**The user mode does not execute a variety of different commands. Note that you are in the appropriate user mode before using the command. There are additional user modes, which we will learn later.**

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| **Base Command Modes** | | |
| **User Mode** | **User status without rights** | Switch> |
| **Privilege Executive Mode** | **Rights, especially for viewing settings** | Switch# |
| **Global configuration mode** | **Allows you to change general settings** | Switch(config)# |
| **Interface Configuration Mode** | **Allows you to change the interface settings** | Switch(config-if)# |

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| **Switching between work modes** | |
| **Entrance to -Enable mode** | Switch> **enable** |
| **Global configuration mode Entrance to** | Switch# **configure terminal** |
| **Configuration mode Entrace to -Interface** | Switch(config)# **interface** {fastEthernet} {0/1} |
| **Back from any mode, one level back** | Switch# **exit** |
| **Return from any mode, directly to Enable Mode** | Switch(config-if)# **end** |
| **Return from any mode, directly to Enable Mode** | **CTRL+Z** |

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| **Basic commands** | |
| **View historical settings we previously clicked** | Switch#**show history** |
| **Rename switch / router** | Switch(config)#**hostname** {name} |
| **Model and hardware type display of the switch / router** | Switch#**show version** |
| **View current settings (RAM settings)** | Switch#**show running-config** |
| **View the settings saved in NVRAM** | Switch#**show startup-config** |

**Backup and Restore**

\*Saving the currently running settings (RAM settings) to NVRAM:

(So ​​that the settings go up each time the switch is started)

Switch#**copy running-config startup-config**

Destination filename [startup-config]?**[Enter]**

\*Copy settings from NVRAM to RAM:

Switch#**copy startup-config running-config**

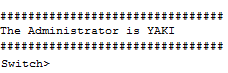
Destination filename [running-config]?**[Enter]**

**Banner**

Banner is a message that appears when the switch / router is raised. The message must start with a certain character (for example @) and end with the same character.

Switch(config)#**banner motd** @ {message} @

**Example**:

Switch(config)#**banner motd**  @

#####################

The Administrator is YAKI

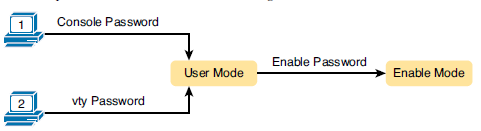
#####################

@

**Securing access to the switch / router**

**Set passwords:**

In order to secure the entrance to the switch, it is necessary to set access passwords.



**Console Login Password (User Mode):**

Switch(config)#**line console 0**

Switch(config-line)#**password** {password}

Switch(config-line)#**login**

Virtual Terminal Access (User Mode) Login Password:

Up to 16 Telnet connections can be opened simultaneously.

Switch(config)#**line vty 0 4**

Switch(config-line)#**password** {password}

Switch(config-line)#**login**

Enable Mode Login Password:

Switch(config)#**enable password** {password}

**Encrypting and hiding passwords:**

The passwords are not encrypted, you can see them using the show running-config command.

Encryption of all passwords given / will be given (the encryption is weak and can be hacked)

Switch(config)#**service password-encryption**

Encrypted password for Enable Mode:

The password is digitally signed using MD5 (Message Digest 5) algorithm.

That is, instead of the password, a hash of the password is stored.

enable secret is stronger than enable password,

which means that it is the password that the user will have to enter.

Switch(config)#**enable secret** {password}

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| **Remote switch management** |

To manage a remote switch, it is necessary to give it an IP address. The address must be given to the VLAN, through which we manage the switch. By default all interfaces belong to VLAN1.

For security reasons, it is best to manage the switch via a different VLAN from VLAN**1.**

Switch(config)#**interface VLAN {1}**

Switch(config-if)#**ip address** {ip} {subnet mask}

Switch(config-if)#**no shutdown**

Sometimes it is necessary to set the default gateway in the switch

Switch(config)#**ip default-gateway** {ip}

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| **Setting up SSH support** |

SSH enables remote management in encrypted form, unlike Telnet (unencrypted).

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| create a user and password | Switch01(config)#**username** {yaki} **password/secret** {1234} |
| SSH requires a Domain Name to create a digital certificate | Switch01(config)#**ip domain-name** {yaki.local} |
| Creating the keys (preferably 2048 in length) | Switch01(config)#**crypto key generate rsa** |
| Determine the SSH version you want to work with | Switch01(config)#**ip ssh version 2** |
| The number of sessions the component supports | Switch01(config)#**line vty 0 4** |
| Change support for Telnet to SSH | Switch01(config-line)#**transport input {ssh/telnet/all/none}** |
| Enable login using local login information | Switch01(config-line)#**login local** |

The login command registered on the computer to enter the switch.

**ssh -l** {USERNAME} {IP}

The password that the user is asked to enter is that of the VTY.

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| **Erasing and reloading the Switch** |

**1. If a vlan configuration file exists, delete it:**

Switch#**delete flash:vlan.dat**

Delete filename [vlan.dat]?**[enter]**

Delete flash:vlan.dat? [confirm] **[enter]**

If you do not save a vlan file, you will receive the following message:

“%Error deleting flash:vlan.dat (No such file or directory)”

**2.** **Delete the configuration file saved in NVRAM:**

Switch#**erase startup-config**

Erasing the nvram filesystem will remove all files! Continue? **[confirm]**

Erase of nvram: complete

If the settings are not saved in, NVRAMwill receive the following message:

“ %% non-volatile configuration memory is not present”

**3.** **Reboot the switch**

Switch#**reload**

System configuration has been modified. Save? [yes/no]:**N**

Proceed with reload? [confirm] **[Enter]**

Reload requested by console.

Would you like to enter the initial configuration dialog? [yes/no]:**N**

Press RETURN to get started! **[Enter]**

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| **Recover access to the switch** |

1)Switch off the switch. Turn it on while pressing the “MODE” button located on the front panel of the switch .

Type the following commands(2

Switch:**flash\_init**

Switch:**load\_helper**

Switch:**dir flash:**

3)Rename the settings file to a temporary name (the file contains all the settings including the passwords):

Switch:**rename flash:config.text flash:config.old**

4) Run dir again to check that the file name is different from config.text to config.old

Switch:**dir flash:**

Reboot the system 5)

Switch:**boot**

6) Rename the settings file to its original name

Switch#**rename flash:config.old flash:config.text**

7) Copy the settings file to memory

Switch#**copy flash:config.text system:running-config**

Source filename [config.text]?**[enter]**

Destination filename [running-config]**[enter]**

8) Settings file upload complete. The following commands cancel the old passwords

Switch(config)#**no enable secret**

Switch(config)#**no** **enable password**

Switch(config)#**line console 0**

Switch(config-line)#**no** **password**

Switch(config-line)#**no login**

Switch(config-line)#**exit**

Switch(config)#**line vty 0 15**

Switch(config-line)# **no** **password**

Switch(config-line)#**no** **login**

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| **Sconfigure interfaces** |

**To see the status of the interfaces:**

Router#**show ip interface brief**

**Configuring the fastEthernet interface on the Router:**

Router(config)#**interface** {fastEthernet} {0/0}

Router(config-if)#**ip** **address** {172.18.0.254} {255.255.0.0}

Router(config-if)#**no shutdown**

Setting the interface speed:

Switch(config-if)#**speed** {auto/10/100/1000}

Full duplex /: half setting:

Switch(config-if)#**duplex** {auto/full/half}

N**ame translation support using DNS**

To set the DNS server address, we will use the command

Switch(config)#**ip name-server** {dns address}

When a switch / router tries to translate a name and fails, the system hangs for 30 seconds.

To prevent the device from trying to translate names we will use the command:

Switch(config)#**line console 0**

Switch(config-line)#**logging synchronous**

Remarks:

\*\*You can write down the settings in the script and then insert it into the router / switch.

\*\*If the CLI does not respond, press CTRL-SHIFT-6 and make sure the keyboard is in English mode.