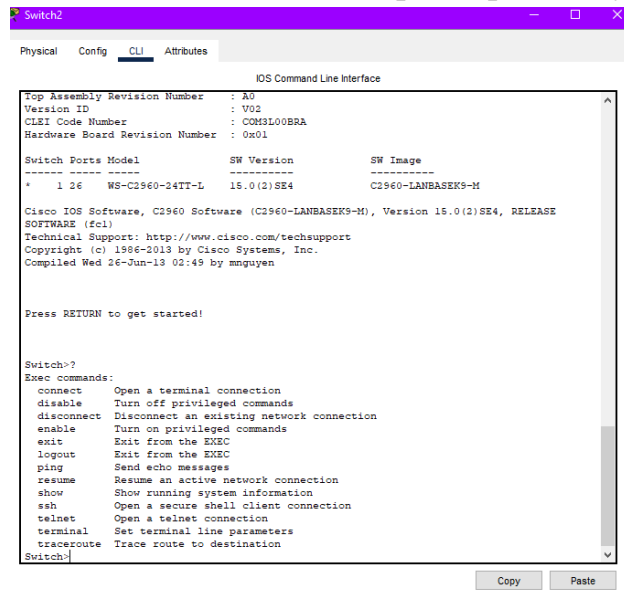


Практическая работа 3 – Применение сетевого коммутатора (switch)

1. Команда “?”

Что делает: Показывает список доступных команд и опций в текущем режиме.

Зачем нужна: Помогает пользователю узнать, какие команды можно использовать и какие параметры доступны.



```
Switch2
Physical Config CLI Attributes
IOS Command Line Interface

Top Assembly Revision Number : A0
Version ID : V02
CLEI Code Number : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version        SW Image
-----
*  1 26 WS-C2960-24TT-L    15.0(2)SE4       C2960-LANBASEK9-M

Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE
SOFTWARE (fcl)
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Press RETURN to get started!

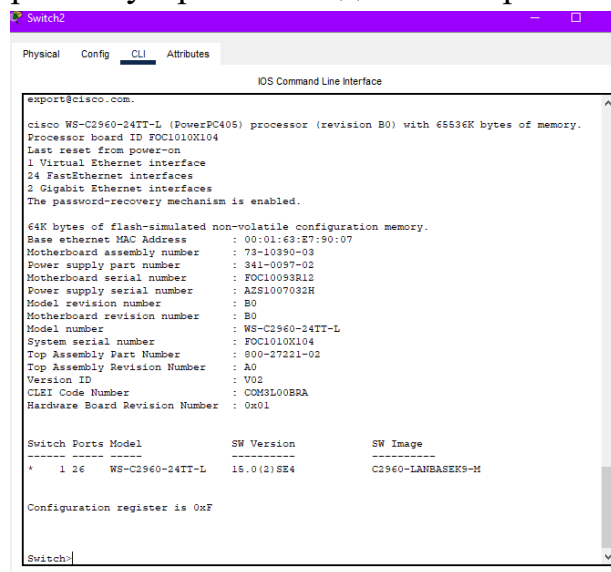
Switch?
Exec commands:
connect    Open a terminal connection
disable   Turn off privileged commands
disconnect Disconnect an existing network connection
enable     Turn on privileged commands
exit       Exit from the EXEC
logout     Exit from the EXEC
ping       Send echo messages
resume     Resume an active network connection
show       Show running system information
ssh        Open a secure shell client connection
telnet     Open a telnet connection
terminal   Set terminal line parameters
traceroute Trace route to destination

Switch>
```

2. Команда “show <Параметр>”

Что делает: Отображает информацию о состоянии устройства или его конфигурации.

Зачем нужна: Позволяет администратору получать информацию о работе устройства и диагностировать проблемы



```
Switch2
Physical Config CLI Attributes
IOS Command Line Interface

export@cisco.com:
cisco WS-C2960-24TT-L (PowerPC405) processor (revision B0) with 65536K bytes of memory.
Processor board ID FOC1010X104
Last reset from power-on
1 Virtual Ethernet interface
24 FastEthernet interfaces
2 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address      : 00:01:63:E7:90:07
Motherboard assembly number    : 73-10390-03
Power supply part number      : 341-0097-02
Motherboard serial number     : FOC10093R12
Power supply serial number    : A2S1007032H
Model revision number         : B0
Motherboard revision number   : B0
Model number                  : WS-C2960-24TT-L
System serial number          : FOC1010X104
Top Assembly Part Number      : 800-27221-02
Top Assembly Revision Number  : A0
Version ID                    : V02
CLEI Code Number              : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version        SW Image
-----
*  1 26 WS-C2960-24TT-L    15.0(2)SE4       C2960-LANBASEK9-M

Configuration register is 0xF

Switch>
```

3. Команда “enable / en”

Что делает: Переходит в режим привилегий, который позволяет выполнять более сложные операции

Зачем нужна: Необходим для выполнения команд, требующих повышенных прав, таких как конфигурация устройства.



```
cisco WS-C2960-24TT-L (PowerPC405) processor (revision B0) with 65536K bytes of memory.
Processor board ID FOC1010X104
Last reset from power-on
1 Virtual Ethernet interface
24 FastEthernet interfaces
2 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address      : 00:01:63:E7:90:07
Motherboard assembly number    : 73-10390-03
Power supply part number       : 341-0097-02
Motherboard serial number      : FOC10093R12
Power supply serial number     : A2S1007032H
Model revision number          : B0
Motherboard revision number    : B0
Model number                   : WS-C2960-24TT-L
System serial number           : FOC1010X104
Top Assembly Part Number       : 800-27221-02
Top Assembly Revision Number   : A0
Version ID                     : V02
CLEI Code Number               : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version  SW Image
-----
*   1 26   WS-C2960-24TT-L  15.0(2)SE4  C2960-LANBASEK9-M

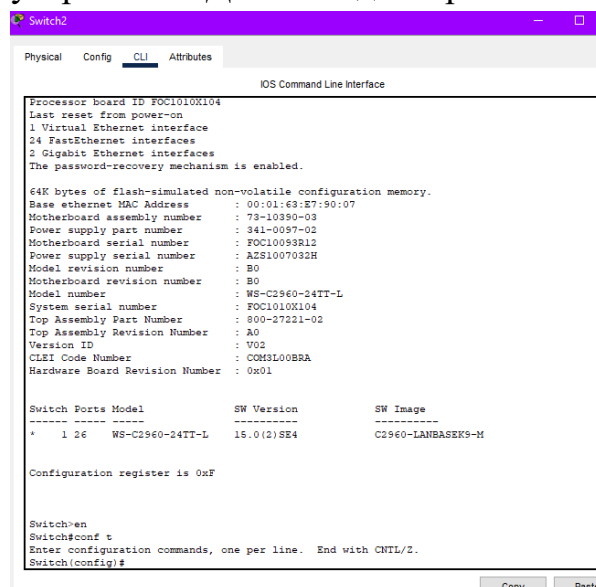
Configuration register is 0xF

Switch>
Switch#
```

4. Команда “configure terminal / conf t”

Что делает: Переходит в режим глобальной конфигурации

Зачем нужна: Позволяет администратору настраивать параметры устройства. Для выхода из режима используется команда exit.



```
Processor board ID FOC1010X104
Last reset from power-on
1 Virtual Ethernet interface
24 FastEthernet interfaces
2 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address      : 00:01:63:E7:90:07
Motherboard assembly number    : 73-10390-03
Power supply part number       : 341-0097-02
Motherboard serial number      : FOC10093R12
Power supply serial number     : A2S1007032H
Model revision number          : B0
Motherboard revision number    : B0
Model number                   : WS-C2960-24TT-L
System serial number           : FOC1010X104
Top Assembly Part Number       : 800-27221-02
Top Assembly Revision Number   : A0
Version ID                     : V02
CLEI Code Number               : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version  SW Image
-----
*   1 26   WS-C2960-24TT-L  15.0(2)SE4  C2960-LANBASEK9-M

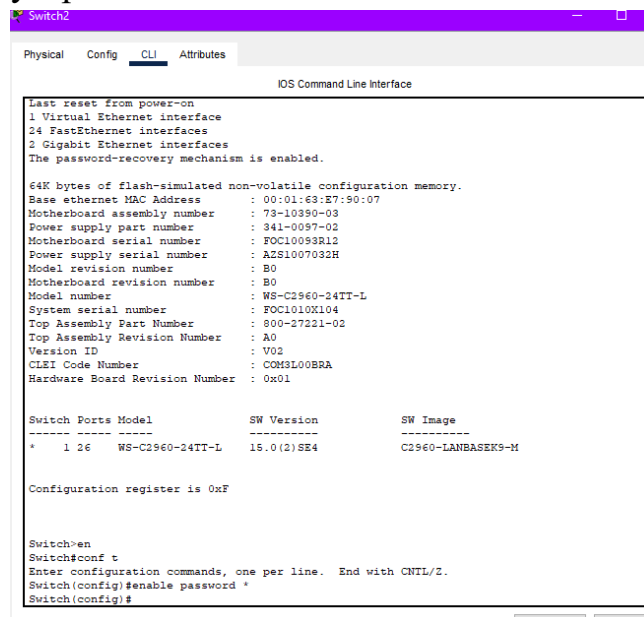
Configuration register is 0xF

Switch>
Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#
```

5. Команда “*enable password **”

Что делает: Устанавливает пароль для доступа в режим привилегий

Зачем нужна: Защищает доступ к важным командам и настройкам устройства.



```
Switch2
Physical Config CLI Attributes
IOS Command Line Interface

Last reset from power-on
1 Virtual Ethernet interface
24 FastEthernet interfaces
2 Gigabit Ethernet interfaces
The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address      : 00:01:63:E7:90:07
Motherboard assembly number    : 73-10390-03
Power supply part number      : 341-0097-02
Motherboard serial number     : FOC10093R12
Power supply serial number     : AZS1007032H
Model revision number         : B0
Motherboard revision number   : B0
Model number                  : WS-C2960-24TT-L
System serial number          : FOC1010X104
Top Assembly Part Number      : 800-27221-02
Top Assembly Revision Number  : A0
Version ID                   : V02
CLEI Code Number              : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version  SW Image
-----
*  1 26  WS-C2960-24TT-L  15.0(2)SE4  C2960-LANBASEK9-M

Configuration register is 0xF

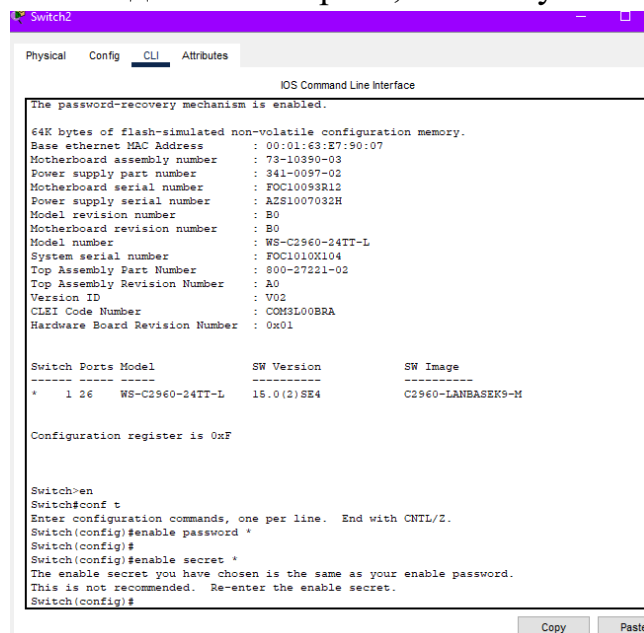
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#enable password *
Switch(config)#
```

6. Команда “*enable secret **”

Что делает: Устанавливает зашифрованный пароль для доступа в режим привилегий

Зачем нужна: Предоставляет более высокий уровень безопасности, чем *enable password*, так как пароль хранится в зашифрованном виде.

Если заданы оба пароля, используется только *enable secret*.



```
Switch2
Physical Config CLI Attributes
IOS Command Line Interface

The password-recovery mechanism is enabled.

64K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address      : 00:01:63:E7:90:07
Motherboard assembly number    : 73-10390-03
Power supply part number      : 341-0097-02
Motherboard serial number     : FOC10093R12
Power supply serial number     : AZS1007032H
Model revision number         : B0
Motherboard revision number   : B0
Model number                  : WS-C2960-24TT-L
System serial number          : FOC1010X104
Top Assembly Part Number      : 800-27221-02
Top Assembly Revision Number  : A0
Version ID                   : V02
CLEI Code Number              : COM3L00BRA
Hardware Board Revision Number : 0x01

Switch Ports Model          SW Version  SW Image
-----
*  1 26  WS-C2960-24TT-L  15.0(2)SE4  C2960-LANBASEK9-M

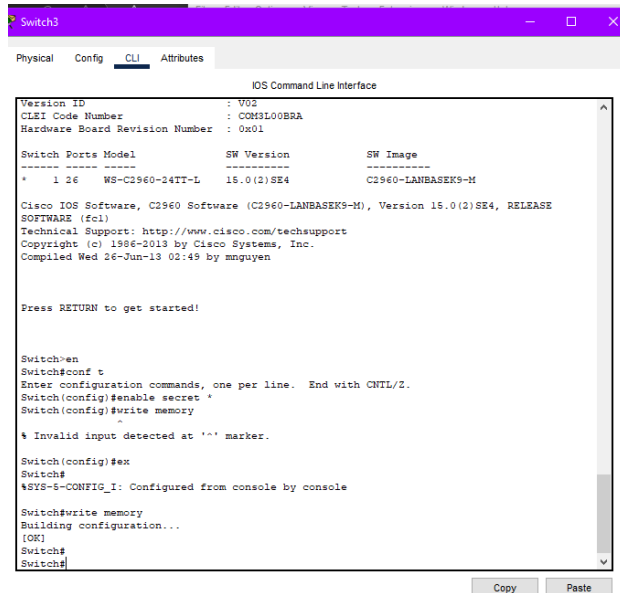
Configuration register is 0xF

Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#enable password *
Switch(config)#enable secret *
The enable secret you have chosen is the same as your enable password.
This is not recommended. Re-enter the enable secret.
Switch(config)#
```

7. Команда “write memory”

Что делает: Сохраняет текущую конфигурацию в память устройства

Зачем нужна: Обеспечивает сохранение изменений конфигураций, чтобы они не были потеряны после перезагрузки



```
Switch3
Physical Config CLI Attributes
IOS Command Line Interface
Version ID : V02
CLEI Code Number : COM3L00BRA
Hardware Board Revision Number : 0x01
Switch Ports Model SW Version SW Image
-----
* 1 26 WS-C2960-24TT-L 15.0(2)SE4 C2960-LANBASEK9-M
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE
SOFTWARE (fc1)
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Press RETURN to get started!

Switch>en
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#enable secret *
Switch(config)#write memory
^
% Invalid input detected at '^' marker.

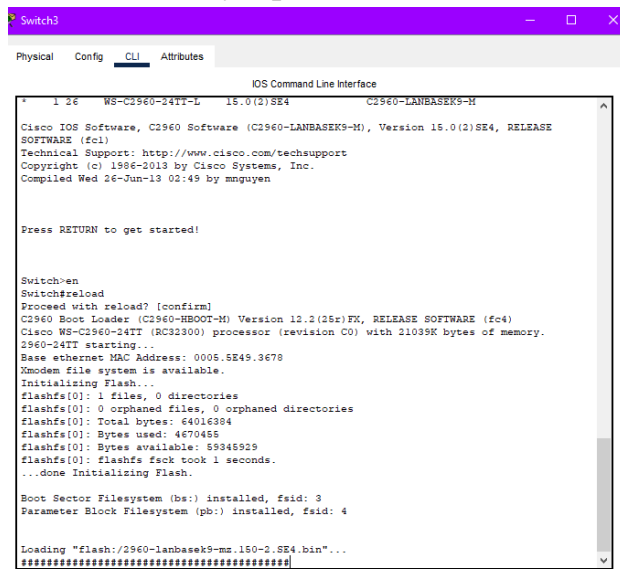
Switch(config)#ex
Switch#
$SYS-5-CONFIG_I: Configured from console by console

Switch#write memory
Building configuration...
[OK]
Switch#
Switch#
```

8. Команда “reload”

Что делает: Перезагружает устройство.

Зачем нужна: Используется для применения изменений, обновления системы или устранения неполадок.



```
Switch3
Physical Config CLI Attributes
IOS Command Line Interface
* 1 26 WS-C2960-24TT-L 15.0(2)SE4 C2960-LANBASEK9-M
Cisco IOS Software, C2960 Software (C2960-LANBASEK9-M), Version 15.0(2)SE4, RELEASE
SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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Compiled Wed 26-Jun-13 02:49 by mnguyen

Press RETURN to get started!

Switch>en
Switch#reload
Proceed with reload? [confirm]
C2960 Boot Loader (C2960-HBOOT-M) Version 12.2(25x)FX, RELEASE SOFTWARE (fc4)
Cisco WS-C2960-24TT (RC32300) processor (revision C0) with 21039K bytes of memory.
2960-24TT starting...
Base ethernet MAC Address: 0005.5E49.3678
Xmodem file system is available.
Initializing Flash...
flashfs[0]: 1 files, 0 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 64016384
flashfs[0]: Bytes used: 4670465
flashfs[0]: Bytes available: 59345929
flashfs[0]: flashfs fsck took 1 seconds.
...done Initializing Flash.

Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4

Loading "flash:/2960-lanbasek9-mz.150-2.SE4.bin"...
*****
```