ФГАОУ ВО «Севастопольский государственный университет»

Институт информационных технологий   
и управления в технических системах

ОТЧЁТ  
ПО ЛАБОРАТОРНОЙ РАБОТЕ №1

«Исследование возможностей, предоставленных IOS, по настройке интерфейсов маршрутизаторов»

по дисциплине «Сети передачи данных в территориально-распределенных информационных системах»

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# ЦЕЛЬ РАБОТЫ

Изучить команды IOS, позволяющие выполнять настройку IP-адресов и протоколов канального уровня интерфейсов маршрутизаторов.

# Задание на работу

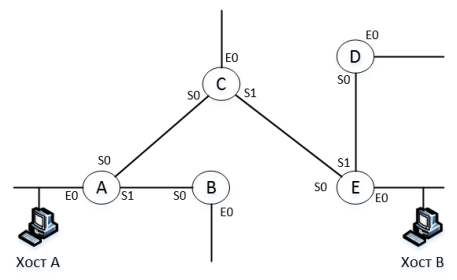
Осуществить настройку объединенной сети, определяя IP-адреса соответствующих интерфейсов маршрутизаторов.

Для этого первоначально сформировать схему IP-адресации, при учете, что в каждой локальной сети необходимо выделить порядка 250 адресов, а для соединения маршрутизаторов необходимо использовать всего 2 адреса. Необходимо просмотреть стартовую конфигурацию каждого из маршрутизаторов, выполняя переход между ними, используя средства эмулятора работы IOS.

Выполнить настройку интерфейсов маршрутизаторов А, В, С, D, E в режиме ручного конфигурирования. В качестве протоколов канального уровня задать протокол РРР. Просмотреть рабочую конфигурацию каждого из маршрутизаторов и сохранить ее в качестве начальной для последующей загрузки.

Просмотреть свойства интерфейсов маршрутизаторов.

Суммарный адрес сети: 192.168.0.0/16. Вариант 1.



# Ход работы

Просмотрена стартовая конфигурация каждого из маршрутизаторов:

RouterA#show startup-config

startup-config is not present

RouterB#show startup-config

startup-config is not present

RouterC#show startup-config

startup-config is not present

RouterD#show startup-config

startup-config is not present

RouterE#show startup-config

startup-config is not present

Стартовая конфигурация всех маршрутизаторов не определена.

Выполнена настройка интерфейсов маршрутизаторов.

Маршрутизатор A:

RouterA(config)#interface Serial2/0

RouterA(config-if)#description LAN

RouterA(config-if)#IP address 192.168.10.1 255.255.255.252

RouterA(config-if)#encapsulation ppp

RouterA(config-if)#no shutdown

RouterA(config)#interface Serial3/0

RouterA(config-if)#description LAN

RouterA(config-if)#IP address 192.168.11.1 255.255.255.252

RouterA(config-if)#encapsulation ppp

RouterA(config-if)#no shutdown

RouterA(config)#interface FastEthernet0/0

RouterA(config-if)#description LAN

RouterA(config-if)#IP address 192.168.1.1 255.255.255.0

RouterA(config-if)#no shutdown

Маршрутизатор B:

RouterB(config)#interface Serial2/0

RouterB(config-if)#description LAN

RouterB(config-if)#IP address 192.168.11.2 255.255.255.252

RouterB(config-if)#encapsulation ppp

RouterB(config-if)#no shutdown

RouterB(config)#interface FastEthernet0/0

RouterB(config-if)#description LAN

RouterB(config-if)#IP address 192.168.2.1 255.255.255.0

RouterB(config-if)#no shutdown

Маршрутизатор C:

RouterC(config)#interface Serial2/0

RouterC(config-if)#description LAN

RouterC(config-if)#IP address 192.168.10.2 255.255.255.252

RouterC(config-if)#encapsulation ppp

RouterC(config-if)#no shutdown

RouterC(config)#interface Serial3/0

RouterC(config-if)#description LAN

RouterC(config-if)#IP address 192.168.12.1 255.255.255.252

RouterC(config-if)#encapsulation ppp

RouterC(config-if)#no shutdown

RouterC(config)#interface FastEthernet0/0

RouterC(config-if)#description LAN

RouterC(config-if)#IP address 192.168.3.1 255.255.255.0

RouterC(config-if)#no shutdown

Маршрутизатор D:

RouterD(config)#interface Serial2/0

RouterD(config-if)#description LAN

RouterD(config-if)#IP address 192.168.13.2 255.255.255.252

RouterD(config-if)#encapsulation ppp

RouterD(config-if)#no shutdown

RouterD(config)#interface FastEthernet0/0

RouterD(config-if)#description LAN

RouterD(config-if)#IP address 192.168.5.1 255.255.255.0

RouterD(config-if)#no shutdown

Маршрутизатор E:

RouterE(config)#interface Serial2/0

RouterE(config-if)#description LAN

RouterE(config-if)#IP address 192.168.12.2 255.255.255.252

RouterE(config-if)#encapsulation ppp

RouterE(config-if)#no shutdown

RouterE(config)#interface Serial3/0

RouterE(config-if)#description LAN

RouterE(config-if)#IP address 192.168.13.1 255.255.255.252

RouterE(config-if)#encapsulation ppp

RouterE(config-if)#no shutdown

RouterE(config)#interface FastEthernet0/0

RouterE(config-if)#description LAN

RouterE(config-if)#IP address 192.168.4.1 255.255.255.0

RouterE(config-if)#no shutdown

Просмотрена рабочая конфигурация каждого из маршрутизаторов и сохранена в качестве начальной для последующей загрузки.

Маршрутизатор A:

RouterA#show running-config

Building configuration...

Current configuration : 857 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname RouterA

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

!

!

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!

!

!

!

!

!

!

!

interface FastEthernet0/0

description LAN

ip address 192.168.1.1 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet1/0

no ip address

duplex auto

speed auto

shutdown

!

interface Serial2/0

description LAN

ip address 192.168.10.1 255.255.255.252

encapsulation ppp

clock rate 2000000

!

interface Serial3/0

description LAN

ip address 192.168.11.1 255.255.255.252

encapsulation ppp

clock rate 2000000

!

interface FastEthernet4/0

no ip address

shutdown

!

interface FastEthernet5/0

no ip address

shutdown

!

router rip

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

!

line aux 0

!

line vty 0 4

login

!

!

!

end

RouterA#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Маршрутизатор B:

RouterB#show running-config

Building configuration...

Current configuration : 785 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname RouterB

!

!

!

!

!

!

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!

ip cef

no ipv6 cef

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!

!

!

interface FastEthernet0/0

description LAN

ip address 192.168.2.1 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet1/0

no ip address

duplex auto

speed auto

shutdown

!

interface Serial2/0

description LAN

ip address 192.168.11.2 255.255.255.252

encapsulation ppp

!

interface Serial3/0

no ip address

clock rate 2000000

shutdown

!

interface FastEthernet4/0

no ip address

shutdown

!

interface FastEthernet5/0

no ip address

shutdown

!

router rip

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

!

line aux 0

!

line vty 0 4

login

!

!

!

end

RouterB#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Маршрутизатор C:

RouterC#show running-config

Building configuration...

Current configuration : 824 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname RouterC

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

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!

!

!

interface FastEthernet0/0

description LAN

ip address 192.168.3.1 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet1/0

no ip address

duplex auto

speed auto

shutdown

!

interface Serial2/0

description LAN

ip address 192.168.10.2 255.255.255.252

encapsulation ppp

!

interface Serial3/0

description LAN

ip address 192.168.12.1 255.255.255.252

encapsulation ppp

clock rate 2000000

!

interface FastEthernet4/0

no ip address

shutdown

!

interface FastEthernet5/0

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

!

line aux 0

!

line vty 0 4

login

!

!

!

end

RouterC#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Маршрутизатор D:

RouterD#show running-config

Building configuration...

Current configuration : 772 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname RouterD

!

!

!

!

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!

ip cef

no ipv6 cef

!

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!

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!

!

!

!

interface FastEthernet0/0

description LAN

ip address 192.168.5.1 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet1/0

no ip address

duplex auto

speed auto

shutdown

!

interface Serial2/0

description LAN

ip address 192.168.13.2 255.255.255.252

encapsulation ppp

!

interface Serial3/0

no ip address

clock rate 2000000

shutdown

!

interface FastEthernet4/0

no ip address

shutdown

!

interface FastEthernet5/0

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

!

line aux 0

!

line vty 0 4

login

!

!

!

end

RouterD#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Маршрутизатор E:

RouterE#show running-config

Building configuration...

Current configuration : 824 bytes

!

version 12.2

no service timestamps log datetime msec

no service timestamps debug datetime msec

no service password-encryption

!

hostname RouterE

!

!

!

!

!

!

!

!

ip cef

no ipv6 cef

!

!

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!

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!

!

interface FastEthernet0/0

description LAN

ip address 192.168.4.1 255.255.255.0

duplex auto

speed auto

!

interface FastEthernet1/0

no ip address

duplex auto

speed auto

shutdown

!

interface Serial2/0

description LAN

ip address 192.168.12.2 255.255.255.252

encapsulation ppp

!

interface Serial3/0

description LAN

ip address 192.168.13.1 255.255.255.252

encapsulation ppp

clock rate 2000000

!

interface FastEthernet4/0

no ip address

shutdown

!

interface FastEthernet5/0

no ip address

shutdown

!

ip classless

!

ip flow-export version 9

!

!

!

!

!

!

!

!

line con 0

!

line aux 0

!

line vty 0 4

login

!

!

!

end

RouterE#copy running-config startup-config

Destination filename [startup-config]?

Building configuration...

[OK]

Просмотрены свойства интерфейсов маршрутизаторов.

Маршрутизатор A:

RouterA#show interface Serial2/0

Serial2/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.10.1/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 3 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterA#show interface Serial3/0

Serial3/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.11.1/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 3 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterA#show interface FastEthernet0/0

FastEthernet0/0 is up, line protocol is up (connected)

Hardware is Lance, address is 0004.9a20.927e (bia 0004.9a20.927e)

Description: LAN

Internet address is 192.168.1.1/24

MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,

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

Encapsulation ARPA, loopback not set

Full-duplex, 100Mb/s, media type is RJ45

ARP type: ARPA, ARP Timeout 04:00:00,

Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: fifo

Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 input packets with dribble condition detected

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 3 interface resets

0 babbles, 0 late collision, 0 deferred

0 lost carrier, 0 no carrier

0 output buffer failures, 0 output buffers swapped out

Маршрутизатор B:

RouterB#show interface Serial2/0

Serial2/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.11.2/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 2 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterB#show interface FastEthernet0/0

FastEthernet0/0 is up, line protocol is down (disabled)

Hardware is Lance, address is 0002.16be.9e40 (bia 0002.16be.9e40)

Description: LAN

Internet address is 192.168.2.1/24

MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,

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

Encapsulation ARPA, loopback not set

Full-duplex, 100Mb/s, media type is RJ45

ARP type: ARPA, ARP Timeout 04:00:00,

Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: fifo

Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 input packets with dribble condition detected

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 2 interface resets

0 babbles, 0 late collision, 0 deferred

0 lost carrier, 0 no carrier

0 output buffer failures, 0 output buffers swapped out

Маршрутизатор C:

RouterC#show interface Serial2/0

Serial2/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.10.2/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 1 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterC#show interface Serial3/0

Serial3/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.12.1/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 2 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterC#show interface FastEthernet0/0

FastEthernet0/0 is up, line protocol is down (disabled)

Hardware is Lance, address is 0002.4ae8.0c37 (bia 0002.4ae8.0c37)

Description: LAN

Internet address is 192.168.3.1/24

MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,

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

Encapsulation ARPA, loopback not set

Full-duplex, 100Mb/s, media type is RJ45

ARP type: ARPA, ARP Timeout 04:00:00,

Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: fifo

Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 input packets with dribble condition detected

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 2 interface resets

0 babbles, 0 late collision, 0 deferred

0 lost carrier, 0 no carrier

0 output buffer failures, 0 output buffers swapped out

Маршрутизатор D:

RouterD#show interface Serial2/0

Serial2/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.13.2/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 1 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterD#show interface FastEthernet0/0

FastEthernet0/0 is up, line protocol is down (disabled)

Hardware is Lance, address is 0000.0ca2.3d45 (bia 0000.0ca2.3d45)

Description: LAN

Internet address is 192.168.5.1/24

MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,

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

Encapsulation ARPA, loopback not set

Full-duplex, 100Mb/s, media type is RJ45

ARP type: ARPA, ARP Timeout 04:00:00,

Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: fifo

Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 input packets with dribble condition detected

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 1 interface resets

0 babbles, 0 late collision, 0 deferred

0 lost carrier, 0 no carrier

0 output buffer failures, 0 output buffers swapped out

Маршрутизатор E:

RouterE#show interface Serial2/0

Serial2/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.12.2/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 1 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterE#show interface Serial3/0

Serial3/0 is up, line protocol is up (connected)

Hardware is HD64570

Description: LAN

Internet address is 192.168.13.1/30

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

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

Encapsulation PPP, loopback not set, keepalive set (10 sec)

LCP Open

Open: IPCP, CDPCP

Last input never, output never, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: weighted fair

Output queue: 0/1000/64/0 (size/max total/threshold/drops)

Conversations 0/0/256 (active/max active/max total)

Reserved Conversations 0/0 (allocated/max allocated)

Available Bandwidth 96 kilobits/sec

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

3 packets input, 156 bytes, 0 no buffer

Received 3 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 1 interface resets

0 output buffer failures, 0 output buffers swapped out

0 carrier transitions

DCD=up DSR=up DTR=up RTS=up CTS=up

RouterE#show interface FastEthernet0/0

FastEthernet0/0 is up, line protocol is up (connected)

Hardware is Lance, address is 00d0.d3c8.316a (bia 00d0.d3c8.316a)

Description: LAN

Internet address is 192.168.4.1/24

MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,

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

Encapsulation ARPA, loopback not set

Full-duplex, 100Mb/s, media type is RJ45

ARP type: ARPA, ARP Timeout 04:00:00,

Last input 00:00:08, output 00:00:05, output hang never

Last clearing of "show interface" counters never

Input queue: 0/75/0 (size/max/drops); Total output drops: 0

Queueing strategy: fifo

Output queue :0/40 (size/max)

5 minute input rate 0 bits/sec, 0 packets/sec

5 minute output rate 0 bits/sec, 0 packets/sec

0 packets input, 0 bytes, 0 no buffer

Received 0 broadcasts, 0 runts, 0 giants, 0 throttles

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort

0 input packets with dribble condition detected

0 packets output, 0 bytes, 0 underruns

0 output errors, 0 collisions, 2 interface resets

0 babbles, 0 late collision, 0 deferred

0 lost carrier, 0 no carrier

0 output buffer failures, 0 output buffers swapped out

# Вывод

Выполняя эту работу, я изучила команды IOS, позволяющие выполнять настройку IP-адресов и протоколов канального уровня интерфейсов маршрутизаторов.