Университет ИТМО

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Лабораторная работа №2 по Администрированию систем и сетей

«Создание взаимосвязанной IP-сети»

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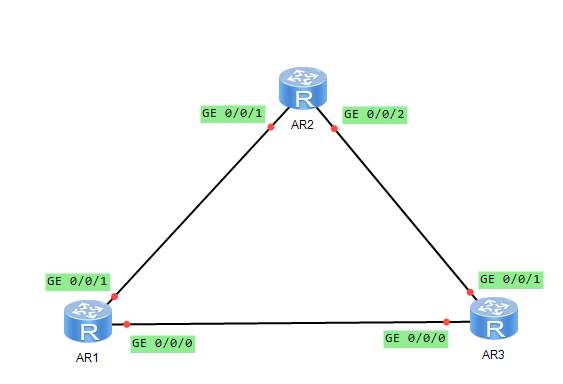
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# Топология:



# Настройте основные параметры устройств.

Задайте имена устройствам.

<Huawei>system-view

Enter system view, return user view with Ctrl+Z.

[Huawei]sysname AR1

[AR1]

<Huawei>system-view

Enter system view, return user view with Ctrl+Z.

[Huawei]sysname AR2

[AR2]

<Huawei>system-view

Enter system view, return user view with Ctrl+Z.

[Huawei]sysname AR3

[AR3]

# Выведите на экран IP-адрес текущего интерфейса и таблицу маршрутизации маршрутизатора.

Выведите на экран статус интерфейса на маршрутизаторе (в данном случае на примере AR1).

[AR1]display ip interface brief

\*down: administratively down

^down: standby

(l): loopback

(s): spoofing

The number of interface that is UP in Physical is 3

The number of interface that is DOWN in Physical is 1

The number of interface that is UP in Protocol is 1

The number of interface that is DOWN in Protocol is 3

Interface IP Address/Mask Physical Protocol

GigabitEthernet0/0/0 unassigned up down

GigabitEthernet0/0/1 unassigned up down

GigabitEthernet0/0/2 unassigned down down

NULL0 unassigned up up(s)

[AR1]

Выведите на экран таблицу маршрутизации на маршрутизаторе (в данном случае на примере AR1).

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 4 Routes : 4

Destination/Mask Proto Pre Cost Flags NextHop Interface

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR1]

# Настройте IP-адреса для физических интерфейсов.

Настройте IP-адреса для физических интерфейсов на основе следующей таблицы

[AR1]interface GigabitEthernet0/0/0

[AR1-GigabitEthernet0/0/0]ip address 10.0.13.1 24

Oct 4 2022 01:05:35-08:00 AR1 %%01IFNET/4/LINK\_STATE(l)[2]:The line protocol IP

on the interface GigabitEthernet0/0/0 has entered the UP state.

[AR1-GigabitEthernet0/0/0]quit

[AR1]interface GigabitEthernet0/0/1

[AR1-GigabitEthernet0/0/1]ip address 10.0.12.1 24

Oct 4 2022 01:05:54-08:00 AR1 %%01IFNET/4/LINK\_STATE(l)[3]:The line protocol IP

on the interface GigabitEthernet0/0/1 has entered the UP state.

[AR1-GigabitEthernet0/0/1]quit

[AR1]

[AR2]interface GigabitEthernet0/0/1

[AR2-GigabitEthernet0/0/1]ip address 10.0.12.2 24

[AR2-GigabitEthernet0/0/1]

Oct 4 2022 01:06:27-08:00 AR2 %%01IFNET/4/LINK\_STATE(l)[0]:The line protocol IP

on the interface GigabitEthernet0/0/1 has entered the UP state.

[AR2-GigabitEthernet0/0/1]quit

[AR2]interface GigabitEthernet0/0/2

[AR2-GigabitEthernet0/0/2]ip address 10.0.23.2 24

Oct 4 2022 01:07:07-08:00 AR2 %%01IFNET/4/LINK\_STATE(l)[1]:The line protocol IP

on the interface GigabitEthernet0/0/2 has entered the UP state.

[AR2-GigabitEthernet0/0/2]quit

[AR2]

[AR3]interface GigabitEthernet0/0/0

[AR3-GigabitEthernet0/0/0]ip address 10.0.13.3 24

Oct 4 2022 01:08:09-08:00 AR3 %%01IFNET/4/LINK\_STATE(l)[0]:The line protocol IP

on the interface GigabitEthernet0/0/0 has entered the UP state.

[AR3-GigabitEthernet0/0/0]quit

[AR3]interface GigabitEthernet0/0/1

[AR3-GigabitEthernet0/0/1]ip address 10.0.23.3 24

Oct 4 2022 01:08:25-08:00 AR3 %%01IFNET/4/LINK\_STATE(l)[1]:The line protocol IP

on the interface GigabitEthernet0/0/1 has entered the UP state.

[AR3-GigabitEthernet0/0/1]quit

[AR3]

Проверьте наличие связи с помощью инструмента ping.

[AR1]ping 10.0.12.2

PING 10.0.12.2: 56 data bytes, press CTRL\_C to break

Reply from 10.0.12.2: bytes=56 Sequence=1 ttl=255 time=130 ms

Reply from 10.0.12.2: bytes=56 Sequence=2 ttl=255 time=10 ms

Reply from 10.0.12.2: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.12.2: bytes=56 Sequence=4 ttl=255 time=20 ms

Reply from 10.0.12.2: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 10.0.12.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 10/44/130 ms

[AR1]

[AR1]ping 10.0.13.3

PING 10.0.13.3: 56 data bytes, press CTRL\_C to break

Reply from 10.0.13.3: bytes=56 Sequence=1 ttl=255 time=130 ms

Reply from 10.0.13.3: bytes=56 Sequence=2 ttl=255 time=30 ms

Reply from 10.0.13.3: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.13.3: bytes=56 Sequence=4 ttl=255 time=20 ms

Reply from 10.0.13.3: bytes=56 Sequence=5 ttl=255 time=40 ms

--- 10.0.13.3 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/50/130 ms

[AR1]

Выведите на экран таблицу маршрутизации AR1.

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 10 Routes : 10

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.12.0/24 Direct 0 0 D 10.0.12.1 GigabitEthernet

0/0/1

10.0.12.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR1]

Создайте loopback-интерфейс.   
Настройте loopback-интерфейс в соответствии со следующей таблицей

[AR1]interface LoopBack0

[AR1-LoopBack0]ip address 10.0.1.1 32

[AR1-LoopBack0]quit

[AR1]

[AR2]interface LoopBack0

[AR2-LoopBack0]ip address 10.0.1.2 32

[AR2-LoopBack0]quit

[AR2]

[AR3]interface LoopBack0

[AR3-LoopBack0]ip address 10.0.1.3 32

[AR3-LoopBack0]quit

[AR3]

Выведите на экран таблицу маршрутизации на маршрутизаторе (в данном случае на примере AR1).

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 11 Routes : 11

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.12.0/24 Direct 0 0 D 10.0.12.1 GigabitEthernet

0/0/1

10.0.12.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR1]

Проверьте наличие связи между loopback-интерфейсами.

[AR1]ping -a 10.0.1.1 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Request time out

Request time out

Request time out

Request time out

Request time out

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

0 packet(s) received

100.00% packet loss

[AR1]

# Настройте статические маршруты

На маршрутизаторе АR1 настройте маршрут к интерфейсам LoopBack0 маршрутизаторов АR2 и АR3.

[AR1]ip route-static 10.0.1.2 32 10.0.12.2

[AR1]ip route-static 10.0.1.3 32 10.0.13.3

# Выведите на экран таблицу маршрутизации R1.

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 13 Routes : 13

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.2/32 Static 60 0 RD 10.0.12.2 GigabitEthernet

0/0/1

10.0.1.3/32 Static 60 0 RD 10.0.13.3 GigabitEthernet

0/0/0

10.0.12.0/24 Direct 0 0 D 10.0.12.1 GigabitEthernet

0/0/1

10.0.12.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR1]

Проверьте возможность установления связи.

[AR1]ping -a 10.0.1.1 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Request time out

Request time out

Request time out

Request time out

Request time out

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

0 packet(s) received

100.00% packet loss

[AR1]

На АR2 добавьте маршрут к интерфейсу LoopBack0 маршрутизатора АR1.

[AR2]ip route-static 10.0.1.1 32 10.0.12.1

Проверьте возможность установления связи.

[AR1]ping -a 10.0.1.1 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.2: bytes=56 Sequence=1 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=2 ttl=255 time=20 ms

Reply from 10.0.1.2: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=4 ttl=255 time=20 ms

Reply from 10.0.1.2: bytes=56 Sequence=5 ttl=255 time=40 ms

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/28/40 ms

[AR1]

Настройте другие необходимые маршруты.

[AR2]ip route-static 10.0.1.3 32 10.0.23.3

[AR3]ip route-static 10.0.1.1 32 10.0.13.1

[AR3]ip route-static 10.0.1.2 32 10.0.23.2

Проверьте возможность установления связи между интерфейсами LoopBack0 маршрутизаторов, следуя приведенной процедуре.

[AR1]ping -a 10.0.1.1 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.2: bytes=56 Sequence=1 ttl=255 time=20 ms

Reply from 10.0.1.2: bytes=56 Sequence=2 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=4 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=5 ttl=255 time=20 ms

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/26/30 ms

[AR1]

[AR1]ping -a 10.0.1.1 10.0.1.3

PING 10.0.1.3: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.3: bytes=56 Sequence=1 ttl=255 time=70 ms

Reply from 10.0.1.3: bytes=56 Sequence=2 ttl=255 time=40 ms

Reply from 10.0.1.3: bytes=56 Sequence=3 ttl=255 time=20 ms

Reply from 10.0.1.3: bytes=56 Sequence=4 ttl=255 time=40 ms

Reply from 10.0.1.3: bytes=56 Sequence=5 ttl=255 time=20 ms

--- 10.0.1.3 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/38/70 ms

[AR1]

[AR2]ping -a 10.0.1.2 10.0.1.1

PING 10.0.1.1: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.1: bytes=56 Sequence=1 ttl=255 time=40 ms

Reply from 10.0.1.1: bytes=56 Sequence=2 ttl=255 time=30 ms

Reply from 10.0.1.1: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.1.1: bytes=56 Sequence=4 ttl=255 time=30 ms

Reply from 10.0.1.1: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 10.0.1.1 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 30/32/40 ms

[AR2]

[AR2]ping -a 10.0.1.2 10.0.1.3

PING 10.0.1.3: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.3: bytes=56 Sequence=1 ttl=255 time=70 ms

Reply from 10.0.1.3: bytes=56 Sequence=2 ttl=255 time=30 ms

Reply from 10.0.1.3: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.1.3: bytes=56 Sequence=4 ttl=255 time=40 ms

Reply from 10.0.1.3: bytes=56 Sequence=5 ttl=255 time=20 ms

--- 10.0.1.3 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/38/70 ms

[AR2]

[AR3]ping -a 10.0.1.3 10.0.1.1

PING 10.0.1.1: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.1: bytes=56 Sequence=1 ttl=255 time=40 ms

Reply from 10.0.1.1: bytes=56 Sequence=2 ttl=255 time=20 ms

Reply from 10.0.1.1: bytes=56 Sequence=3 ttl=255 time=20 ms

Reply from 10.0.1.1: bytes=56 Sequence=4 ttl=255 time=30 ms

Reply from 10.0.1.1: bytes=56 Sequence=5 ttl=255 time=20 ms

--- 10.0.1.1 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/26/40 ms

[AR3]

[AR3]ping -a 10.0.1.3 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.2: bytes=56 Sequence=1 ttl=255 time=20 ms

Reply from 10.0.1.2: bytes=56 Sequence=2 ttl=255 time=20 ms

Reply from 10.0.1.2: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=4 ttl=255 time=40 ms

Reply from 10.0.1.2: bytes=56 Sequence=5 ttl=255 time=30 ms

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/28/40 ms

[AR3]

# Настройте маршрут от АR1 к АR2 через АR3 в качестве резервного маршрута от LoopBack0 АR1 к LoopBack0 АR2.

Настройте статические маршруты на АR1 и АR2.

[AR1]ip route-static 10.0.1.2 32 10.0.13.3 preference 100

[AR2]ip route-static 10.0.1.1 32 10.0.23.3 preference 100

Выведите на экран таблицы маршрутизации АR1 и АR2.

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 13 Routes : 13

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.2/32 Static 60 0 RD 10.0.12.2 GigabitEthernet

0/0/1

10.0.1.3/32 Static 60 0 RD 10.0.13.3 GigabitEthernet

0/0/0

10.0.12.0/24 Direct 0 0 D 10.0.12.1 GigabitEthernet

0/0/1

10.0.12.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR2]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 13 Routes : 13

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Static 60 0 RD 10.0.12.1 GigabitEthernet

0/0/1

10.0.1.2/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.3/32 Static 60 0 RD 10.0.23.3 GigabitEthernet

0/0/2

10.0.12.0/24 Direct 0 0 D 10.0.12.2 GigabitEthernet

0/0/1

10.0.12.2/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.23.0/24 Direct 0 0 D 10.0.23.2 GigabitEthernet

0/0/2

10.0.23.2/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/2

10.0.23.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/2

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

Отключите интерфейс GigabitEthernet0/0/3 на маршрутизаторах АR1 и АR2, чтобы сделать недействительным маршрут с наивысшим приоритетом.

[AR1]interface GigabitEthernet0/0/1

[AR1-GigabitEthernet0/0/1]shutdown

Oct 4 2022 01:26:40-08:00 AR1 %%01IFPDT/4/IF\_STATE(l)[4]:Interface GigabitEther

net0/0/1 has turned into DOWN state.

[AR1-GigabitEthernet0/0/1]

[AR1-GigabitEthernet0/0/1]

Oct 4 2022 01:26:40-08:00 AR1 %%01IFNET/4/LINK\_STATE(l)[5]:The line protocol IP

on the interface GigabitEthernet0/0/1 has entered the DOWN state.

[AR1-GigabitEthernet0/0/1]quit

Выведите на экран таблицы маршрутизации на R1 и R2. Из командного вывода видно, что маршруты с более низким приоритетом активируются, когда маршруты с более высоким приоритетом становятся недействительными.

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 10 Routes : 10

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.2/32 Static 100 0 RD 10.0.13.3 GigabitEthernet

0/0/0

10.0.1.3/32 Static 60 0 RD 10.0.13.3 GigabitEthernet

0/0/0

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR2]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 10 Routes : 10

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Static 100 0 RD 10.0.23.3 GigabitEthernet

0/0/2

10.0.1.2/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.3/32 Static 60 0 RD 10.0.23.3 GigabitEthernet

0/0/2

10.0.23.0/24 Direct 0 0 D 10.0.23.2 GigabitEthernet

0/0/2

10.0.23.2/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/2

10.0.23.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/2

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR2]

Проверьте возможность установления связи.

[AR1]ping -a 10.0.1.1 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.2: bytes=56 Sequence=1 ttl=254 time=40 ms

Reply from 10.0.1.2: bytes=56 Sequence=2 ttl=254 time=50 ms

Reply from 10.0.1.2: bytes=56 Sequence=3 ttl=254 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=4 ttl=254 time=40 ms

Reply from 10.0.1.2: bytes=56 Sequence=5 ttl=254 time=30 ms

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 30/38/50 ms

Выполните трассировку маршрута, по которому передаются пакеты данных.

[AR1]tracert -a 10.0.1.1 10.0.1.2

traceroute to 10.0.1.2(10.0.1.2), max hops: 30 ,packet length: 40,press CTRL\_C

to break

1 10.0.13.3 40 ms 20 ms 30 ms

2 10.0.23.2 30 ms 30 ms 30 ms

[AR1]

# Настройте маршруты по умолчанию для установления связи между интерфейсом LoopBack0 маршрутизатора АR1 и интерфейсом LoopBack0 маршрутизатора АR2.

Включите интерфейсы и удалите настроенные маршруты.

[AR1]interface GigabitEthernet0/0/1

[AR1-GigabitEthernet0/0/1]undo shutdown

[AR1-GigabitEthernet0/0/1]

Oct 4 2022 01:30:49-08:00 AR1 %%01IFPDT/4/IF\_STATE(l)[6]:Interface GigabitEther

net0/0/1 has turned into UP state.

[AR1-GigabitEthernet0/0/1]

Oct 4 2022 01:30:49-08:00 AR1 %%01IFNET/4/LINK\_STATE(l)[7]:The line protocol IP

on the interface GigabitEthernet0/0/1 has entered the UP state.

[AR1-GigabitEthernet0/0/1]quit

[AR1]

[AR1]undo ip route-static 10.0.1.2 255.255.255.255 10.0.12.2

[R1]undo ip route-static 10.0.1.2 255.255.255.255 10.0.13.3 preference 100

# Выведите на экран таблицу маршрутизации R1.

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 12 Routes : 12

Destination/Mask Proto Pre Cost Flags NextHop Interface

10.0.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.3/32 Static 60 0 RD 10.0.13.3 GigabitEthernet

0/0/0

10.0.12.0/24 Direct 0 0 D 10.0.12.1 GigabitEthernet

0/0/1

10.0.12.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

Настройте маршрут по умолчанию на R1.

[AR1]ip route-static 0.0.0.0 0 10.0.12.2

Выведите на экран таблицу маршрутизации R1.

[AR1]display ip routing-table

Route Flags: R - relay, D - download to fib

------------------------------------------------------------------------------

Routing Tables: Public

Destinations : 13 Routes : 13

Destination/Mask Proto Pre Cost Flags NextHop Interface

0.0.0.0/0 Static 60 0 RD 10.0.12.2 GigabitEthernet

0/0/1

10.0.1.1/32 Direct 0 0 D 127.0.0.1 LoopBack0

10.0.1.3/32 Static 60 0 RD 10.0.13.3 GigabitEthernet

0/0/0

10.0.12.0/24 Direct 0 0 D 10.0.12.1 GigabitEthernet

0/0/1

10.0.12.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.12.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/1

10.0.13.0/24 Direct 0 0 D 10.0.13.1 GigabitEthernet

0/0/0

10.0.13.1/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

10.0.13.255/32 Direct 0 0 D 127.0.0.1 GigabitEthernet

0/0/0

127.0.0.0/8 Direct 0 0 D 127.0.0.1 InLoopBack0

127.0.0.1/32 Direct 0 0 D 127.0.0.1 InLoopBack0

127.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

255.255.255.255/32 Direct 0 0 D 127.0.0.1 InLoopBack0

[AR1]

Проверьте наличие связи между LoopBack0 маршрутизатора R1 и LoopBack0 маршрутизатора АR2.

[AR1]ping -a 10.0.1.1 10.0.1.2

PING 10.0.1.2: 56 data bytes, press CTRL\_C to break

Reply from 10.0.1.2: bytes=56 Sequence=1 ttl=255 time=70 ms

Reply from 10.0.1.2: bytes=56 Sequence=2 ttl=255 time=20 ms

Reply from 10.0.1.2: bytes=56 Sequence=3 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=4 ttl=255 time=30 ms

Reply from 10.0.1.2: bytes=56 Sequence=5 ttl=255 time=20 ms

--- 10.0.1.2 ping statistics ---

5 packet(s) transmitted

5 packet(s) received

0.00% packet loss

round-trip min/avg/max = 20/34/70 ms

[AR1]

# Выводы:

Таким образом, мы получили базовые навыки работы с имитационным ПО Huawei eNSP и с маршрутизатором AR2220. А также проверили работоспособность сетей утилитами ping и tracert.