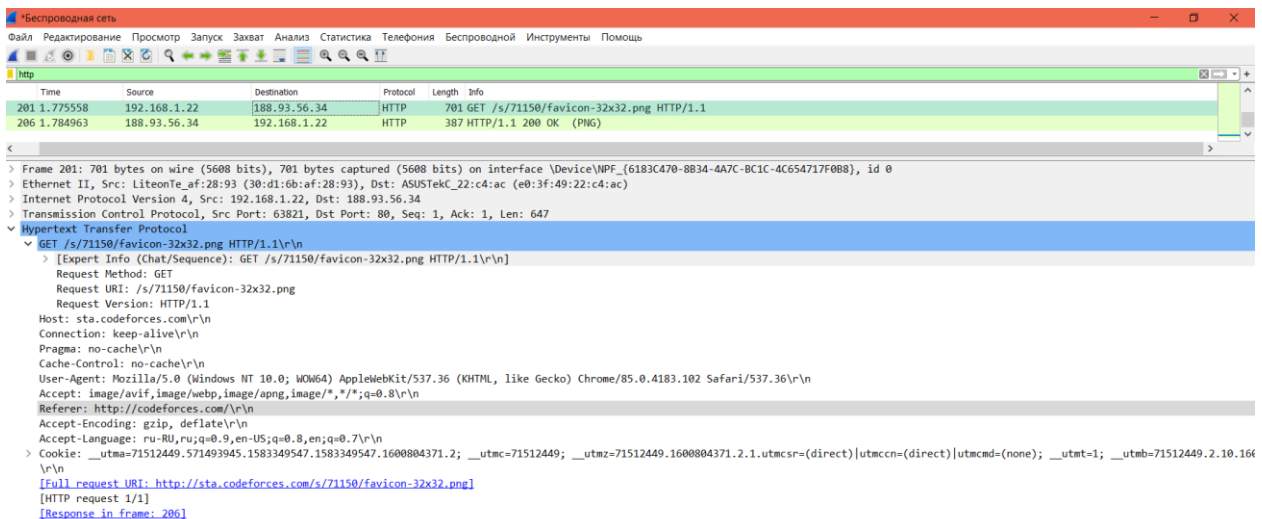


Задание №1

- ✓ Internet Protocol Version 4, Src: 192.168.1.22, Dst: 151.139.236.246
 - 0100 = Version: 4
 - 0101 = Header Length: 20 bytes (5)
 - > Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
 - Total Length: 276
 - Identification: 0x18ff (6399)
 - > Flags: 0x4000, Don't fragment
 - Fragment offset: 0
 - Time to live: 128
 - Protocol: TCP (6)
 - Header checksum: 0x9aa4 [validation disabled]
[Header checksum status: Unverified]
 - Source: 192.168.1.22
 - Destination: 151.139.236.246

1. Ip-адрес, отправленный компьютером: 192.168.1.22
2. Заголовок содержит 20 байт, поле данных содержит 276 байт
3. TTL = 128

Задание №2



1. Используемый сайт для теста: <http://codeforces.com/>
2. Ip-адрес 81.27.240.12

```
C:\Users\ACER>nslookup codeforces.com
Server: my.router
Address: 192.168.1.1

Не заслуживающий доверия ответ:
Server: codeforces.com
Address: 81.27.240.126
```

```
C:\Users\ACER>tracert codeforces.com

Трассировка маршрута к codeforces.com [81.27.240.126]
с максимальным числом прыжков 30:

  1  2 ms    2 ms    2 ms  my.router [192.168.1.1]
  2  4 ms    2 ms    2 ms  192.168.34.1
  3  3 ms    2 ms    2 ms  212.16.0.193
  4  3 ms    4 ms    2 ms  213.248.24.9
  5  4 ms    2 ms    3 ms  ae0.mbr1.ip.di-net.ru [213.248.7.54]
  6  4 ms    3 ms    5 ms  msk-m9-cr2.rascom.as20764.net [195.208.210.34]
  7  *        *        *      Превышен интервал ожидания для запроса.
  8  11 ms   10 ms   11 ms  80.64.103.135.rascom.as20764.net [80.64.103.135]
  9  11 ms   14 ms   12 ms  srv212-191-240-87.vk.com [87.240.191.212]
 10  *        *        *      Превышен интервал ожидания для запроса.
 11  12 ms   12 ms   12 ms  codeforces.com [81.27.240.126]

Трассировка завершена.
```

*Беспроводная сеть					
Файл Редактирование Просмотр Запуск Захват Анализ Статистика Телефония Беспроводной Инструменты Помощь					
http					
Time	Source	Destination	Protocol	Length	Info
3 0.030564	192.168.1.22	81.27.240.126	HTTP	801	GET / HTTP/1.1
36 0.083863	81.27.240.126	192.168.1.22	HTTP	723	HTTP/1.1 200 (text/html)
119 1.108934	192.168.1.22	81.27.240.126	HTTP	980	POST /data/contests HTTP/1.1 (application/x-www-form-urlencoded)
120 1.111119	192.168.1.22	81.27.240.126	HTTP	980	POST /data/contests HTTP/1.1 (application/x-www-form-urlencoded)
121 1.116024	192.168.1.22	81.27.240.126	HTTP	980	POST /data/contests HTTP/1.1 (application/x-www-form-urlencoded)
122 1.116024	192.168.1.22	81.27.240.126	HTTP	980	POST /data/contests HTTP/1.1 (application/x-www-form-urlencoded)

> Frame 3: 801 bytes on wire (6408 bits), 801 bytes captured (6408 bits) on interface \Device\NPF_{6183C470-8B34-4A7C-BC1C-4C654717F0B8}, id 0

> Ethernet II, Src: LiteonTe_af:28:93 (30:d1:6b:af:28:93), Dst: ASUSTekC_22:c4:ac (e0:3f:49:22:c4:ac)

> Internet Protocol Version 4, Src: 192.168.1.22, Dst: 81.27.240.126

0100 = Version: 4

.... 0101 = Header Length: 20 bytes (5)

> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)

Total Length: 787

Identification: 0xcd88 (52616)

> Flags: 0x4000, Don't fragment

Fragment offset: 0

Time to live: 128

Protocol: TCP (6)

Header checksum: 0x2704 [validation disabled]

[Header checksum status: Unverified]

Source: 192.168.1.22

Destination: 81.27.240.126

> Transmission Control Protocol, Src Port: 63813, Dst Port: 80, Seq: 1, Ack: 1, Len: 747

> Hypertext Transfer Protocol

3.

Аргумент утилиты nslookup -type=SOA

Первисное имя сервера: dns1.yandex.net

Ответственный почтовый адрес: dns-hosting.yandex.ru

Номер:209

Обновление: 900 секунд

Повторение: 90 секунд

Срок действия: 1 день

TTL: 900 секунд

```
Microsoft Windows [Version 10.0.18362.1082]
(c) Корпорация Майкрософт (Microsoft Corporation), 2019. Все права защищены.

C:\Users\ACER>nslookup -type=SOA codeforces.com
my.router
Address: 192.168.1.1

Не заслуживающий доверия ответ:
codeforces.com
    primary name server = dns1.yandex.net
    responsible mail addr = dns-hosting.yandex.ru
    serial = 209
    refresh = 900 (15 mins)
    retry = 90 (1 min 30 secs)
    expire = 86400 (1 day)
    default TTL = 900 (15 mins)
```

Аргумент утилиты nslookup -type=MX codeforces.com

Почтовый сервис: mx.yandex.net

Порядковый номер: 10

```
C:\Users\ACER>nslookup -type=MX codeforces.com
my.router
Address: 192.168.1.1

Не заслуживающий доверия ответ:
codeforces.com MX preference = 10, mail exchanger = mx.yandex.net
```

Аргумент утилиты nslookup -type=NS codeforces.com и nslookup -type=any codeforces.com

Имена серверов: dns1.yandex.net dns2.yandex.net

```
C:\Users\ACER>nslookup -query=ns codeforces.com
my.router
Address: 192.168.1.1

Не заслуживающий доверия ответ:
codeforces.com nameserver = dns1.yandex.net
codeforces.com nameserver = dns2.yandex.net
```

```
C:\Users\ACER>nslookup -type=any codeforces.com
my.router
Address: 192.168.1.1

Не заслуживающий доверия ответ:
codeforces.com nameserver = dns1.yandex.net
codeforces.com nameserver = dns2.yandex.net
```

4.

```
C:\Users\ACER>tracert codeforces.com

Трассировка маршрута к codeforces.com [81.27.240.126]
с максимальным числом прыжков 30:

 1  2 ms    2 ms    2 ms    my.router [192.168.1.1]
 2  4 ms    2 ms    2 ms    192.168.34.1
 3  3 ms    2 ms    2 ms    212.16.0.193
 4  3 ms    4 ms    2 ms    213.248.24.9
 5  4 ms    2 ms    3 ms    ae0.mbr1.ip.di-net.ru [213.248.7.54]
 6  4 ms    3 ms    5 ms    msk-m9-cr2.rascom.as20764.net [195.208.210.34]
 7      *      *      *      Превышен интервал ожидания для запроса.
 8 11 ms   10 ms   11 ms    80.64.103.135.rascom.as20764.net [80.64.103.135]
 9 11 ms   14 ms   12 ms    srv212-191-240-87.vk.com [87.240.191.212]
10      *      *      *      Превышен интервал ожидания для запроса.
11 12 ms   12 ms   12 ms    codeforces.com [81.27.240.126]

Трассировка завершена.
```

```
C:\Users\ACER>ping codeforces.com

Обмен пакетами с codeforces.com [81.27.240.126] с 32 байтами данных:
Ответ от 81.27.240.126: число байт=32 время=13мс TTL=56
Ответ от 81.27.240.126: число байт=32 время=13мс TTL=56
Ответ от 81.27.240.126: число байт=32 время=13мс TTL=56
Ответ от 81.27.240.126: число байт=32 время=16мс TTL=56

Статистика Ping для 81.27.240.126:
  Пакетов: отправлено = 4, получено = 4, потеряно = 0
  (0% потерь)

Приблизительное время приема-передачи в мс:
  Минимальное = 13мсек, Максимальное = 16 мсек, Среднее = 13 мсек
```

```
C:\Users\ACER>pathping codeforces.com

Трассировка маршрута к codeforces.com [81.27.240.126]
с максимальным числом переходов 30:
 0 Mini-Ryota [192.168.1.22]
 1 my.router [192.168.1.1]
 2 192.168.34.1
 3 212.16.0.193
 4 213.248.24.9
 5 ae0.mbr1.ip.di-net.ru [213.248.7.54]
 6 msk-m9-cr2.rascom.as20764.net [195.208.210.34]
 7 *

Подсчет статистики за: 150 сек. ...

Исходный узел      Маршрутный узел
Прыжок  RTT      Утер./Отпр.  %      Утер./Отпр.  %      Адрес
0
1 2мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  my.router [192.168.1.1]
2 3мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  |
3 3мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  |
4 4мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  |
5 4мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  ae0.mbr1.ip.di-net.ru [213.248.7.54]
6 4мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  |
7 4мс      0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  0/ 100 = 0%  msk-m9-cr2.rascom.as20764.net [195.208.210.34]

Трассировка завершена.
```

5. По фильтрам: ip.src, ip.dst, ip.addr, arp.src.hw_mac, eth.dst, eth.src.

Фильтры: ip.src=81.27.240.126

No.	Time	Source	Destination	Protocol	Length	Info
432	4.132827	81.27.240.126	192.168.1.22	TCP	60 B	52061 → 80 [SYN, ACK] Seq=0 Ack=1 Win=20480 Len=0 MSS=1460 SACK_PERM=1 WS=32
434	4.132878	81.27.240.126	192.168.1.22	TCP	60 B	80 → 52061 [SYN, ACK] Seq=0 Ack=1 Win=20480 Len=0 MSS=1460 SACK_PERM=1 WS=32
444	4.132902	81.27.240.126	192.168.1.22	TCP	54 B	80 → 52061 [ACK] Seq=1 Ack=819 Win=30000 Len=0
452	4.134740	81.27.240.126	192.168.1.22	TCP	1514 B	52061 → 80 [ACK] Seq=1 Ack=819 Win=30000 Len=1460 [TCP segment of a reassembled PDU]

Destination Port: 52062
[Stream index: 17]
[TCP Segment Len: 8]
Sequence number: 0 (relative sequence number)
Sequence number (raw): 355807033
[Next sequence number: 1 (relative sequence number)]
Acknowledgment number: 1 (relative ack number)
Acknowledgment number (raw): 1237453837
1000 ... = Header length: 32 bytes (0)
▼ Flags: 0x00 (SYN, ACK)
0000 = Reserved: Not set
...0 = Reset: Not set
....0 = Congestion Window Reduced (CWR): Not set
....0 = ECN-Echo: Not set
...0 = Urgent: Not set
...0 = Acknowledgment: Set
....0 = Push: Not set
....0 = Reset: Not set
▼ Sequence=1: 0 SYN: Set
[Export Info (Chat/Sequence): Connection establish acknowledge (SYN+ACK): server port 80]
....0 = Fin: Not set
[TCP Flags:0-1]
Window size value: 20480
[Calculated window size: 20480]
Checksum: 0x0000 [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
Options: (12 bytes), Maximum segment size, No-Operation (NOP), No-Operation (NOP), SACK permitted, No-Operation (NOP), Window scale
▼ [This is an ACK to the segment in frame: 422]
[The RTT to ACK the segment was: 0.012081000 seconds]
[RTT: 0.012081000 seconds]
▼ [Timestamps]
[Time since first frame in this TCP stream: 0.012081000 seconds]
[Time since previous frame in this TCP stream: 0.012081000 seconds]

Фильтры: ip.dst=81.27.240.126

No.	Time	Source	Destination	Protocol	Length	Info
421	4.134794	192.168.1.22	81.27.240.126	TCP	66	52061 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM=1
422	4.135778	192.168.1.22	81.27.240.126	TCP	66	52062 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM=1
432	4.133287	81.27.240.126	192.168.1.22	TCP	60 B	80 → 52061 [SYN, ACK] Seq=0 Ack=1 Win=20480 Len=0 MSS=1460 SACK_PERM=1 WS=32
434	4.134856	192.168.1.22	81.27.240.126	TCP	54	52061 → 80 [ACK] Seq=1 Ack=1 Win=11872 Len=0
436	4.135905	192.168.1.22	81.27.240.126	HTTP	872	GET / HTTP/1.1
453	4.135992	192.168.1.22	81.27.240.126	TCP	54	52061 → 80 [ACK] Seq=819 Ack=2921 Win=11872 Len=0
455	4.137536	192.168.1.22	81.27.240.126	TCP	54	52061 → 80 [ACK] Seq=819 Ack=11310 Win=11872 Len=0

Source Port: 52062
Destination Port: 80
[Stream index: 17]
[TCP Segment Len: 8]
Sequence number: 0 (relative sequence number)
Sequence number (raw): 1237453838
[Next sequence number: 1 (relative sequence number)]
Acknowledgment number: 0
Acknowledgment number (raw): 0
1000 ... = Header length: 32 bytes (0)
▼ Flags: 0x00 (SYN)
0000 = Reserved: Not set
...0 = Reset: Not set
....0 = Congestion Window Reduced (CWR): Not set
....0 = ECN-Echo: Not set
...0 = Urgent: Not set
...0 = Acknowledgment: Not set
....0 = Push: Not set
....0 = Reset: Not set
▼ Sequence=1: 0 SYN: Set
[Export Info (Chat/Sequence): Connection establish request (SYN): server port 80]
....0 = Fin: Not set
[TCP Flags:0-1]
Window size value: 64240
[Calculated window size: 64240]
Checksum: 0x0000 [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
Options: (12 bytes), Maximum segment size, No-Operation (NOP), Window scale, No-Operation (NOP), No-Operation (NOP), SACK permitted
▼ [Timestamps]
[Time since first frame in this TCP stream: 0.000000000 seconds]
[Time since previous frame in this TCP stream: 0.000000000 seconds]

Фильтры: ip.src=81.27.240.126

No.	Time	Source	Destination	Protocol	Length	Info
421	4.134794	192.168.1.22	81.27.240.126	TCP	66	52061 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM=1
422	4.135778	192.168.1.22	81.27.240.126	TCP	66	52062 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM=1
432	4.133287	81.27.240.126	192.168.1.22	TCP	60 B	80 → 52061 [SYN, ACK] Seq=0 Ack=1 Win=20480 Len=0 MSS=1460 SACK_PERM=1 WS=32
434	4.134856	192.168.1.22	81.27.240.126	TCP	54	52061 → 80 [ACK] Seq=1 Ack=1 Win=11872 Len=0
436	4.135905	192.168.1.22	81.27.240.126	HTTP	872	GET / HTTP/1.1
453	4.135992	192.168.1.22	81.27.240.126	TCP	54	52061 → 80 [ACK] Seq=819 Ack=2921 Win=11872 Len=0
455	4.137536	192.168.1.22	81.27.240.126	TCP	54	52061 → 80 [ACK] Seq=819 Ack=11310 Win=11872 Len=0

Internet Protocol Version 4, Src: 192.168.1.22, Dst: 81.27.240.126
[Destination Control Protocol] Seq Port: 52062, Ret Port: 80, Seq: 0, Len: 8
Source Port: 52062
Destination Port: 80
[Stream index: 17]
[TCP Segment Len: 8]
Sequence number: 0 (relative sequence number)
Sequence number (raw): 1237453836
[Next sequence number: 1 (relative sequence number)]
Acknowledgment number: 0
Acknowledgment number (raw): 0
1000 ... = Header length: 32 bytes (0)
▼ Flags: 0x00 (SYN)
0000 = Reserved: Not set
...0 = Reset: Not set
....0 = Congestion Window Reduced (CWR): Not set
....0 = ECN-Echo: Not set
...0 = Urgent: Not set
...0 = Acknowledgment: Not set
....0 = Push: Not set
....0 = Reset: Not set
▼ Sequence=1: 0 SYN: Set
[Export Info (Chat/Sequence): Connection establish request (SYN): server port 80]
....0 = Fin: Not set
[TCP Flags:0-1]
Window size value: 64240
[Calculated window size: 64240]
Checksum: 0x0000 [unverified]
[Checksum Status: Unverified]
Urgent pointer: 0
Options: (12 bytes), Maximum segment size, No-Operation (NOP), Window scale, No-Operation (NOP), No-Operation (NOP), SACK permitted
▼ [Timestamps]
[Time since first frame in this TCP stream: 0.000000000 seconds]
[Time since previous frame in this TCP stream: 0.000000000 seconds]

Фильтры: ip.dst=81.27.240.126

No.	Time	Source	Destination	Protocol	Length	Info
2189	7.520343	ASUSTek_22:c4:ac	Litontek_af:28:93	ARP	42	Who has 192.168.1.122 Tell 192.168.1.1
2200	7.520259	Litontek_af:28:93	ASUSTek_22:c4:ac	ARP	42	192.168.1.22 is at 30:d1:6b:af:28:93
2566	29.618421	ASUSTek_22:c4:ac	Litontek_af:28:93	ARP	42	Who has 192.168.1.227 Tell 192.168.1.1
2567	29.618448	Litontek_af:28:93	ASUSTek_22:c4:ac	ARP	42	192.168.1.22 is at 30:d1:6b:af:28:93
3653	37.274885	ASUSTek_22:c4:ac	Litontek_af:28:93	ARP	42	Who has 103.168.1.172 Tell 103.168.1.1

Frame 2189: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on Interface VNF_6183K470-BB34-4A7C-BC1C-AC654717F08B, id 0
Interface id: 0 (DeviceVNF_6183K470-BB34-4A7C-BC1C-AC654717F08B)
Encapsulation type: Ethernet (1)
Arrival Time: Sep 25, 2008 18:47:02.861138000 RTT 2 (sma)
[Time shift for this packet: 0.000000000 seconds]
Epoch Time: 1680879622.861138000 seconds
[Time delta from previous captured frame: 0.003318000 seconds]
[Time delta from previous displayed frame: 0.000000000 seconds]
[Time since reference or first frame: 7.520243000 seconds]
Frame Number: 2189
Frame Length: 42 bytes (336 bits)
Capture Length: 42 bytes (336 bits)
[Frame is marked: False]
[Frame is ignored: False]
[Protocols in frame: eth-ethertype:arp]
[Coloring Rule Name: ARP]
[Coloring Rule String: arp]
▼ Ethernet II, Src: ASUSTek_22:c4:ac (e8:3f:49:22:c4:ac), Dst: Litontek_af:28:93 (30:d1:6b:af:28:93)
Destination: Litontek_af:28:93 (30:d1:6b:af:28:93)
Source: ASUSTek_22:c4:ac (e8:3f:49:22:c4:ac)
Type: ARP (0x0000)
▼ Address Resolution Protocol (request)
Hardware type: Ethernet (1)
Protocol type: IPv4 (0x0000)
Hardware size: 6
Protocol size: 4
Opcode: request (1)
Sender MAC address: ASUSTek_22:c4:ac (e8:3f:49:22:c4:ac)
Sender IP address: 192.168.1.1
Target MAC address: 00:00:00:00:00:00 (00:00:00:00:00:00)
Target IP address: 192.168.1.22

Настраиваем отклик

Ваша Редактирование Просмотр Журнал Задачи Анализ Статистика Телефония Беспризорный Инструменты Помощь

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127.0.0.1

No.	Time	Source	Destination	Protocol	Length	Info
22	27.991108	192.168.1.12	217.240.125	TCP	60	52061 → 52061 [ACK] Seq=61561 Win=36288 Len=0
23	27.991108	192.168.1.12	217.240.125	TCP	60	52061 → 52061 [ACK] Seq=61561 Win=36288 Len=0

Transmission Control Protocol, Seq Port: 643, Rst Port: 52062, Seq. 0, Ack. 1, Len: 0

Source Port: 643
Destination Port: 52062
(Stream Index: 40)
TCP Segment Len: 0

Sequence number: 0 (relative sequence number)
Sequence number (raw): 305517073
(Next sequence number: 1 (relative sequence number))
Acknowledgment number: 1 (relative ack number)
Acknowledgment number (raw): 238157093
Window number (raw): 238157093
1000 Header Length: 32 bytes (0)

Flags: 0x02 (ACK)

0000 Reserved: Not set
..... Rst: Not set
..... Congestion Window Reduced (CWR): Not set
..... ECE-Echo: Not set
..... Urgent: Not set
..... Acknowledgment Set
..... Push: Not set
..... Reset: Not set
..... Syn: Not set
..... Fin: Not set

[Export Info (Chat/Sequence): Connection establish acknowledgment (SYN+ACK): server port 443]

..... = Fin: Not set
[TCP Flags:A-S-]

Window size value: 9192
(calculated window size: 8192)
Checksum: 0x042 (unverified)
(Checksum Status: Unverified)
Urgent pointer: 0

Options: (12 bytes), Window segment size, No-Operation (NOP), Window scale, No-Operation (NOP), No-Operation (NOP), SACK permitted

Urgent pointer: 0

[This is an ACK in the segment in frame: 2222]
[The RTT to ACK the segment was: 0.05663000 seconds]
[RTT: 0.05663000 seconds]

[Timestamps]
[Time since first frame in this TCP stream: 0.05663000 seconds]
[Time since previous frame in this TCP stream: 0.05663000 seconds]

Настраиваем отклик

Ваша Редактирование Просмотр Журнал Задачи Анализ Статистика Телефония Беспризорный Инструменты Помощь

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127.0.0.1

No.	Time	Source	Destination	Protocol	Length	Info
24	42.152115	217.240.125	192.168.1.22	TCP	514	52061 → 52061 [ACK] Seq=15681 Ack=819 Win=36288 Len=5600 [TCP segment of a reassembled PDU]

Source Port: 80
Destination Port: 52061
(Stream Index: 26)
TCP Segment Len: 1460

Sequence number: 15681 (relative sequence number)
Sequence number (raw): 431518714
(Next sequence number: 15141 (relative sequence number))
Acknowledgment number: 829 (relative ack number)
Acknowledgment number (raw): 450484281
0001 Header Length: 20 bytes (5)

Flags: 0x00 (ACK)

0000 Reserved: Not set
..... Rst: Not set
..... Congestion Window Reduced (CWR): Not set
..... ECE-Echo: Not set
..... Urgent: Not set
..... Acknowledgment Set
..... Push: Not set
..... Reset: Not set
..... Syn: Not set
..... Fin: Not set

[TCP Flags:]

Window size value: 99
(calculated window size: 30208)
Window size scaling factor: 322
Checksum: 0x785 (unverified)
(Checksum Status: Unverified)
Urgent pointer: 0

5(SACK analysis)
[RTT: 0.015662000 seconds]
[Bytes in flight: 18028]
[Bytes sent since last FIN flag: 13140]

[Timestamps]
[Time since first frame in this TCP stream: 0.047522000 seconds]
[Time since previous frame in this TCP stream: 0.000000000 seconds]
TCP payload (1460 bytes)
[Disassembly PDU in frame: 484]
TCP segment data (1460 bytes)