

Презентация по лабораторной работе №10

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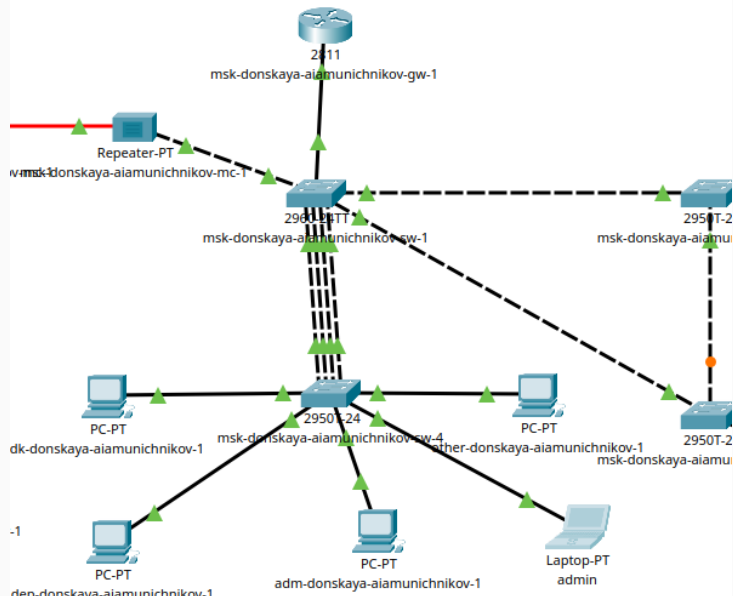
Цель

Освоить настройку прав доступа пользователей к ресурсам сети.

Задание

1. Требуется настроить правила доступа.
2. Требуется проверить правильность действия установленных правил доступа.
3. Требуется выполнить задание для самостоятельной работы по настройке прав доступа администратора сети на Павловской.
4. При выполнении работы необходимо учитывать соглашение об именовании.

Выполнение лабораторной работы



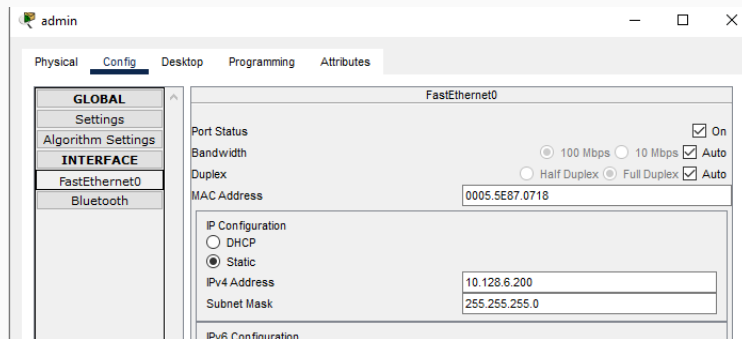


Рис. 2: Задание статического ip-адреса ноутбуку admin

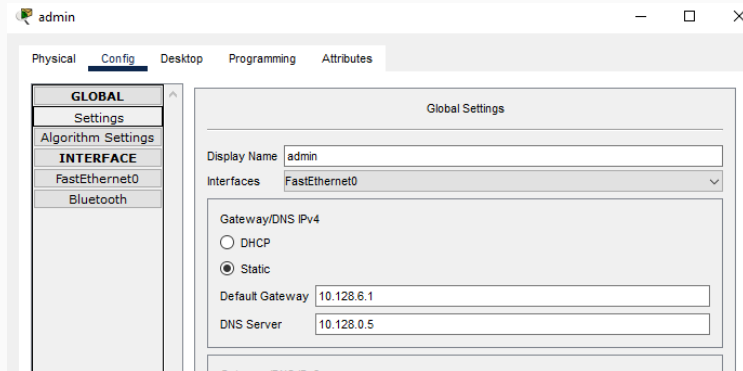


Рис. 3: Задание gateway-адреса и адреса DNS-сервера ноутбуку admin

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 10.128.0.5

Pinging 10.128.0.5 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.0.2

Pinging 10.128.0.2 with 32 bytes of data:

Request timed out.
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

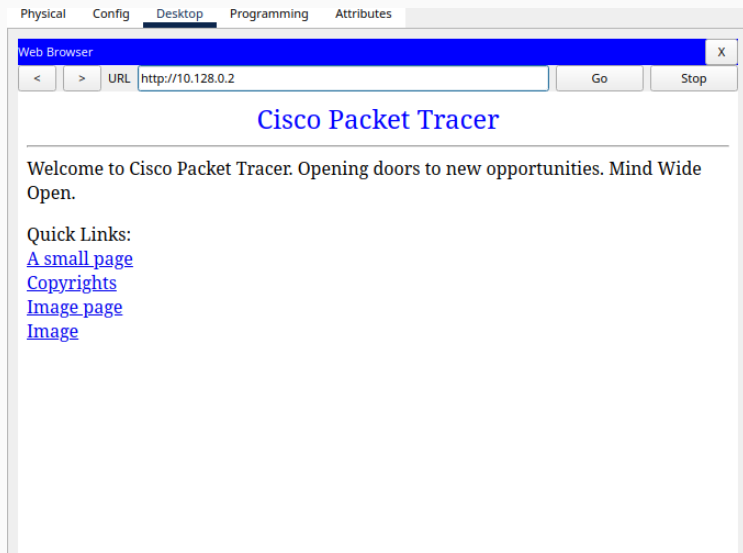
```
msk-donskaya-aiamunichnikov-gw-01#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-out
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remark web
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp any host 10.128.0.2 eq 80
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#
```

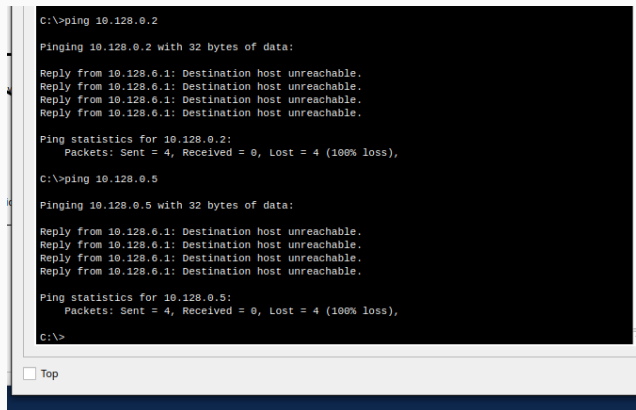
Рис. 5: Настройка доступа к web-серверу по порту tcp 80


```
mik-donskaya-a1amunichnikov-gw-01(config)#int f0/0.3  
msk-donskaya-a1amunichnikov-gw-01(config-subif)#ip access-group servers-out out  
msk-donskaya-a1amunichnikov-gw-01(config-subif)#
```

Рис. 6: Добавление списка управления доступом к интерфейсу

Выполнение лабораторной работы





```
C:\>ping 10.128.0.2

Pinging 10.128.0.2 with 32 bytes of data:

Reply from 10.128.6.1: Destination host unreachable.
Reply from 10.128.6.1: Destination host unreachable.
Reply from 10.128.6.1: Destination host unreachable.
Reply from 10.128.6.1: Destination host unreachable.

Ping statistics for 10.128.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 10.128.0.5

Pinging 10.128.0.5 with 32 bytes of data:

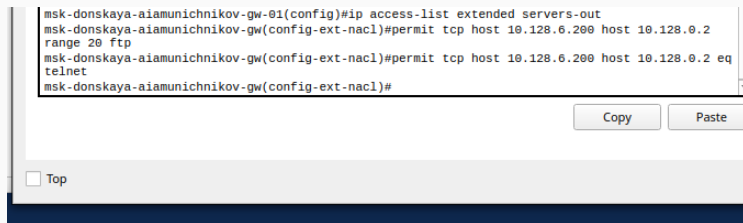
Reply from 10.128.6.1: Destination host unreachable.
Reply from 10.128.6.1: Destination host unreachable.
Reply from 10.128.6.1: Destination host unreachable.
Reply from 10.128.6.1: Destination host unreachable.

Ping statistics for 10.128.0.5:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

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Рис. 8: Проверка недоступности web-сервера через ping

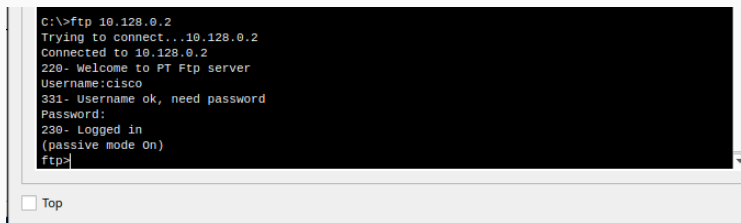


```
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-out
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp host 10.128.6.200 host 10.128.0.2
range 20 ftp
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp host 10.128.6.200 host 10.128.0.2 eq
telnet
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#
```

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Рис. 9: Настройка дополнительного доступа для администратора по протоколам Telnet и FTP

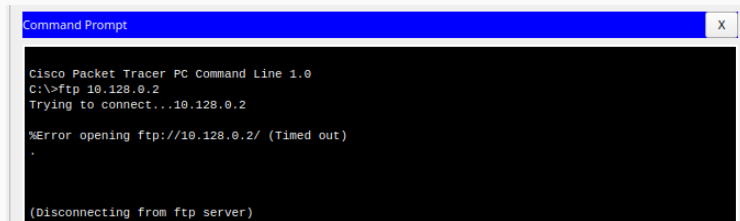


A screenshot of a terminal window with a black background and white text. The text shows the execution of the 'ftp' command from a Windows command prompt. The user enters 'ftp 10.128.0.2', and the system responds with connection status and server messages. The user then enters 'cisco' as the username and is prompted for a password. After logging in, the user enters 'ftp>' at the prompt. Below the terminal window, there is a light gray bar containing a small square icon and the word 'Top'.

```
C:\>ftp 10.128.0.2
Trying to connect...10.128.0.2
Connected to 10.128.0.2
220- Welcome to PT Ftp server
Username:cisco
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

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Рис. 10: Проверка работы ftp у администратора



```
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 10.128.0.2
Trying to connect...10.128.0.2

%Error opening ftp://10.128.0.2/ (Timed out)
.

(Disconnecting from ftp server)
```

Рис. 11: Проверка недоступности подключения по ftp у просто пользователя

```
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-out
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remark file
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp 10.128.0.0 0.0.255.255 host
10.128.0.3 eq 445
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp any host 10.128.0.3 range 20 ftp
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#
```

Рис. 12: Настройка доступа к файловому серверу

```
msk-donskaya-aiaunichnikov-gw-01(config)#ip access-list extended servers-out
msk-donskaya-aiaunichnikov-gw(config-ext-nacl)#remark mail
msk-donskaya-aiaunichnikov-gw(config-ext-nacl)#permit tcp any host 10.128.0.4 eq smtp
msk-donskaya-aiaunichnikov-gw(config-ext-nacl)#permit tcp any host 10.128.0.4 eq pop3
msk-donskaya-aiaunichnikov-gw(config-ext-nacl)#exit
msk-donskaya-aiaunichnikov-gw-01(config)#ip access-list extended servers-out
```

Рис. 13: Настройка доступа к почтовому серверу


```
msh-donskaya-aiaunichnikov-gw-01(config)#ip access-list extended servers-out
msh-donskaya-aiaunichnikov-gw(config-ext-nacl)#remark1 dns
                                     ^
% Invalid input detected at '^' marker.

msh-donskaya-aiaunichnikov-gw(config-ext-nacl)#remark1 dns
                                     ^
% Invalid input detected at '^' marker.

msh-donskaya-aiaunichnikov-gw(config-ext-nacl)#remark dns
msh-donskaya-aiaunichnikov-gw(config-ext-nacl)#permit edp 10.128.0.0 0.0.255.255 host
10.128.0.5 eq 53
                                     ^
% Invalid input detected at '^' marker.

msh-donskaya-aiaunichnikov-gw(config-ext-nacl)#permit udp 10.128.0.0 0.0.255.255 host
10.128.0.5 eq 53
msh-donskaya-aiaunichnikov-gw(config-ext-nacl)#
```

Рис. 14: Настройка доступа к DNS-серверу

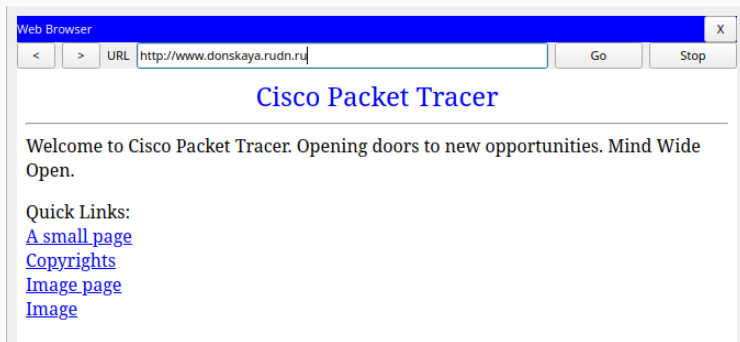


Рис. 15: Проверка доступности web-сервера по ip-адресу

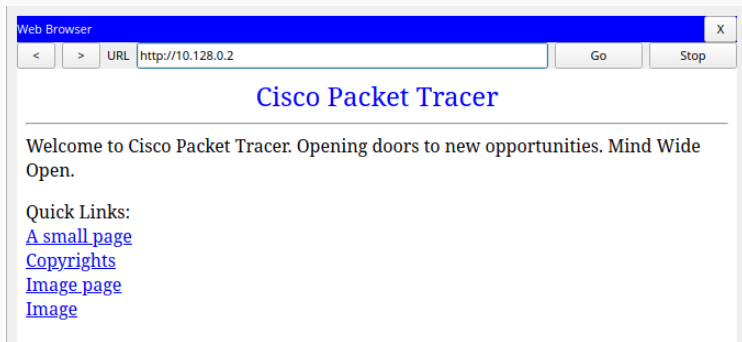
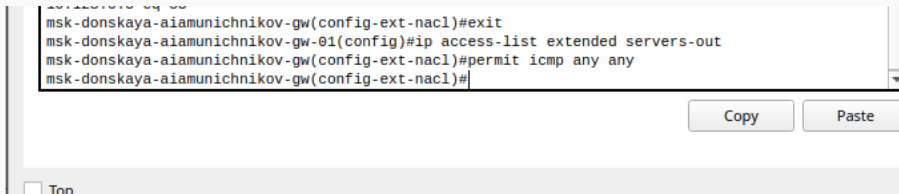


Рис. 16: Проверка доступности web-сервера по имени



```
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#exit
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-out
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit icmp any any
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#
```

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Рис. 17: Разрешение icmp-запросов

```
msk-donskaya-aiamunichnikov-gw-01#show access-lists
Extended IP access list servers-out
 10 permit tcp any host 10.128.0.2 eq www (15 match(es))
 20 permit tcp host 10.128.6.200 host 10.128.0.2 range 20 ftp (7 match(es))
 30 permit tcp host 10.128.6.200 host 10.128.0.2 eq telnet
 40 permit tcp 10.128.0.0 0.0.255.255 host 10.128.0.3 eq 445
 50 permit tcp any host 10.128.0.3 range 20 ftp
 60 permit tcp any host 10.128.0.4 eq smtp
 70 permit tcp any host 10.128.0.4 eq pop3
 80 permit udp 10.128.0.0 0.0.255.255 host 10.128.0.5 eq domain (1 match(es))
 90 permit icmp any any

msk-donskaya-aiamunichnikov-gw-01#
```

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Рис. 18: Просмотр строк в списке контроля доступа

```
msk-donskaya-aiamunichnikov-gw-01#conf t
Enter configuration commands, one per line. End with CNTL/Z.
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-out
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remark admin
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit ip host 10.128.6.200 any
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#exit
msk-donskaya-aiamunichnikov-gw-01(config)#int f0/0.104
msk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access group other-in in
                                     ^
% Invalid input detected at '^' marker.

msk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access-group other-in in
msk-donskaya-aiamunichnikov-gw-01(config-subif)#
```

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Рис. 19: Настройка доступа для сети Other

```
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-in
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remark admin
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit ip host 10.128.6.200 any
msk-donskaya-aiamunichnikov-gw(config-ext-nacl)#exit
msk-donskaya-aiamunichnikov-gw-01(config)#interface f0/0.104
msk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access-group other-in in
msk-donskaya-aiamunichnikov-gw-01(config-subif)#
```

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Рис. 20: Настройка доступа администратора к сети сетевого оборудования

```
msk-donskaya-aiamunichnikov-gw-01(config-subif)#exit
msk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended management-out
msk-donskaya-aiamunichnikov-gw-01(config-ext-nacl)#remark admin
msk-donskaya-aiamunichnikov-gw-01(config-ext-nacl)#permit ip host 10.128.6.200 10.128.1.0
0.0.0.255
msk-donskaya-aiamunichnikov-gw-01(config-ext-nacl)#exit
msk-donskaya-aiamunichnikov-gw-01(config)#interface 0/0.2
                                     ^
% Invalid input detected at '^' marker.

msk-donskaya-aiamunichnikov-gw-01(config)#
msk-donskaya-aiamunichnikov-gw-01(config)#interface f0/0.2
msk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access-group management-out out
msk-donskaya-aiamunichnikov-gw-01(config-subif)#
```

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Рис. 21: Список контроля доступа


```
C:\>ping 10.128.0.2

Pinging 10.128.0.2 with 32 bytes of data:

Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127
Reply from 10.128.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.0.5

Pinging 10.128.0.5 with 32 bytes of data:

Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127
Reply from 10.128.0.5: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.0.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.1.2

Pinging 10.128.1.2 with 32 bytes of data:

Reply from 10.128.4.1: Destination host unreachable.
Reply from 10.128.4.1: Destination host unreachable.
Reply from 10.128.4.1: Destination host unreachable.
Reply from 10.128.4.1: Destination host unreachable.
```

Рис. 22: Пингование устройств с dep-donskaya-dmbelicheva-1

```
Request timed out.

Ping statistics for 10.128.1.12:
    Packets: Sent = 2, Received = 0, Lost = 2 (100% loss),

Control-C
^C
C:\>ping 10.128.1.2

Pinging 10.128.1.2 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 10.128.1.2: bytes=32 time=20ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.1.2:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 20ms, Average = 10ms

C:\>ping 10.128.1.2

Pinging 10.128.1.2 with 32 bytes of data:

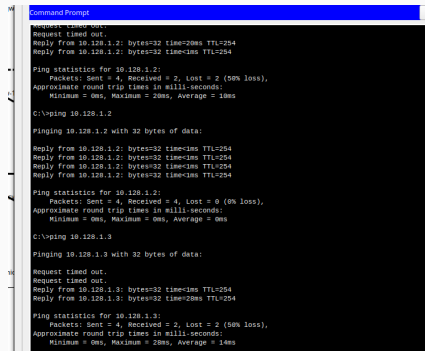
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.1.3
```

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Рис. 23: Проверка доступности устройств с dk-donskaya-dmbelicheva-1



```
Command Prompt
Request timed out.
Request timed out.
Reply from 10.128.1.2: bytes=32 time=20ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.1.2:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 20ms, Average = 10ms

C:\>ping 10.128.1.2

Pinging 10.128.1.2 with 32 bytes of data:
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254

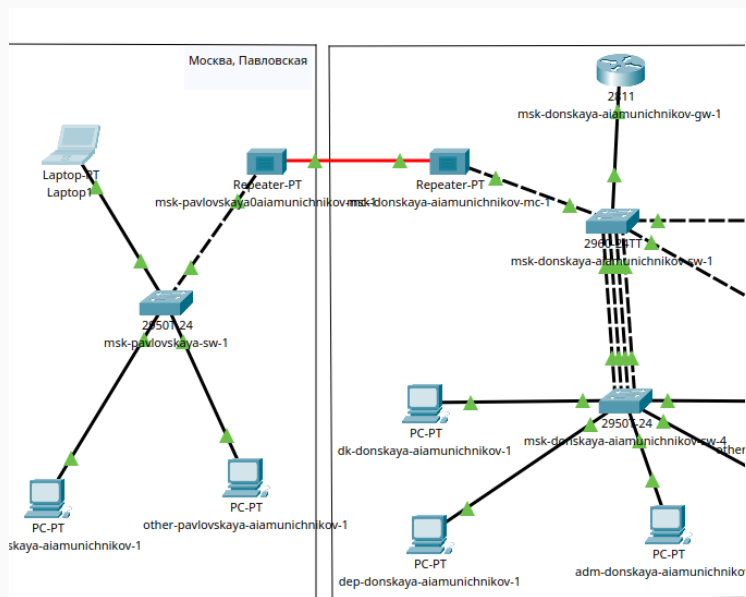
Ping statistics for 10.128.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.1.3

Pinging 10.128.1.3 with 32 bytes of data:
Request timed out.
Request timed out.
Reply from 10.128.1.3: bytes=32 time<1ms TTL=254
Reply from 10.128.1.3: bytes=32 time=28ms TTL=254

Ping statistics for 10.128.1.3:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 28ms, Average = 14ms
```

Рис. 24: Проверка доступности устройств с dk-donskaya-dmbelicheva-1



IOS Command Line Interface

```
mzk-donskaya-aiamunichnikov-gw-01#conf t
Enter configuration commands, one per line. End with CNTL/Z.
mzk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended servers-out
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp host 10.128.6.201 host 10.128.0.2
range 20 ftp
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit tcp host 10.128.6.201 host 10.128.0.2 eq
telnet
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#exit
mzk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended other-in
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remarkl admin
                                     ^
% Invalid input detected at '^' marker.

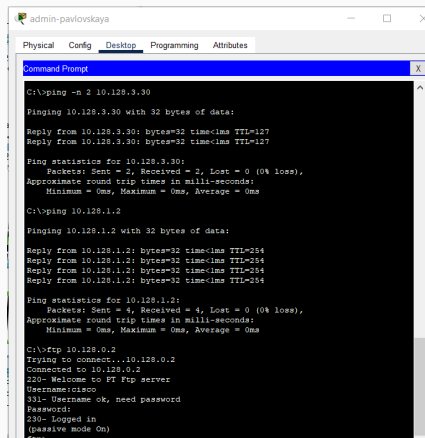
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remark admin
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit ip host 10.128.6.201 any
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#exit
mzk-donskaya-aiamunichnikov-gw-01(config)#int f0/0.104
mzk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access-group other-in in
mzk-donskaya-aiamunichnikov-gw-01(config-subif)#exit
mzk-donskaya-aiamunichnikov-gw-01(config)#ip access-list extended management-out
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#remark admin
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#permit ip host 10.128.6.201 10.128.1.0
0.0.0.255
mzk-donskaya-aiamunichnikov-gw(config-ext-nacl)#exit
mzk-donskaya-aiamunichnikov-gw-01(config)#ip access-list management-out out
                                     ^
% Invalid input detected at '^' marker.

mzk-donskaya-aiamunichnikov-gw-01(config)#int f0/0.2
mzk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access-list management-out out
                                     ^
% Invalid input detected at '^' marker.

mzk-donskaya-aiamunichnikov-gw-01(config-subif)#ip access-group management-out out
mzk-donskaya-aiamunichnikov-gw-01(config-subif)#
```

```
ip access-list extended servers-out
 remark web
 permit icmp any any
 permit tcp any host 10.128.0.2 eq www
 permit tcp host 10.128.6.200 host 10.128.0.2 range 20 ftp
 permit tcp host 10.128.6.200 host 10.128.0.2 eq telnet
 remark file
 permit tcp 10.128.0.0 0.0.255.255 host 10.128.0.3 eq 445
 permit tcp any host 10.128.0.3 range 20 ftp
 remark mail
 permit tcp any host 10.128.0.4 eq smtp
 permit tcp any host 10.128.0.4 eq pop3
 remark dns
 permit udp 10.128.0.0 0.0.255.255 host 10.128.0.5 eq domain
 permit tcp host 10.128.6.201 host 10.128.0.2 range 20 ftp
 permit tcp host 10.128.6.201 host 10.128.0.2 eq telnet
ip access-list extended management-out
 remark admin
 permit ip host 10.128.6.200 10.128.1.0 0.0.0.255
 permit ip host 10.128.6.201 10.128.1.0 0.0.0.255
ip access-list extended other-in
 remark admin
 permit ip host 10.128.6.200 any
 permit ip host 10.128.6.201 any
!
```

Рис. 27: Список контроля доступа



The screenshot shows a Windows Command Prompt window titled "admin-pavlovskaya". The window has tabs for "Physical", "Config", "Desktop", "Programming", and "Attributes", with "Desktop" currently selected. The Command Prompt displays the following commands and their outputs:

```
C:\>ping -n 2 10.128.3.30

Pinging 10.128.3.30 with 32 bytes of data:

Reply from 10.128.3.30: bytes=32 time<1ms TTL=127
Reply from 10.128.3.30: bytes=32 time<1ms TTL=127

Ping statistics for 10.128.3.30:
    Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.128.1.2

Pinging 10.128.1.2 with 32 bytes of data:

Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254
Reply from 10.128.1.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.128.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ftp 10.128.0.2
Trying to connect...10.128.0.2
Connected to 10.128.0.2
220- Welcome to FT Ftp server
Username:cisco
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>
```

Рис. 28: Проверка корректности настроенного доступа

В процессе выполнения лабораторной работы я освоил настройку прав доступа пользователей к ресурсам сети.