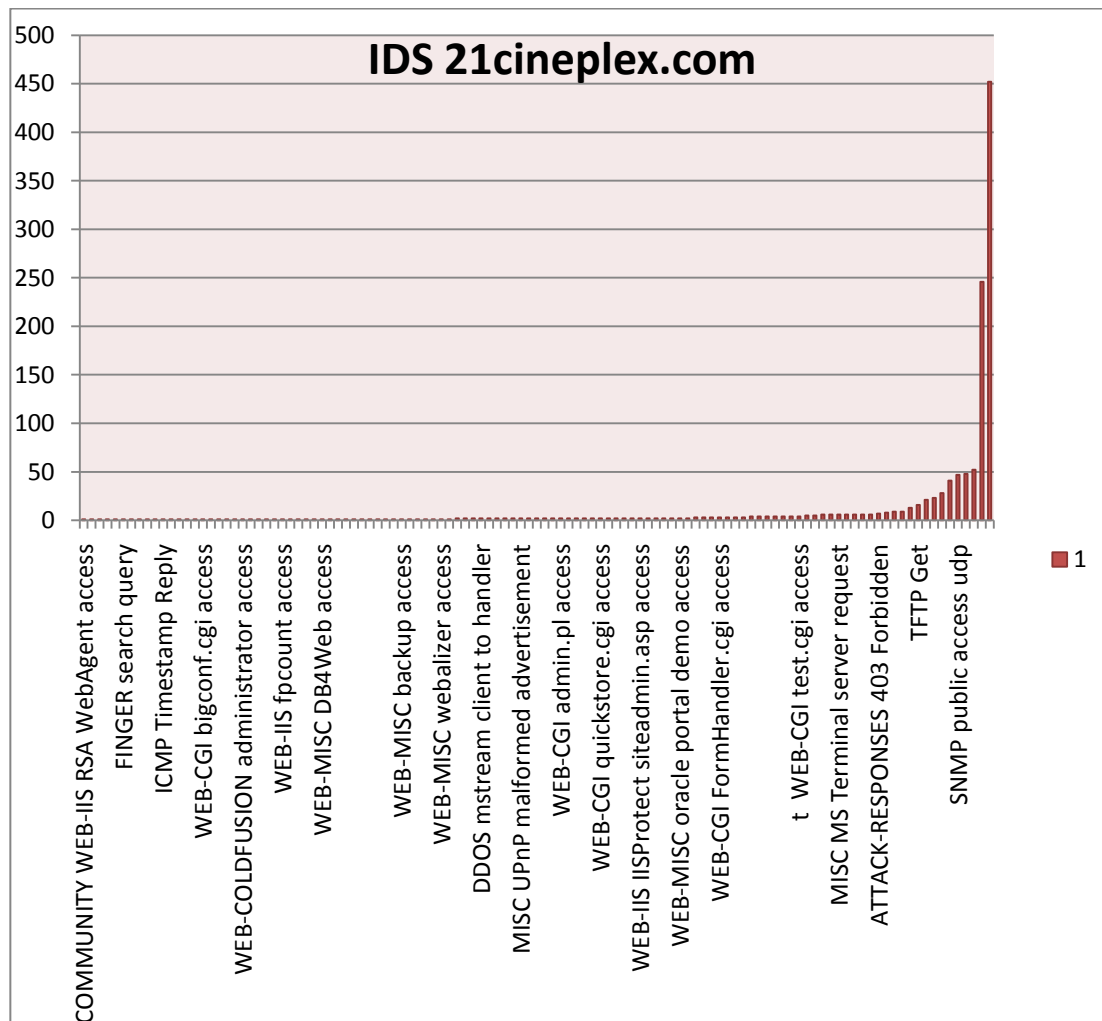
Tabel 1. Rincian Alert dari situs 21cineplex.com

NO	Alert	Jumlah
1	CHAT Yahoo IM message	1
2	COMMUNITY WEB-IIS RSA WebAgent access	1
3	DNS zone transfer TCP	1
4	FINGER . query	1
5	FINGER account enumeration attempt	1
6	FINGER root query	1
7	FINGER search query	1
8	FINGER version query	1
9	FTP CWD ~ attempt	1
10	ICMP Echo Reply	1
11	ICMP Time-To-Live Exceeded in Transit	1
12	ICMP Timestamp Reply	1
13	INFO FTP no password	1
14	POLICY PPTP Start Control Request attempt	1
15	POLICY VNC server response	1
16	WEB-CGI FormHandler.cgi external site redirection attempt	1
17	WEB-CGI bigconf.cgi access	1
18	WEB-CGI faqmanager.cgi arbitrary file access attempt	1
19	WEB-CGI perl command attempt	1
20	WEB-CGI perl.exe access	1
21	WEB-CGI perl.exe command attempt	1
22	WEB-COLDFUSION administrator access	1
23	WEB-FRONTPAGE _vti_rpc access	1
24	WEB-FRONTPAGE shtml.dll access	1
25	WEB-IIS /iisadmpwd/aexp2.htr access	1
26	WEB-IIS ISAPI .ida access	1
27	WEB-IIS fpcount access	1
28	WEB-IIS trace.axd access	1
29	WEB-MISC .DS_Store access	1
30	WEB-MISC /CVS/Entries access	1
31	WEB-MISC /~nobody access	1
32	WEB-MISC DB4Web access	1
33	WEB-MISC Domino names.nsf access	1
34	WEB-MISC ServletManager access	1
35	WEB-MISC TRACE attempt	1
36	WEB-MISC Tomcat SnoopServlet servlet access	1
37	WEB-MISC Tomcat servlet mapping cross site scripting	1

	attempt	
38	WEB-MISC VirusWall FtpSave access	1
39	WEB-MISC WebDAV search access	1
40	WEB-MISC WebLogic ConsoleHelp view source attempt	1
41	WEB-MISC active.log access	1
42	WEB-MISC backup access	1
43	WEB-MISC iPlanet Search directory traversal attempt	1
44	WEB-MISC mod_gzip_status access	1
45	WEB-MISC perl post attempt	1
46	WEB-MISC viewcode access	1
47	WEB-MISC webalizer access	1
48	X11 xopen	1
49	CHAT IRC nick change	2
50	COMMUNITY WEB-MISC JBoss JMXInvokerServlet access	2
51	COMMUNITY WEB-PHP XSS attempt	2
52	DDOS mstream client to handler	2
53	FINGER / execution attempt	2
54	ICMP PING	2
55	ICMP PING NMAP	2
56	ICMP Timestamp Request	2
57	MISC UPnP malformed advertisement	2
58	P2P GNUTella client request	2
59	P2P Outbound GNUTella client request	2
60	SNMP private access udp	2
61	SNMP trap tcp	2
62	WEB-CGI admin.pl access	2
63	WEB-CGI book.cgi access	2
64	WEB-CGI formmail access	2
65	WEB-CGI guestbook.cgi access	2
66	WEB-CGI mailit.pl access	2
67	WEB-CGI quickstore.cgi access	2
68	WEB-CGI test-cgi access	2
69	WEB-CGI upload.cgi access	2
70	WEB-FRONTPAGE /_vti_bin/ access	2
71	WEB-IIS IISProtect access	2
72	WEB-IIS IISProtect siteadmin.asp access	2
73	WEB-IIS ISAPI .idq access	2
74	WEB-IIS ISAPI .idq attempt	2
75	WEB-IIS global.asa access	2
76	WEB-MISC WEB-INF access	2
77	WEB-MISC oracle portal demo access	2

78	WEB-MISC robots.txt access	2
79	MISC rsyncd module list access	3
80	MISC xdmcp info query	3
81	MS-SQL ping attempt	3
82	WEB-CGI FormHandler.cgi access	3
83	WEB-CGI faqmanager.cgi access	3
84	WEB-CGI printenv access	3
85	WEB-MISC source.jsp access	3
86	BAD-TRAFFIC tcp port 0 traffic	4
87	COMMUNITY WEB-MISC JBoss web-console access	4
88	COMMUNITY WEB-MISC Test Script Access	4
89	POP3 SSLv3 invalid timestamp attempt	4
90	WEB-CGI count.cgi access	4
91	WEB-CGI search.cgi access	4
92	t WEB-CGI test.cgi access	4
93	WEB-FRONTPAGE request	5
94	WEB-MISC /.... access	5
95	ICMP Address Mask Request	6
96	MISC AFS access	6
97	MISC MS Terminal server request	6
98	SCAN Amanda client version request	6
99	WEB-IIS .htr access	6
100	WEB-IIS iisadmpwd attempt	6
101	WEB-MISC login.htm access	6
102	ATTACK-RESPONSES 403 Forbidden	7
103	WEB-MISC .htaccess access	8
104	SNMP AgentX/tcp request	9
105	SNMP request tcp	9
106	WEB-IIS Directory transversal attempt	13
107	TFTP Get	16
108	POLICY FTP anonymous login attempt	21
109	WEB-MISC /etc/passwd	23
110	WEB-MISC cross site scripting attempt	28
111	INFO FTP Bad login	41
112	SNMP public access udp	47
113	WEB-MISC http directory traversal	48
114	SNMP request udp	52
115	ICMP Destination Unreachable Port Unreachable	246
116	SCAN UPnP service discover attempt	452

Dari tabel diatas, untuk lebih mudah mengamati alert yang paling rendah hingga yang tertinggi maka data disajikan dalam bentuk grafik 1.



Dikarenakan jumlah alert yang banyak (116) maka keterangan dari gambar grafik tidak dapat ditampilkan semua. Akan tetapi dapat disimpulkan bahwa alert dengan prioritas paling banyak yaitu mengenai SCAN UPnP service discover attempt.