Лабораторная работа № 2.
Развертывание дополнительного CHR, первый сценарий

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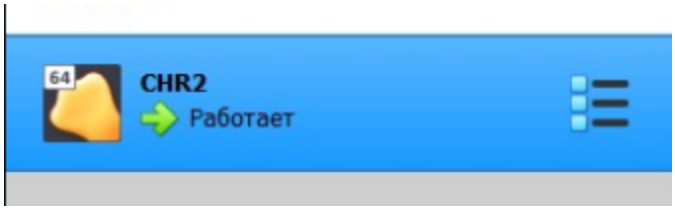
Цель работы

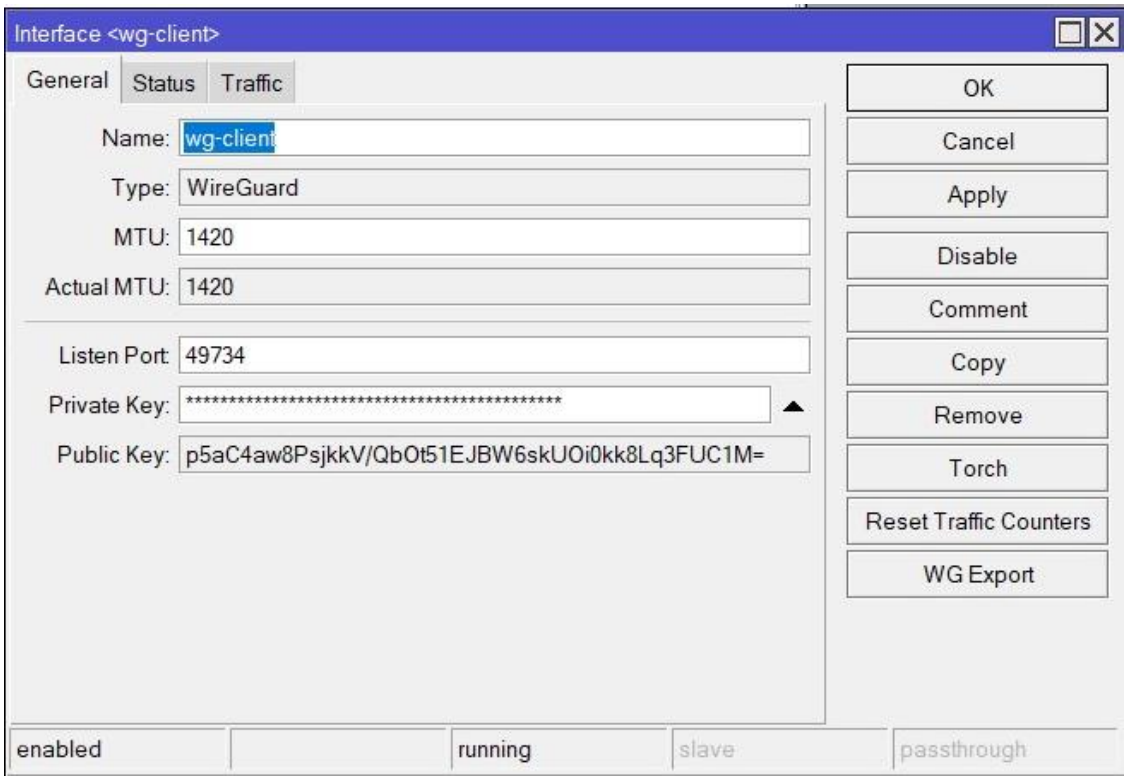
С помощью Ansible настроить несколько сетевых устройств и собрать информацию о них. Правильно собрать файл Inventory

Ход работы

Создан 2 CHR



На нем настроен Wideguard интерфейс



На сервере в файл wg0.conf добавлена информация о новом клиенте 10.66.66.3

Проверка сервера с CHR2

```
[admin@MikroTik] >  ping 10.66.66.1
  SEQ HOST                                     SIZE TTL TIME       STATUS
    0 10.66.66.1                                 56  64 1ms425us
    1 10.66.66.1                                 56  64 1ms549us
    2 10.66.66.1                                 56  64 1ms891us
    sent=3 received=3 packet-loss=0% min-rtt=1ms425us avg-rtt=1ms621us
    max-rtt=1ms891us

[admin@MikroTik] >  ping 10.66.66.1
  SEQ HOST                                     SIZE TTL TIME       STATUS
    0 10.66.66.1                                 56  64 971us
    1 10.66.66.1                                 56  64 1ms271us
    2 10.66.66.1                                 56  64 1ms316us
    3 10.66.66.1                                 56  64 1ms198us
    4 10.66.66.1                                 56  64 1ms796us
    5 10.66.66.1                                 56  64 1ms31us
    6 10.66.66.1                                 56  64 1ms900us
    7 10.66.66.1                                 56  64 1ms197us
    8 10.66.66.1                                 56  64 1ms38us
    9 10.66.66.1                                 56  64 1ms784us
   10 10.66.66.1                                 56  64 781us
    sent=11 received=11 packet-loss=0% min-rtt=781us avg-rtt=1ms298us
    max-rtt=1ms900us
```

Создан файл inventory.yaml, содержащий информацию об узлах для настройки

```
all:
  hosts:
    chr1:
      ansible_host: 10.66.66.2
      ansible_user: admin
      ansible_connection: ansible.netcommon.network_cli
      ansible_network_os: community.routeros.routeros
      ansible_ssh_private_key_file: ~/.ssh/id_rsa
    chr2:
       ansible_host: 10.66.66.3
       ansible_user: admin
       ansible_connection: ansible.netcommon.network_cli
       ansible_network_os: community.routeros.routeros
       ansible_ssh_private_key_file: ~/.ssh/id_rsa
```

Настройка устройств через Ansible плейбук

```yaml
- name: Configure CHR
  hosts: all
  become: yes
  tasks:
    - name: Set logpass
      community.routeros.command:
        commands:
          - /user set admin password="admin"

    - name: Configure NTP
      community.routeros.command:
        commands:
          - /system ntp client set enabled=yes mode=unicast
          - /system ntp client servers add address=194.190.168.1

    - name: Configure OSPF
      community.routeros.command:
        commands:
          - /interface bridge add name=loopback
          - /ip address add address={{ chr_id }} interface=loopback
          - /routing ospf instance add disabled=no name=default
          - /routing ospf instance set default router-id={{ chr_id }}
          - /routing ospf area add instance=default name=backbone
          - /routing ospf interface-template add area=backbone interfaces=ether1 type=ptp
      vars:
        chr_id: "{{ '1.1.1.1' if ansible_host == '10.66.66.2' else '2.2.2.2' }}"

    - name: Gather OSPF topology
      community.routeros.command:
        commands:
          - /routing ospf neighbor print detail
      register: ospf_topology

    - name: Print OSPF topology
      debug:
        var: ospf_topology.stdout_lines

    - name: Gather full config
      community.routeros.command:
        commands:
          - /export
      register: full_config

    - name: Print full config
      debug:
```

Set logpass, Configure NTP, Configure OSPF, Gather OSPF topology, Print OSPF topology, Gather full config, Print full config.

Результат работы плейбука

```
TASK [Set logpass] ********************************************************************************************************************************
changed: [chr1]
changed: [chr2]

TASK [Configure NTP] ******************************************************************************************************************************
changed: [chr1]
changed: [chr2]

TASK [Configure OSPF] *****************************************************************************************************************************
changed: [chr2]
changed: [chr1]

TASK [Gather OSPF topology] ***********************************************************************************************************************
changed: [chr2]
changed: [chr1]

TASK [Print OSPF topology] ************************************************************************************************************************
ok: [chr1] => {
    "ospf_topology.stdout_lines": [
        [
            "Flags: V - virtual; D - dynamic ",
            " 0  D instance=default area=backbone address=172.20.10.2 router-id=2.2.2.2 ",
            "      state=\"Full\" state-changes=6 adjacency=2m27s timeout=33s"
        ]
    ]
}
ok: [chr2] => {
    "ospf_topology.stdout_lines": [
        [
            "Flags: V - virtual; D - dynamic ",
            " 0  D instance=default area=backbone address=172.20.10.5 router-id=1.1.1.1 ",
            "      state=\"Full\" state-changes=5 adjacency=2m27s timeout=33s"
        ]
    ]
}

TASK [Gather full config] *************************************************************************************************************************
changed: [chr1]
changed: [chr2]

TASK [Print full config] **************************************************************************************************************************
ok: [chr1] => {
    "full_config.stdout_lines": [
        [
            "# 2024-10-18 17:40:47 by RouterOS 7.15.3",
            "# software id = ",
            "#",
            "/disk",
            "set slot1 media-interface=none media-sharing=no slot=slot1",
            "set slot2 media-interface=none media-sharing=no slot=slot2",
            "set slot3 media-interface=none media-sharing=no slot=slot3",
            "set slot4 media-interface=none media-sharing=no slot=slot4",
            "set slot5 media-interface=none media-sharing=no slot=slot5",
```

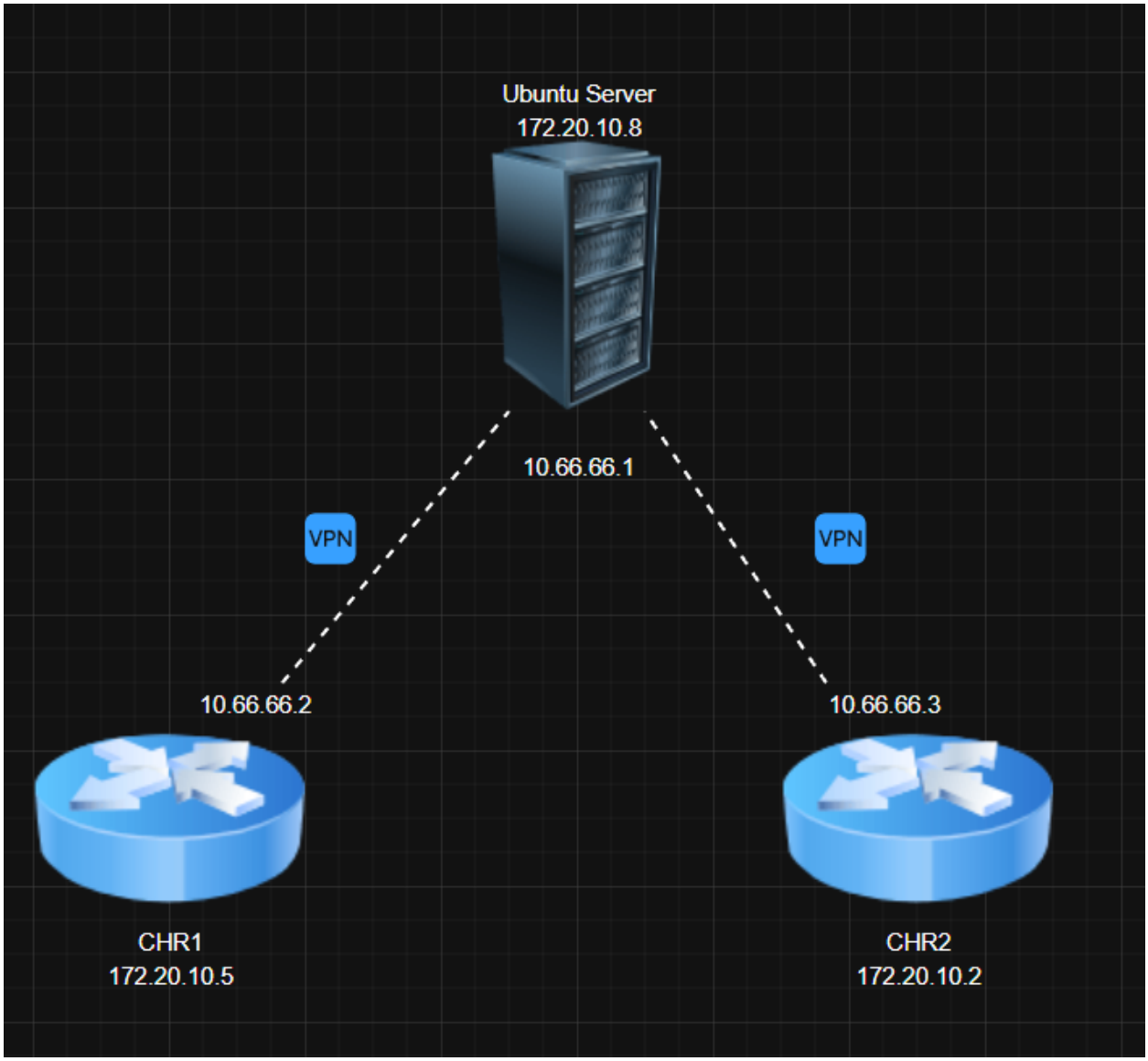
```
 [Print OSPF topology] ************************************************************
hr1] => {
spf_topology.stdout_lines": [
  [
      "Flags: V - virtual; D - dynamic ",
      " 0  D instance=default area=backbone address=172.20.10.2 router-id=2.2.2.2
      "      state=\"Full\" state-changes=6 adjacency=2m27s timeout=33s"
  ]


hr2] => {
spf_topology.stdout_lines": [
  [
      "Flags: V - virtual; D - dynamic ",
      " 0  D instance=default area=backbone address=172.20.10.5 router-id=1.1.1.1
      "      state=\"Full\" state-changes=5 adjacency=2m27s timeout=33s"
  ]
```

CHR1

```
TASK [Print full config] ********************************************************************************************
ok: [chr1] => {
    "full_config.stdout_lines": [
        [
            "# 2024-10-18 17:40:47 by RouterOS 7.15.3",
            "# software id = ",
            "#",
            "/disk",
            "set slot1 media-interface=none media-sharing=no slot=slot1",
            "set slot2 media-interface=none media-sharing=no slot=slot2",
            "set slot3 media-interface=none media-sharing=no slot=slot3",
            "set slot4 media-interface=none media-sharing=no slot=slot4",
            "set slot5 media-interface=none media-sharing=no slot=slot5",
            "set slot6 media-interface=none media-sharing=no slot=slot6",
            "set slot7 media-interface=none media-sharing=no slot=slot7",
            "set slot8 media-interface=none media-sharing=no slot=slot8",
            "set slot9 media-interface=none media-sharing=no slot=slot9",
            "/interface bridge",
            "add name=loopback",
            "/interface wireguard",
            "add listen-port=49734 mtu=1420 name=wg-client",
            "/routing ospf instance",
            "add disabled=no name=default router-id=1.1.1.1",
            "/routing ospf area",
            "add disabled=no instance=default name=backbone",
            "/interface wireguard peers",
            "add allowed-address=10.66.66.0/24 endpoint-address=172.20.10.8 endpoint-port=\\",
            "    49734 interface=wg-client name=peer1 public-key=\\",
            "    \"aWZIbC92ZFA5FEBr46op6vokBnkbQq5MVWT+s+H18kk=\"",
            "/ip address",
            "add address=10.66.66.2/24 interface=wg-client network=10.66.66.0",
            "add address=1.1.1.1 interface=loopback network=1.1.1.1",
            "/ip dhcp-client",
            "add interface=ether1",
            "/ip firewall filter",
            "add action=accept chain=input dst-port=49734 protocol=udp src-address=\\",
            "    172.20.10.5",
            "/ip route",
            "add disabled=no distance=1 dst-address=10.66.66.1/32 gateway=wg-client \\",
            "    routing-table=main scope=30 suppress-hw-offload=no target-scope=10",
            "/routing ospf interface-template",
            "add area=backbone disabled=no interfaces=ether1 type=ptp",
            "add area=backbone disabled=no interfaces=ether1 type=ptp",
            "/system note",
            "set show-at-login=no",
            "/system ntp client",
            "set enabled=yes",
            "/system ntp client servers",
            "add address=194.190.168.1"
        ]
```

CHR2


```
ok: [chr2] => {
    "full_config.stdout_lines": [
        [
            "# 2024-10-18 17:40:47 by RouterOS 7.16.1",
            "# software id = ",
            "#",
            "/interface bridge",
            "add name=loopback",
            "/interface wireguard",
            "add listen-port=49734 mtu=1420 name=wg-client",
            "/routing ospf instance",
            "add disabled=no name=default router-id=2.2.2.2",
            "/routing ospf area",
            "add disabled=no instance=default name=backbone",
            "/interface wireguard peers",
            "add allowed-address=10.66.66.0/24 endpoint-address=172.20.10.8 endpoint-port=\\",
            "    49734 interface=wg-client name=peer1 public-key=\\",
            "    \"aWZIbC92ZFA5FEBr46op6vokBnkbQq5MVWT+s+H18kk=\"",
            "/ip address",
            "add address=10.66.66.3/24 interface=wg-client network=10.66.66.0",
            "add address=2.2.2.2 interface=loopback network=2.2.2.2",
            "/ip dhcp-client",
            "add interface=ether1",
            "/ip route",
            "add disabled=no dst-address=10.66.66.1/32 gateway=wg-client routing-table=\\",
            "    main suppress-hw-offload=no",
            "/routing ospf interface-template",
            "add area=backbone disabled=no interfaces=ether1 type=ptp",
            "add area=backbone disabled=no interfaces=ether1 type=ptp",
            "/system note",
            "set show-at-login=no",
            "/system ntp client",
            "set enabled=yes",
            "/system ntp client servers",
            "add address=194.190.168.1"
        ]
    ]
}
```


Ubuntu Server
172.20.10.8
10.66.66.1
VPN
VPN
10.66.66.2
10.66.66.3
CHR1
172.20.10.5
CHR2
172.20.10.2