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**ФАКУЛЬТЕТ _ИНФОРМАТИКА И СИСТЕМЫ УПРАВЛЕНИЯ_____**
**КАФЕДРА ____КОМПЬЮТЕРНЫЕ СИСТЕМЫ И СЕТИ (ИУ6)_____**
**НАПРАВЛЕНИЕ ПОДГОТОВКИ __09.03.01 Информатика и Вычислительная техника____**

# О т ч е т

## по лабораторной работе № _6_

**Дисциплина:** Сети и телекоммуникации

**Название лабораторной работы:** IPv6 сети. Основы сетевого программирования и автоматизации.

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Москва, 2021

**Цель работы** - Научиться создавать FTP сервисы, скачивать и удалять файлы.

**Ход работы:**

1.) Настраиваем исходную топологию. (Рисунки 1-4)

```
[R1]interface Gi
[R1]interface GigabitEthernet 0
Oct  5 2021 23:39:52-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 1, the ch
ange loop count is 0, and the maximum number of records is 4095./0/1
[R1-GigabitEthernet0/0/1]ip address 10.0.12.1 24
```

Рисунок 1

```
[R3]interface GigabitEthernet 0/0/1
[R3-GigabitEthernet0/0/1]ip address 10.0.12.3 24
[R3-GigabitEthernet0/0/1]
Oct  5 2021 23:42:37-08:00 R3 %%01IFNET/4/LINK_STATE(l)[0]:The line protocol IP
on the interface GigabitEthernet0/0/1 has entered the UP state.
[R3-GigabitEthernet0/0/1]shut
Oct  5 2021 23:42:46-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 2, the c
ange loop count is 0, and the maximum number of records is 4095.down
[R3-GigabitEthernet0/0/1]
Oct  5 2021 23:42:47-08:00 R3 %%01PHY/1/PHY(l)[1]:    GigabitEthernet0/0/1: cha
ge status to down
Oct  5 2021 23:42:47-08:00 R3 %%01IFNET/4/LINK_STATE(l)[2]:The line protocol IP
on the interface GigabitEthernet0/0/1 has entered the DOWN state.
[R3-GigabitEthernet0/0/1]quit
[R3]
Oct  5 2021 23:42:56-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 3, the c
ange loop count is 0, and the maximum number of records is 4095.
[R3]interface GigabitEthernet 0/0/2
[R3-GigabitEthernet0/0/2]ip address 10.0.23.3 24
```

Рисунок 2

```
<Huawei>system-view
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname S1
[S1]
```

Рисунок 3

```
<Huawei>system-view
Enter system view, return user view with Ctrl+Z.
[Huawei]sysname S2
[S2]
```

Рисунок 4

2.) Выключаем G для свитчеров. (Рисунки 5-7).

```
[S1]interface GigabitEthernet 0/0/9
[S1-GigabitEthernet0/0/9]shutdown
[S1-GigabitEthernet0/0/9]quit
[S1]interface GigabitEthernet 0/0/9
Oct  5 2021 23:51:37-08:00 S1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 5, the c
ange loop count is 0, and the maximum number of records is 409q
                                  ^
Error: Wrong parameter found at '^' position.
[S1]interface GigabitEthernet 0/0/10
[S1-GigabitEthernet0/0/10]shutdown
[S1-GigabitEthernet0/0/10]quit
[S1]interface GigabitEthernet 0/0/10
Oct  5 2021 23:51:57-08:00 S1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 6, the c
ange loop count is 0, and the maximum number of records is 4095q
                                  ^
Error: Wrong parameter found at '^' position.
[S1]interface GigabitEthernet 0/0/13
[S1-GigabitEthernet0/0/13]shutdown
[S1-GigabitEthernet0/0/13]
Oct  5 2021 23:52:17-08:00 S1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 7, the c
ange loop count is 0, and the maximum number of records is 4095.quit
[S1]interface GigabitEthernet 0/0/14
[S1-GigabitEthernet0/0/14]shutdown
[S1-GigabitEthernet0/0/14]quit
```

Рисунок 5

```
[S2]interface GigabitEthernet 0/0/9
[S2-GigabitEthernet0/0/9]shutdown
[S2-GigabitEthernet0/0/9]quit
[S2]interface GigabitEthernet 0/0/10
[S2-GigabitEthernet0/0/10]sh
Oct  5 2021 23:55:37-08:00 S2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 5, the c
ange loop count is 0, and the maximum number of records is 4095.utdow
[S2-GigabitEthernet0/0/10]quit
[S2]interface GigabitEthernet 0/0/10
[S2-GigabitEthernet0/0/10]
Oct  5 2021 23:55:47-08:00 S2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 6, the c
ange loop count is 0, and the maximum number of records is 4095.shutdown
Info: Interface GigabitEthernet0/0/10 has already been shutdown.
[S2-GigabitEthernet0/0/10]quit
[S2]interface GigabitEthernet 0/0/7
[S2-GigabitEthernet0/0/7]shutdown
[S2-GigabitEthernet0/0/7]quit
[S2]
Oct  5 2021 23:56:17-08:00 S2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 7, the c
ange loop count is 0, and the maximum number of records is 4095.
[S2]interface GigabitEthernet 0/0/6
[S2-GigabitEthernet0/0/6]shutdown
[S2-GigabitEthernet0/0/6]quit
```

Рисунок 6

```
[R1]interface GigabitEthernet 0/0/2
[R1-GigabitEthernet0/0/2]ip address 10.0.23.1 24
[R1-GigabitEthernet0/0/2]
Oct  5 2021 23:57:56-08:00 R1 %%01IFNET/4/LINK_STATE(l)[0]:The line p
on the interface GigabitEthernet0/0/2 has entered the UP state.
[R1-GigabitEthernet0/0/2]shutdown
```

Рисунок 7

3.) Проверяем внесенные изменения для S1, S2, R1 и R3 соответственно. (Рисунки 8-11)

```
(e): ETHOAM down
(dl): DLDP down
(d): Dampening Suppressed
InUti/OutUti: input utility/output utility
Interface                   PHY   Protocol InUti OutUti   inErrors  outErrors
GigabitEthernet0/0/1        up    up           0%     0%          0          0
GigabitEthernet0/0/2        down  down         0%     0%          0          0
GigabitEthernet0/0/3        down  down         0%     0%          0          0
GigabitEthernet0/0/4        down  down         0%     0%          0          0
GigabitEthernet0/0/5        down  down         0%     0%          0          0
GigabitEthernet0/0/6        down  down         0%     0%          0          0
GigabitEthernet0/0/7        down  down         0%     0%          0          0
GigabitEthernet0/0/8        down  down         0%     0%          0          0
GigabitEthernet0/0/9        *down down         0%     0%          0          0
GigabitEthernet0/0/10       *down down         0%     0%          0          0
GigabitEthernet0/0/11       down  down         0%     0%          0          0
GigabitEthernet0/0/12       down  down         0%     0%          0          0
GigabitEthernet0/0/13       *down down         0%     0%          0          0
GigabitEthernet0/0/14       *down down         0%     0%          0          0
GigabitEthernet0/0/15       down  down         0%     0%          0          0
GigabitEthernet0/0/16       down  down         0%     0%          0          0
GigabitEthernet0/0/17       down  down         0%     0%          0          0
GigabitEthernet0/0/18       down  down         0%     0%          0          0
GigabitEthernet0/0/19       down  down         0%     0%          0          0
GigabitEthernet0/0/20       down  down         0%     0%          0          0
GigabitEthernet0/0/21       down  down         0%     0%          0          0
GigabitEthernet0/0/22       down  down         0%     0%          0          0
GigabitEthernet0/0/23       down  down         0%     0%          0          0
GigabitEthernet0/0/24       down  down         0%     0%          0          0
```

Рисунок 8

```
(d): Dampening Suppressed
InUti/OutUti: input utility/output utility
Interface                   PHY    Protocol InUti OutUti   inErrors  outErrors
GigabitEthernet0/0/1        down   down        0%     0%          0          0
GigabitEthernet0/0/2        down   down        0%     0%          0          0
GigabitEthernet0/0/3        up     up          0%     0%          0          0
GigabitEthernet0/0/4        down   down        0%     0%          0          0
GigabitEthernet0/0/5        down   down        0%     0%          0          0
GigabitEthernet0/0/6        *down  down        0%     0%          0          0
GigabitEthernet0/0/7        *down  down        0%     0%          0          0
GigabitEthernet0/0/8        down   down        0%     0%          0          0
GigabitEthernet0/0/9        *down  down        0%     0%          0          0
GigabitEthernet0/0/10       *down  down        0%     0%          0          0
GigabitEthernet0/0/11       down   down        0%     0%          0          0
GigabitEthernet0/0/12       down   down        0%     0%          0          0
GigabitEthernet0/0/13       down   down        0%     0%          0          0
GigabitEthernet0/0/14       down   down        0%     0%          0          0
GigabitEthernet0/0/15       down   down        0%     0%          0          0
```

Рисунок 9

```
Ethernet0/0/0                 unassigned          down       down
Ethernet0/0/1                 unassigned          down       down
GigabitEthernet0/0/0          unassigned          down       down
GigabitEthernet0/0/1          10.0.12.1/24        up         up
GigabitEthernet0/0/2          10.0.23.1/24        *down      down
GigabitEthernet0/0/3          unassigned          down       down
```

Рисунок 10

```
Ethernet0/0/0                 unassigned          down       down
Ethernet0/0/1                 unassigned          down       down
GigabitEthernet0/0/0          unassigned          down       down
GigabitEthernet0/0/1          10.0.12.3/24        *down      down
GigabitEthernet0/0/2          10.0.23.3/24        up         up
GigabitEthernet0/0/3          unassigned          down       down
NULL0                         unassigned          up         up(s)
```

Рисунок 11

4.) Включаем DHCP для роутеров R1 и R3. (Рисунок 12-13)

```
[R1]dhcp enable
Info: The operation may take a few seconds. Please wait for a moment.done.
```

Рисунок 12

```
[R3]dhcp enable
Info: The operation may take a few seconds. Please wait for a moment.done.
```

Рисунок 13

5.) Создаем пулы адресов для роутеров R1 и R3. (Рисунки 14-15)

```
[R1]ip pool pool1
Info:It's successful to create an IP address pool.
[R1-ip-pool-pool1]network 10.0.12.0 ma
Oct  6 2021 00:08:02-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 6, the c
ange loop count is 0, and the maximum number of records is 4095.sk 24
[R1-ip-pool-pool1]network 10.0.12.0 mask 24
Oct  6 2021 00:08:12-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 7, the c
ange loop count is 0, and the maximum number of records is 4095.
Error:Please delete the network section first.
[R1-ip-pool-pool1]gateway-list 10.0.12.1
[R1-ip-pool-pool1]
Oct  6 2021 00:08:42-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 8, the c
ange loop count is 0, and the maximum number of records is 4095.
[R1-ip-pool-pool1]lease day 1 hour 12
[R1-ip-pool-pool1]quit
[R1]
Oct  6 2021 00:09:02-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 9, the c
ange loop count is 0, and the maximum number of records is 4095.
[R1]interface gi
[R1]interface GigabitEthernet 0/0/1
[R1-GigabitEthernet0/0/1]dhcp select global
```

Рисунок 14

```
[R3]ip pool pool2
Info:It's successful to create an IP address pool.
[R3-ip-pool-pool2]network
Oct  6 2021 00:11:17-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 8, the c
ange loop count is 0, and the maximum number of records is 4095.q
                  ^
Error: Unrecognized command found at '^' position.
[R3-ip-pool-pool2]network 10.0.23.0 mask 24
[R3-ip-pool-pool2]
Oct  6 2021 00:11:37-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 9, the c
ange loop count is 0, and the maximum number of records is 4095.
[R3-ip-pool-pool2]gateway-list 10.0.23.3
[R3-ip-pool-pool2]lease day 1 hour
Oct  6 2021 00:11:57-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 10, the
hange loop count is 0, and the maximum number of records is 4095. 12
[R3-ip-pool-pool2]lease day 1 hour 12
[R3-ip-pool-pool2]quit
[R3]
Oct  6 2021 00:12:07-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 12, the
hange loop count is 0, and the maximum number of records is 4095.interface gi
[R3]interface GigabitEthernet 0/0/2
[R3-GigabitEthernet0/0/2]dhcp select global
```

Рисунок 15

6.) Проверяем корректность ввода для роутера R1. (Рисунок 16)

```
<R1>display ip pool name pool1
  Pool-name      : pool1
  Pool-No        : 0
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : -
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Local          Status          : Unlocked
  Gateway-0      : 10.0.12.1
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.12.1     10.0.12.254   253     0        253(0)         0        0
 ------------------------------------------------------------------------------
```

Рисунок 16

7.) Подключаем DHCP на первом свитчере и проверяем корректность. (Рисунки 17-19)

```
[S1]dhcp enable
Info: The operation may take a few seconds. Please wait for a moment.done.
[S1]interface
Oct  6 2021 00:17:18-08:00 S1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 9, the ch
ange loop count is 0, and the maximum number of records is 4095. Vlanif 1
[S1-Vlanif1]ip address dhcp-alloc
```

Рисунок 17

```
<S1>display ip interface brief
*down: administratively down
^down: standby
(l): loopback
(s): spoofing
The number of interface that is UP in Physical is 2
The number of interface that is DOWN in Physical is 1
The number of interface that is UP in Protocol is 2
The number of interface that is DOWN in Protocol is 1

Interface                         IP Address/Mask      Physical   Protocol
MEth0/0/1                         unassigned           down       down
NULL0                             unassigned           up         up(s)
Vlanif1                           10.0.12.254/24       up         up
```

Рисунок 18

```
<R1>display ip pool name pool1
  Pool-name      : pool1
  Pool-No        : 0
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : -
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Local          Status          : Unlocked
  Gateway-0      : 10.0.12.1
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.12.1     10.0.12.254   253     1        252(0)         0         0
 ------------------------------------------------------------------------------
```

Рисунок 19

8.) Повторяем те же действия для S2 и R3. Проверим корректность на рисунке 20.

```
<R3>display ip pool name pool2
  Pool-name      : pool2
  Pool-No        : 0
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : -
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Local          Status          : Unlocked
  Gateway-0      : 10.0.23.3
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.23.1     10.0.23.254   253     1        252(0)         0         0
 ------------------------------------------------------------------------------
```

Рисунок 20

9.) Потушили G0/0/1 и G0/0/2 для роутеров и настроили интерйесы адресных пулов для R1 и R2 соответственно. (Рисунки 21-22)

```
[R1]interface GigabitEthernet 0/0/1
[R1-GigabitEthernet0/0/1]shutdown
[R1-GigabitEthernet0/0/1]
Oct  6 2021 00:31:31-08:00 R1 %%01PHY/1/PHY(l)[3]:    GigabitEthernet0/0/1: chan
ge status to down
Oct  6 2021 00:31:31-08:00 R1 %%01IFNET/4/LINK_STATE(l)[4]:The line protocol IP
on the interface GigabitEthernet0/0/1 has entered the DOWN state.
[R1-GigabitEthernet0/0/1]
Oct  6 2021 00:31:34-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 11, the c
hange loop count is 0, and the maximum number of records is 4095.
[R1-GigabitEthernet0/0/1]quit
[R1]interface GigabitEthernet 0/0/2
[R1-GigabitEthernet0/0/2]dhcp select image
                                 ^
Error: Unrecognized command found at '^' position.
[R1-GigabitEthernet0/0/2]dhcp select interface
```

Рисунок 21

```
[R3]interface GigabitEthernet 0/0/2
[R3-GigabitEthernet0/0/2]shutdown
[R3-GigabitEthernet0/0/2]
Oct  6 2021 00:33:37-08:00 R3 %%01PHY/1/PHY(l)[0]:    GigabitEthernet0/0/2: chan
ge status to down
Oct  6 2021 00:33:37-08:00 R3 %%01IFNET/4/LINK_STATE(l)[1]:The line protocol IP
on the interface GigabitEthernet0/0/2 has entered the DOWN state.
Oct  6 2021 00:33:38-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 14, the c
hange loop count is 0, and the maximum number of records is 4095.
[R3-GigabitEthernet0/0/2]quit
[R3]interface GigabitEthernet 0/0/1
[R3-GigabitEthernet0/0/1]dhcp select interface
```

Рисунок 22

10.) Далее для обоих роутеров выполняем команды, показанные на рисунках 23 и 24.

```
[R1-GigabitEthernet0/0/2]dhcp server dns-list 10.0.23.254
[R1-GigabitEthernet0/0/2]dhcp server exc
Oct  6 2021 00:38:55-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 13, the c
hange loop count is 0, and the maximum number of records is 4095.luded-ip-addres
s 10.0.23.254
[R1-GigabitEthernet0/0/2]
Oct  6 2021 00:39:15-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 14, the c
hange loop count is 0, and the maximum number of records is 4095.
[R1-GigabitEthernet0/0/2]dhcp server lease day 1 hour 12
[R1-GigabitEthernet0/0/2]
Oct  6 2021 00:39:35-08:00 R1 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 15, the c
hange loop count is 0, and the maximum number of records is 4095.
```

Рисунок 23

```
[R3-GigabitEthernet0/0/1]dhcp server dns-list 10.0.12.254
[R3-GigabitEthernet0/0/1]dhcp server ec
Oct  6 2021 00:39:59-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 16, the
hange loop count is 0, and the maximum number of records is 4095
                                    ^
Error:Incomplete command found at '^' position.
[R3-GigabitEthernet0/0/1]dhcp server excluded-ip-address 10.0.23.254
Error:The IP address is not in the pool.
[R3-GigabitEthernet0/0/1]dhcp server excluded-ip-address 10.0.12.254
[R3-GigabitEthernet0/0/1]dhcp server lease
Oct  6 2021 00:40:39-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 17, the
hange loop count is 0, and the maximum number of records is 4095.day 1 hour 12
[R3-GigabitEthernet0/0/1]dhcp server lease day 1 hour 12
Oct  6 2021 00:40:49-08:00 R3 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25
191.3.1 configurations have been changed. The current change number is 18, the
hange loop count is 0, and the max
```

Рисунок 24

11.) Проверяем корректность введеных команд для роутеров R1 и R3. (Рисунок 25-26)

```
[R1]display ip pool interface GigabitEthernet0/0/2
  Pool-name      : GigabitEthernet0/0/2
  Pool-No        : 1
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : 10.0.23.254
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Interface       Status          : Unlocked
  Gateway-0      : 10.0.23.1
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.23.1     10.0.23.254   253     0        252(0)         0        1
 ------------------------------------------------------------------------------
```

Рисунок 25

```
[R3]display ip pool interface GigabitEthernet0/0/1
  Pool-name      : GigabitEthernet0/0/1
  Pool-No        : 1
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : 10.0.12.254
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Interface       Status          : Unlocked
  Gateway-0      : 10.0.12.3
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.12.1     10.0.12.254   253     0        252(0)         0        1
 ------------------------------------------------------------------------------
```

Рисунок 26

12.)Перезагружаем Vlanif1 на S2. (Рисунок 27)

```
[S2-Vlanif1]shutdown
[S2-Vlanif1]
Oct  6 2021 00:53:00-08:00 S2 DS/4/DATASYNC_CFGCHANGE:OID 1.3.6.1.4.1.2011.5.25.
191.3.1 configurations have been changed. The current change number is 13, the c
hange loop count is 0, and the maximum number of records is 4095.undo shutdown
```

Рисунок 27

13.) Проверяем корректность работы. (Рисунок 28)

```
[R1-GigabitEthernet0/0/2]display ip pool interface GigabitEthernet0/0/2
  Pool-name      : GigabitEthernet0/0/2
  Pool-No        : 1
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : 10.0.23.254
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Interface       Status          : Unlocked
  Gateway-0      : 10.0.23.1
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.23.1     10.0.23.254   253     1        251(0)         0        1
 ------------------------------------------------------------------------------
```

Рисунок 28

14.) Проверяем S2. (Рисунок 29)

```
Interface                         IP Address/Mask      Physical   Protocol
MEth0/0/1                         unassigned           down       down
NULL0                             unassigned           up         up(s)
Vlanif1                           10.0.23.253/24       up         up
```

Рисунок 29

15.) Делаем то же самое для R3 и S2. Проверяем корректность работы. (Рисунок 30)

```
[R3-GigabitEthernet0/0/1]display ip pool interface GigabitEthernet0/0/1
  Pool-name      : GigabitEthernet0/0/1
  Pool-No        : 1
  Lease          : 1 Days 12 Hours 0 Minutes
  Domain-name    : -
  DNS-server0    : 10.0.12.254
  NBNS-server0   : -
  Netbios-type   : -
  Position       : Interface       Status          : Unlocked
  Gateway-0      : 10.0.12.3
  Mask           : 255.255.255.0
  VPN instance   : --
 ------------------------------------------------------------------------------
        Start           End     Total  Used  Idle(Expired)  Conflict  Disable
 ------------------------------------------------------------------------------
      10.0.12.1     10.0.12.254   253     1        251(0)         0        1
 ------------------------------------------------------------------------------
```

Рисунок 30

Final Configuration:

```
ip pool pool1
 gateway-list 10.0.12.1
 network 10.0.12.0 mask 255.255.255.0
 lease day 1 hour 12 minute 0
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user admin password cipher OOCM4m($F4ajUnlvMEIBNUw#
 local-user admin service-type http
#
firewall zone Local
 priority 16
#
interface Ethernet0/0/0
#
interface Ethernet0/0/1
#
interface Serial0/0/0
 link-protocol ppp
#
interface Serial0/0/1
 link-protocol ppp
#
interface Serial0/0/2
 link-protocol ppp
#
interface Serial0/0/3
 link-protocol ppp
#
interface GigabitEthernet0/0/0
#
interface GigabitEthernet0/0/1
 shutdown
 ip address 10.0.12.1 255.255.255.0
 dhcp select global
```

Рисунок 31- R1

```
interface GigabitEthernet0/0/1
 shutdown
 ip address 10.0.12.1 255.255.255.0
 dhcp select global
#
interface GigabitEthernet0/0/2
 shutdown
 ip address 10.0.23.1 255.255.255.0
 dhcp select interface
 dhcp server excluded-ip-address 10.0.23.254
 dhcp server lease day 1 hour 12 minute 0
 dhcp server dns-list 10.0.23.254
```

Рисунок 32 - R1

```
dhcp enable
#
ip pool pool2
 gateway-list 10.0.23.3
 network 10.0.23.0 mask 255.255.255.0
 lease day 1 hour 12 minute 0
#
aaa
 authentication-scheme default
 authorization-scheme default
 accounting-scheme default
 domain default
 domain default_admin
 local-user admin password cipher OOCM4m($F4ajUn1vMEIBNUw#
 local-user admin service-type http
#
firewall zone Local
 priority 16
#
interface Ethernet0/0/0
#
interface Ethernet0/0/1
#
interface Serial0/0/0
 link-protocol ppp
#
interface Serial0/0/1
 link-protocol ppp
#
interface Serial0/0/2
 link-protocol ppp
#
interface Serial0/0/3
 link-protocol ppp
```

Рисунок 33 – R3

```
#
interface GigabitEthernet0/0/0
#
interface GigabitEthernet0/0/1
 shutdown
 ip address 10.0.12.3 255.255.255.0
 dhcp select interface
 dhcp server excluded-ip-address 10.0.12.254
 dhcp server lease day 1 hour 12 minute 0
 dhcp server dns-list 10.0.12.254
#
interface GigabitEthernet0/0/2
 shutdown
 ip address 10.0.23.3 255.255.255.0
 dhcp select global
```

Рисунок 34- R3

Вывод: Я научился настраивать пулы DHCP и изучил методы адресации пулов.