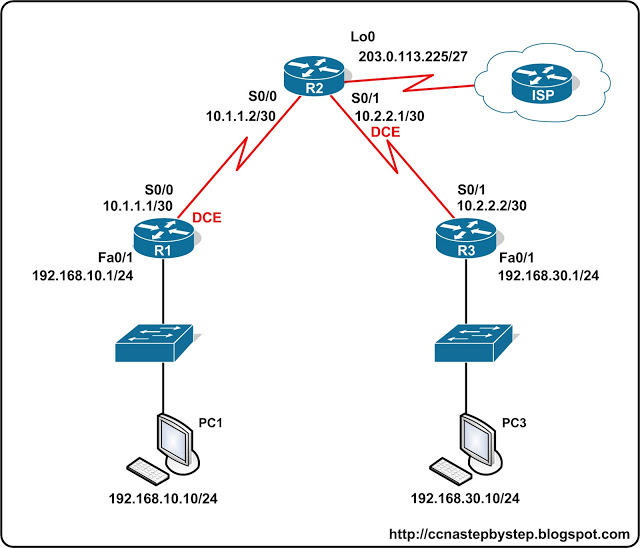
Практическая работа №1

по теме PPP.

Данная практическая работа может быть выполнена на реальном оборудовании  или в **Cisco Packet Tracer**.  Все необходимые действия указаны по порядку их выполнения. Для начала выполнения лабораторной работы необходимо соединить физическую сеть в соответствии со схемой сети или построить соответствующий проект в **Cisco Packet Tracer**.  Сразу после схемы сети в таблице указана схема адресация, которую нужно применять только тогда, когда это будет явно указано в тексте практической работы.

**Используемая топология**

[](http://2.bp.blogspot.com/-0xem3i39ppk/UX0xyc7WffI/AAAAAAAAAxk/uvujhT04vcw/s1600/10.+PPP+Lab+1+Basics.jpg)

**План адресации**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Device** | **Interface** | **IP Address** | **Subnet Mask** | **Default Gateway** |
| **R1** | **Fa0/1** | **192.168.10.1** | **255.255.255.0** | **N/A** |
| **S0/0** | **10.1.1.1** | **255.255.255.252** | **N/A** |
| **R2** | **Lo0** | **203.0.113.225** | **255.255.255.224** | **N/A** |
| **S0/0** | **10.1.1.2** | **255.255.255.252** | **N/A** |
| **S0/1** | **10.2.2.1** | **255.255.255.252** | **N/A** |
| **R3** | **Fa0/1** | **192.168.30.1** | **255.255.255.0** | **N/A** |
| **S0/1** | **10.2.2.2** | **255.255.255.252** | **N/A** |
| **PC1** | **NIC** | **192.168.10.10** | **255.255.255.0** | **192.168.10.1** |
| **PC3** | **NIC** | **192.168.30.10** | **255.255.255.0** | **192.168.30.1** |

**1. Базовая конфигурация оборудования**

         Настроить hostname на маршрутизаторах.

         Отключить DNS lookup.

         Установить пароль для  EXEC mode

         Настроить message-of-the-day banner.

         Установить пароль для console

**2. Настроить адресацию оборудования согласно плана**

         Настроить интерфейсы на **R1**, **R2** и **R3** согласно плана адресации.

         Проверить выполненные настройки командой **show ip interface brief**

**3. Настроить протокол динамической маршрутизации OSPF**

         Настроить  OSPF на на **R1**, **R2** и **R3**

**R1(config)#router ospf 1**

**R1(config-router)#network 192.168.10.0 0.0.0.255 area 0**

**R1(config-router)#network 10.1.1.0 0.0.0.3 area 0**

**\*Aug 17 17:49:14.689: %OSPF-5-ADJCHG: Process 1, Nbr 203.0.113.225 on**

**Serial0/0 from LOADING to FULL, Loading Done**

**R1(config-router)#**

**R2(config)#router ospf 1**

**R2(config-router)#network 10.1.1.0 0.0.0.3 area 0**

**\*Aug 17 17:48:40.645: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.10.1 on**

**Serial0/0 from LOADING to FULL, Loading Done**

**R2(config-router)#network 10.2.2.0 0.0.0.3 area 0**

**R2(config-router)#network 203.0.113.224 0.0.0.31 area 0**

**R2(config-router)#**

**\*Aug 17 17:57:44.729: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.30.1 on**

**Serial0/1 from LOADING to FULL, Loading Done**

**R2(config-router)#**

**R3(config)#router ospf 1**

**R3(config-router)#network 10.2.2.0 0.0.0.3 area 0**

**\*Aug 17 17:58:02.017: %OSPF-5-ADJCHG: Process 1, Nbr 203.0.113.225 on**

**Serial0/1 from LOADING to FULL, Loading Done**

**R3(config-router)#network 192.168.30.0 0.0.0.255 area 0**

**R3(config-router)#**

         Проверить  работоспособность сети, используя show ip route и ping

**R1#show ip route**

**-----------------------------пропущено----------------------------**

|  |  |
| --- | --- |
| **O**  **C**  **O**  **O**  **C** | **192.168.30.0/24 [110/1563] via 10.1.1.2, 00:33:56, Serial0/0**  **192.168.10.0/24 is directly connected, FastEthernet0/1**  **203.0.113.0/27 is subnetted, 1 subnets**  **203.0.113.225 [110/782] via 10.1.1.2, 00:33:56, Serial0/0**  **10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks**  **10.2.2.0/30 [110/1562] via 10.1.1.2, 00:33:56, Serial0/0**  **10.1.1.0/30 is directly connected, Serial0/0** |

**R1#ping 192.168.30.1**

**Type escape sequence to abort.**

**Sending 5, 100-byte ICMP Echos to 192.168.30.1, timeout is 2 seconds:**

**!!!!!**

**Success rate is 100 percent (5/5), round-trip min/avg/max = 32/32/32 ms**

**R2#show ip route**

**-----------------------------пропущено----------------------------**

|  |  |
| --- | --- |
| **O**  **C**  **O**  **O**  **C** | **192.168.30.0/24 [110/782] via 10.2.2.2, 00:33:04, Serial0/1**  **192.168.10.0/24 [110/782] via 10.1.1.1, 00:33:04, Serial0/0**  **203.0.113.0/27 is subnetted, 1 subnets**  **203.0.113.224 is directly connected, Loopback0**  **10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks**  **10.2.2.0/30 is directly connected, Serial0/1**  **10.1.1.0/30 is directly connected, Serial0/0/** |

**R2#ping 192.168.30.1**

**Type escape sequence to abort.**

**Sending 5, 100-byte ICMP Echos to 192.168.30.1, timeout is 2 seconds:**

**!!!!!**

**Success rate is 100 percent (5/5), round-trip min/avg/max = 16/16/16 ms**

**R2#ping 192.168.10.1**

**Type escape sequence to abort.**

**Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:**

**!!!!!**

**Success rate is 100 percent (5/5), round-trip min/avg/max = 16/16/16 ms**

**R3#show ip route**

**-----------------------------пропущено----------------------------**

|  |  |
| --- | --- |
| **O**  **C**  **O**  **O**  **C** | **192.168.30.0/24 is directly connected, FastEthernet0/1**  **192.168.10.0/24 [110/1563] via 10.2.2.1, 00:32:01, Serial0/1**  **203.0.113.0/27 is subnetted, 1 subnets**  **203.0.113.225 [110/782] via 10.2.2.1, 00:32:01, Serial0/1**  **10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks**  **10.2.2.0/30 is directly connected, Serial0/1**  **10.1.1.0/30 [110/1562] via 10.2.2.1, 00:32:01, Serial0/1** |

**R3#ping 203.0.113.225**

**Type escape sequence to abort.**

**Sending 5, 100-byte ICMP Echos to 203.0.113.225, timeout is 2**

**seconds:**

**!!!!!**

**Success rate is 100 percent (5/5), round-trip min/avg/max = 16/16/16 ms**

**R3#ping 192.168.10.1**

**Type escape sequence to abort.**

**Sending 5, 100-byte ICMP Echos to 192.168.10.1, timeout is 2 seconds:**

**!!!!!**

**Success rate is 100 percent (5/5), round-trip min/avg/max = 32/32/32 ms**

**4. Настроить PPP инкапсуляцию**

         Используя команду  **show interface** проверить текущее значение параметра **encapsulation** на serial-интерфейсах

**R1#show interface Serial0/0**

**Serial0/0 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.1.1.1/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation HDLC, loopback not set**

**-----------------------------пропущено----------------------------**

**R2#show interface serial 0/0**

**Serial0/0 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.1.1.2/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation HDLC, loopback not set**

**-----------------------------пропущено----------------------------**

**R2#show interface serial 0/1**

**Serial0/1 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.2.2.1/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation HDLC, loopback not set**

**-----------------------------пропущено----------------------------**

**R3#show interface serial 0/1**

**Serial0/1 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.2.2.2/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation HDLC, loopback not set**

**-----------------------------пропущено**----------------------------

         Используя  **debug** отслеживать на **R1** и **R2**  процесс конфигурирования **PPP**

**R1#debug ppp negotiation**

**PPP protocol negotiation debugging is on**

**R1#debug ppp packet**

**PPP packet display debugging is on**

**R2#debug ppp negotiation**

**PPP protocol negotiation debugging is on**

**R2#debug ppp packet**

**PPP packet display debugging is on**

         Установить **PPP** инкапсуляцию на serial-интерфейсах.

Изменить тип инкапсуляции на соединении между **R1** и **R2**.

**R1(config)#interface serial 0/0**

**R1(config-if)#encapsulation ppp**

**R1(config-if)#**

**\*Aug 17 19:02:53.412: %OSPF-5-ADJCHG: Process 1, Nbr 203.0.113.225 on**

**Serial0/0 from FULL to DOWN, Neighbor Down: Interface down or**

**detached**

**R1(config-if)#**

**\*Aug 17 19:02:53.416: Se0/0 PPP: Phase is DOWN, Setup**

**\*Aug 17 19:02:53.416: Se0/0 PPP: Using default call direction**

**\*Aug 17 19:02:53.416: Se0/0 PPP: Treating connection as a dedicated**

**line**

**\*Aug 17 19:02:53.416: Se0/0 PPP: Session handle[E4000001] Session**

**id[0]**

**\*Aug 17 19:02:53.416: Se0/0 PPP: Phase is ESTABLISHING, Active Open**

**\*Aug 17 19:02:53.424: Se0/0 LCP: O CONFREQ [Closed] id 1 len 10**

**\*Aug 17 19:02:53.424: Se0/0 LCP: MagicNumber 0x63B994DE**

**(0x050663B994DE)**

**R1(config-if)#**

**\*Aug 17 19:02:55.412: Se0/0 PPP: Outbound cdp packet dropped**

**\*Aug 17 19:02:55.432: Se0/0 LCP: TIMEout: State REQsent**

**\*Aug 17 19:02:55.432: Se0/0 LCP: O CONFREQ [REQsent] id 2 len 10**

**\*Aug 17 19:02:55.432: Se0/0 LCP: MagicNumber 0x63B994DE**

**(0x050663B994DE)**

**\*Aug 17 19:02:56.024: Se0/0 PPP: I pkt type 0x008F, datagramsize 24**

**link[illegal]**

**\*Aug 17 19:02:56.024: Se0/0 UNKNOWN(0x008F): Non-NCP packet,**

**discarding**

**R1(config-if)#**

**\*Aug 17 19:02:57.252: Se0/0 PPP: I pkt type 0x000F, datagramsize 84**

**link[illegal]**

**\*Aug 17 19:02:57.252: Se0/0 UNKNOWN(0x000F): Non-NCP packet,**

**discarding**

**\*Aug 17 19:02:57.448: Se0/0 LCP: TIMEout: State REQsent**

**\*Aug 17 19:02:57.448: Se0/0 LCP: O CONFREQ [REQsent] id 3 len 10**

**\*Aug 17 19:02:57.448: Se0/0 LCP: MagicNumber 0x63B994DE**

**(0x050663B994DE)**

**R1(config-if)#**

**\*Aug 17 19:02:58.412: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/0, changed state to down**

**R2(config)#interface serial 0/0**

**R2(config-if)#encapsulation ppp**

**R2(config-if)#**

**\*Aug 17 19:06:48.848: Se0/0 PPP: Phase is DOWN, Setup**

**\*Aug 17 19:06:48.848: Se0/0 PPP: Using default call direction**

**\*Aug 17 19:06:48.848: Se0/0 PPP: Treating connection as a dedicated**

**line**

**\*Aug 17 19:06:48.848: Se0/0 PPP: Session handle[C6000001] Session**

**id[0]**

**\*Aug 17 19:06:48.848: Se0/0 PPP: Phase is ESTABLISHING, Active Open**

**\*Aug 17 19:06:48.856: Se0/0 LCP: O CONFREQ [Closed] id 1 len 10**

**\*Aug 17 19:06:48.856: Se0/0 LCP: MagicNumber 0x63BD388C**

**(0x050663BD388C)**

**\*Aug 17 19:06:48.860: Se0/0 PPP: I pkt type 0xC021, datagramsize 14**

**link[ppp]**

**\*Aug 17 19:06:48.860: Se0/0 LCP: I CONFACK [REQsent] id 1 len 10**

**R2(config-if)#**

**\*Aug 17 19:06:48.860: Se0/0 LCP: MagicNumber 0x63BD388C**

**(0x050663BD388C)**

**R2(config-if)#**

**\*Aug 17 19:06:50.864: Se0/0 LCP: TIMEout: State ACKrcvd**

**\*Aug 17 19:06:50.864: Se0/0 LCP: O CONFREQ [ACKrcvd] id 2 len 10**

**\*Aug 17 19:06:50.864: Se0/0 LCP: MagicNumber 0x63BD388C**

**(0x050663BD388C)**

**\*Aug 17 19:06:50.868: Se0/0 PPP: I pkt type 0xC021, datagramsize 14**

**link[ppp]**

**\*Aug 17 19:06:50.868: Se0/0 LCP: I CONFREQ [REQsent] id 61 len 10**

**\*Aug 17 19:06:50.868: Se0/0 LCP: MagicNumber 0x63BDB9A8**

**(0x050663BDB9A8)**

**\*Aug 17 19:06:50.868: Se0/0 LCP: O CONFACK [REQsent] id 61 len 10**

**\*Aug 17 19:06:50.868: Se0/0 LCP: MagicNumber 0x63BDB9A8**

**(0x050663BDB9A8)**

**\*Aug 17 19:06:50.868: Se0/0 PPP: I pkt type 0xC021, datagramsize 14**

**link[ppp]**

**\*Aug 17 19:06:50.868: Se0/0 LCP: I CONFACK [ACKsent] id 2 len 10**

**\*Aug 17 19:06:50.868: Se0/0 LCP: MagicNumber 0x63BD388C**

**(0x050663BD388C)**

**\*Aug 17 19:06:50.868: Se0/0 LCP: State is Open**

**\*Aug 17 19:06:50.872: Se0/0 PPP: Phase is FORWARDING   , Attempting**

**Forward**

**\*Aug 17 19:06:50.872: Se0/0 PPP: Phase is ESTABLISHING    , Finish LCP**

**\*Aug 17 19:06:50.872: Se0/0 PPP: Phase is UP**

**\*Aug 17 19:06:50.872: Se0/0 IPCP: O CONFREQ [Closed] id 1 len 10**

**\*Aug 17 19:06:50.872: Se0/0 IPCP: Address 10.1.1.2**

**(0x03060A010102)**

**\*Aug 17 19:06:50.872: Se0/0 CDPCP: O CONFREQ [Closed] id 1 len 4**

**\*Aug 17 19:06:50.872: Se0/0 PPP: Process pending ncp packets**

**\*Aug 17 19:06:50.876: Se0/0 PPP: I pkt type 0x8021, datagramsize 14**

**link[ip]**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: I CONFREQ [REQsent] id 1 len 10**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: Address 10.1.1.1**

**(0x03060A010101)**

**\*Aug 17 19:06:50.876: Se0/0 PPP: I pkt type 0x8207, datagramsize 8**

**link[cdp]**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: O CONFACK [REQsent] id 1 len 10**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: Address 10.1.1.1**

**(0x03060A010101)**

**\*Aug 17 19:06:50.876: Se0/0 CDPCP: I CONFREQ [REQsent] id 1 len 4**

**\*Aug 17 19:06:50.876: Se0/0 CDPCP: O CONFACK [REQsent] id 1 len 4**

**\*Aug 17 19:06:50.876: Se0/0 PPP: I pkt type 0x8021, datagramsize 14**

**link[ip]**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: I CONFACK [ACKse**

**R2(config-if)#nt] id 1 len 10**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: Address 10.1.1.2**

**(0x03060A010102)**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: State is Open**

**\*Aug 17 19:06:50.876: Se0/0 PPP: I pkt type 0x8207, datagramsize 8**

**link[cdp]**

**\*Aug 17 19:06:50.876: Se0/0 IPCP: Install route to 10.1.1.1**

**\*Aug 17 19:06:50.880: Se0/0 CDPCP: I CONFACK [ACKsent] id 1 len 4**

**\*Aug 17 19:06:50.880: Se0/0 CDPCP: State is Open**

**\*Aug 17 19:06:50.880: Se0/0 PPP: O pkt type 0x0021, datagramsize 80**

**\*Aug 17 19:06:50.880: Se0/0 IPCP: Add link info for cef entry**

**10.1.1.1**

**\*Aug 17 19:06:50.884: Se0/0 PPP: I pkt type 0x0021, datagramsize 80**

**link[ip]**

**\*Aug 17 19:06:51.848: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/0, changed state to up**

**R2(config-if)#**

**\*Aug 17 19:06:51.888: Se0/0 LCP-FS: I ECHOREQ [Open] id 1 len 12**

**magic 0x63BDB9A8**

**\*Aug 17 19:06:51.888: Se0/0 LCP-FS: O ECHOREP [Open] id 1 len 12**

**magic 0x63BD388C**

**-----------------------------пропущено----------------------------**

**\*Aug 17 19:07:00.936: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.10.1 on**

**Serial0/0 from LOADING to FULL, Loading Done**

Отключить  **debug**

**R1#undebug all**

**Port Statistics for unclassified packets is not turned on.**

**All possible debugging has been turned off**

**R1#**

**R2#undebug all**

**Port Statistics for unclassified packets is not turned on.**

**All possible debugging has been turned off**

**R2#**

Изменить тип инкапсуляции на соединении между **R2** и **R3**

**R2(config)#interface Serial0/1**

**R2(config-if)#encapsulation ppp**

**R2(config-if)#**

**\*Aug 17 20:02:08.080: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.30.1 on**

**Serial0/1 from FULL to DOWN, Neighbor Down: Interface down or**

**detached**

**R2(config-if)#**

**\*Aug 17 20:02:13.080: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/1, changed state to down**

**R2(config-if)#**

**\*Aug 17 20:02:58.564: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/1, changed state to up**

**R2(config-if)#**

**\*Aug 17 20:03:03.644: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.30.1 on**

**Serial0/1 from LOADING to FULL, Loading Done**

**R2(config-if)#**

**\*Aug 17 20:03:46.988: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/1, changed state to down**

**R3(config)#interface serial 0/1**

**R3(config-if)#encapsulation ppp**

**R3(config-if)#**

**\*Aug 17 20:04:27.152: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/1, changed state to up**

**\*Aug 17 20:04:30.952: %OSPF-5-ADJCHG: Process 1, Nbr 203.0.113.225 on**

**Serial0/1 from LOADING to FULL, Loading Done**

         Проверить полученную конфигурацию

**R1#show interface Serial0/0**

**Serial0/0 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.1.1.1/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation PPP, LCP Open**

**Open: CDPCP, IPCP, loopback not set**

**-----------------------------пропущено----------------------------**

**R2#show interface serial 0/0**

**Serial0/0 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.1.1.2/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation PPP, LCP Open**

**Open: CDPCP, IPCP, loopback not set**

**-----------------------------пропущено----------------------------**

**R2#show interface serial 0/1**

**Serial0/1 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.2.2.1/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation PPP, LCP Open**

**Open: CDPCP, IPCP, loopback not set**

**-----------------------------пропущено----------------------------**

**R3#show interface serial 0/1**

**Serial0/1 is up, line protocol is up**

**Hardware is GT96K Serial**

**Internet address is 10.2.2.2/30**

**MTU 1500 bytes, BW 128 Kbit, DLY 20000 usec,**

**reliability 255/255, txload 1/255, rxload 1/255**

**Encapsulation PPP, LCP Open**

**Open: CDPCP, IPCP, loopback not set**

**-----------------------------пропущено----------------------------**

**5. Настроить PPP Authentication**

         Настроить  **PPP PAP authentication** на соединении между **R1** и **R2**.

**R1(config)#username R1 password cisco**

**R1(config)#int S0/0**

**R1(config-if)#ppp authentication pap**

**R1(config-if)#**

**\*Aug 22 18:58:57.367: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/0, changed state to down**

**R1(config-if)#**

**\*Aug 22 18:58:58.423: %OSPF-5-ADJCHG: Process 1, Nbr 203.0.113.225 on**

**Serial0/0 from FULL to DOWN, Neighbor Down: Interface down or**

**detached**

**R1(config-if)#ppp pap sent-username R2 password cisco**

**R2(config)#username R2 password cisco**

**R2(config)#interface Serial0/0**

**R2(config-if)#ppp authentication pap**

**R2(config-if)#ppp pap sent-username R1 password cisco**

**R2(config-if)#**

**\*Aug 23 16:30:33.771: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/0, changed state to up**

**R2(config-if)#**

**\*Aug 23 16:30:40.815: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.10.1 on**

**Serial0/0 from LOADING to FULL , Loading Done**

**R2(config-if)#**

          Настроить  **PPP CHAP authentication** на соединении между **R2** и **R3**.

**R2(config)#username R3 password cisco**

**R2(config)#int S0/1**

**R2(config-if)#ppp authentication chap**

**R2(config-if)#**

**\*Aug 23 18:06:00.935: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/1, changed state to down**

**R2(config-if)#**

**\*Aug 23 18:06:01.947: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.30.1 on**

**Serial0/1 from FULL to DOWN, Neighbor Down: Interface down or**

**detached**

**R2(config-if)#**

**R3(config)#username R2 password cisco**

**\*Aug 23 18:07:13.074: %LINEPROTO-5-UPDOWN: Line protocol on Interface**

**Serial0/1, changed state to up**

**R3(config)#int S0/1**

**R3(config-if)#**

**\*Aug 23 18:07:22.174: %OSPF-5-ADJCHG: Process 1, Nbr 203.0.113.225 on**

**Serial0/1 from LOADING to FULL, Loading Done**

**R3(config-if)#ppp authentication chap**

**R3(config-if)#**