

Cisco switches cheat sheets

1. switch power on

```
C2950 Boot Loader (C2950-HBOOT-M) Version 12.1(11r)EA1, RELEASE SOFTWARE (fc1)
Compiled Mon 22-Jul-02 18:57 by miwang
Cisco WS-C2950-24 (RC32300) processor (revision C0) with 21039K bytes of memory.
2950-24 starting...
Base ethernet MAC Address: 0002.16B2.DA39
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: 3058048
flashfs[0]: Bytes available: 60958336
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:/c2950-i6q412-mz.121-22.EA4.bin"...
##### [OK]
Restricted Rights Legend
```

```
Use, duplication, or disclosure by the Government is
subject to restrictions as set forth in subparagraph
(c) of the Commercial Computer Software - Restricted
Rights clause at FAR sec. 52.227-19 and subparagraph
(c) (1) (ii) of the Rights in Technical Data and Computer
Software clause at DFARS sec. 252.227-7013.
```

```
    cisco Systems, Inc.
    170 West Tasman Drive
    San Jose, California 95134-1706
```

```
Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-I6Q4L2-M), Version 12.1(22)EA4, RELEASE SOFTWARE(fc1)
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Wed 18-May-05 22:31 by jharirba
```

```
Cisco WS-C2950-24 (RC32300) processor (revision C0) with 21039K bytes of memory.
Processor board ID FHK0610Z0WC
Running Standard Image
24 FastEthernet/IEEE 802.3 interface(s)
```

```
63488K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address: 0002.16B2.DA39
Motherboard assembly number: 73-5781-09
Power supply part number: 34-0965-01
Motherboard serial number: FOC061004SZ
Power supply serial number: DAB0609127D
Model revision number: C0
Motherboard revision number: A0
Model number: WS-C2950-24
System serial number: FHK0610Z0WC
```

```
Cisco Internetwork Operating System Software
IOS (tm) C2950 Software (C2950-I6Q4L2-M), Version 12.1(22)EA4, RELEASE SOFTWARE(fc1)
Copyright (c) 1986-2005 by cisco Systems, Inc.
Compiled Wed 18-May-05 22:31 by jharirba
```

```
Press RETURN to get started!
```

2. erase current config / show vlan

```
Switch> enable
Switch# delete flash:vlan.dat
Delete filename [vlan.dat]?
Delete flash:/vlan.dat? [confirm] <enter>
%Error deleting flash:/vlan.dat (No such file or directory)
Switch# erase startup-config
Erasing the nvram filesystem will remove all configuration files! Continue?
[confirm] <enter>
[OK]
Erase of nvram: complete
%SYS-7-NV_BLOCK_INIT: Initialized the geometry of nvram
```

Om zeker te zijn dat alle data is verwijderd doen we een show vlan

```
Switch# show vlan
VLAN Name                Status    Ports
-----
1      default                active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                           Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                           Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                           Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                           Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                           Fa0/21, Fa0/22, Fa0/23, Fa0/24

1002 fddi-default         act/unsup
1003 token-ring-default   act/unsup
1004 fddinet-default       act/unsup
1005 trnet-default         act/unsup
```

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
1003	tr	101003	1500	-	-	-	-	-	0	0
1004	fdnet	101004	1500	-	-	-	ieee	-	0	0
1005	trnet	101005	1500	-	-	-	ibm	-	0	0

Remote SPAN VLANs

```
-----
Primary Secondary Type          Ports
-----
```

3. minimal configuration

```
Switch# configure terminal
Switch(config)# hostname CustomerSwitch
CustomerSwitch(config)# enable password cisco
CustomerSwitch(config)# enable secret cisco123

CustomerSwitch(config)# line console 0
CustomerSwitch(config-line)# password cisco
CustomerSwitch(config-line)# login
CustomerSwitch(config-line)# exit
CustomerSwitch(config)# line vty 0 15
CustomerSwitch(config-line)# password cisco
CustomerSwitch(config-line)# login
CustomerSwitch(config-line)# exit

CustomerSwitch(config)# interface vlan 1
CustomerSwitch(config-if)# ip address 192.168.1.5 255.255.255.0
CustomerSwitch(config-if)# no shut
%LINK-5-CHANGED: Interface Vlan1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
CustomerSwitch(config-if)# exit
CustomerSwitch(config)# ip default-gateway 192.168.1.1
CustomerSwitch(config)# end
CustomerSwitch# copy run start
```

4. basic show commands

General Use:

```
show running-config
show startup-config
show version
```

Interface / Port Related:

```
show interfaces
show ip interface brief
show port-security
show mac-address-table
```

Connectivity Related:

```
show cdp neighbors
show sessions
show ssh
```

```
CustomerSwitch# show running-config
Building configuration...

Current configuration : 1119 bytes
!
version 12.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname CustomerSwitch
!
enable secret 5 $1$mERr$5.a6P4JqbNiMX0lusIfka/
enable password cisco
!
interface FastEthernet0/1
interface FastEthernet0/2
..
interface FastEthernet0/24
!
interface Vlan1
 ip address 192.168.1.5 255.255.255.0
!
ip default-gateway 192.168.1.1
!
line con 0
 password cisco
 login
!
line vty 0 4
 password cisco
 login
line vty 5 15
 password cisco
 login
!
end
```

```
CustomerSwitch# show interface vlan 1
Vlan1 is up, line protocol is down
  Hardware is CPU Interface, address is 0006.2a26.301a (bia 0006.2a26.301a)
  Internet address is 192.168.1.5/24
  MTU 1500 bytes, BW 100000 Kbit, DLY 1000000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 21:40:21, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); 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
    1682 packets input, 530955 bytes, 0 no buffer
    Received 0 broadcasts (0 IP multicast)
    0 runts, 0 giants, 0 throttles
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
    563859 packets output, 0 bytes, 0 underruns
    0 output errors, 23 interface resets
    0 output buffer failures, 0 output buffers swapped out
```

5. port security

eenvoudig:

```
s1# conf t
s1(config)# int fa 0/1
s1(config-if)# switchport mode access
s1(config-if)# switchport port-security
```

in de configuratie hierboven wordt het eerste gedetecteerde MAC-adres gebruikt. Dat werkt op een rare manier. Die eerst verbindt mag op de poort werken. Kabel losmaken en ander station verbinden, blokkert de poort niet. Echter, een switch op die poort plaatsen en er meerdere PC's tegelijk op laten werken zorgt voor een blokkering van de poort.

De enige manier om de **poort terug naar de normale toestand te brengen** is de volgende:

```
s1(config)# int fa 0/1
s1(config-if)# shutdown
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to administratively down
s1(config-if)# no shutdown
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
```

op mac-adres:

We kunnen een MAC-adres toekennen als volgt:

```
s1(config-if)# switchport port-security mac-address 0090.21C3.6443
```

We kunnen default maar 1 adres toekennen aan 1 poort, zoniet gebeurt er dit:

```
s1(config-if)# switchport port-security mac-address 0090.21C3.6442
Total secure mac-addresses on interface FastEthernet0/1 has reached maximum limit.
```

Als we het aantal mac-adressen willen ophogen doen we dit als volgt:

```
s1(config-if)# switchport port-security maximum 5
```

violation-action:

we willen misschien ook niet dat de poort wordt afgesloten voor alle verkeer na een overtreding *violation*. we willen alleen een *protect* (filter op MAC):

```
s1(config-if)# switchport port-security violation protect
```

met het volgende commando kunnen we zien of er iets aan de hand is:

```
s1# show port-security
Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action
          (Count)           (Count)           (Count)
-----
Fa0/1    1                 1                 0                 Protect
-----
```

Hierboven is het aantal violations 0 en is de werking gegarandeerd.

Hieronder hebben we een illegaal MAC-adres op dezelfde poort gezet, met de default setting: *violation shutdown*, met een 'secure shutdown' tot gevolg:

```
s1# show port-security int fa 0/1
Port Security           : Enabled
Port Status             : Secure-shutdown
Violation Mode          : Shutdown
Aging Time              : 0 mins
Aging Type              : Absolute
SecureStatic Address Aging : Disabled
Maximum MAC Addresses   : 1
Total MAC Addresses     : 0
Configured MAC Addresses: 1
Sticky MAC Addresses    : 0
Last Source Address:Vlan : 00D0.D3D2.5902:1
Security Violation Count : 1
```

STICKY: In plaats van manueel mac-adressen in te geven kan het ook aangeleerd worden, in *sticky* mode, met het volgende commando:

```
s1(config-if)# switchport port-security mac-address sticky
```

6. vlans

assign a VLAN and name it:

```
Switch(config)# vlan 10
Switch(config-vlan)# name mijn_vlan
Switch(config-vlan)# exit
```

Assign ports to be members of the VLAN. By default, all ports are initially members of VLAN1. Assign ports one at a time or as a range.

assign individual ports on the switch to VLANs:

```
Switch(config)# interface fa0/3
Switch(config-if)# switchport access vlan 10
Switch(config-if)# exit
```

assign a range of ports to VLANs:

```
Switch(config)# interface range fa0/1-10
Switch(config-if)# switchport access vlan 10
Switch(config-if)# exit
```

delete a VLAN:

```
Switch(config)# no vlan 10
```

disassociate a port from a specific VLAN:

```
Switch(config)# interface fa0/8
Switch(config-if)# no switchport access vlan 10
```


7. vtp server

```
Switch(config)# vtp mode server [client] [transparent]
Switch(config)# vtp domain lokaal38
Switch(config)# vtp password sdf12345
Switch(config)# vtp version 2
```

```
Switch(config)# show vtp status
```

```
VTP Version : 2
Configuration Revision : 7
Maximum VLANs supported locally : 255
Number of existing VLANs : 8
VTP Operating Mode : Client
VTP Domain Name : lokaal38
VTP Pruning Mode : Disabled
VTP V2 Mode : Disabled
VTP Traps Generation : Disabled
MD5 digest : 0x6B 0xE8 0x8D 0x33 0xB7 0xDF 0x79 0xCB
Configuration last modified by 0.0.0.0 at 3-1-93 00:14:12
```

```
Switch(config)# show vtp password
```

```
VTP Password: sdf12345
```

```
Switch(config)# show vtp counters
```

```
VTP statistics:
Summary advertisements received : 21
Subset advertisements received : 19
Request advertisements received : 2
Summary advertisements transmitted : 11
Subset advertisements transmitted : 9
Request advertisements transmitted : 2
Number of config revision errors : 1
Number of config digest errors : 2
Number of V1 summary errors : 0
```

```
VTP pruning statistics:
```

```
Trunk          Join Transmitted Join Received      Summary advts received from
-----          -----          -----          -----
non-pruning-capable device
```

8. trunking

Switch ports are access ports by default.

configure a switch port as a trunk port

```
Switch(config)# interface gil/1  
Switch(config-if)# switchport mode trunk
```

[On certain switches:

```
Switch(config-if)# switchport trunk encapsulation dot1q
```

]

Set native VLAN when interface is in trunking mode

```
S2(config-if)# switchport native vlan 56
```

connect a router to a trunk port:

1. On the router, configure a FastEthernet interface with no IP address or subnet mask.

```
Router(config)# interface fa0/1  
Router(config-if)# no ip address  
Router(config-if)# no shutdown
```

2. On the router, configure at least two subinterfaces with an IP address and subnet mask for each VLAN. Each subinterface has an 802.1Q encapsulation.

```
Router(config)# interface fa0/0.10  
Router(config-subif)# encapsulation dot1q 10  
Router(config-subif)# ip address 192.168.10.1 255.255.255.0
```

```
Router(config)# interface fa0/0.15  
Router(config-subif)# encapsulation dot1q 15  
Router(config-subif)# ip address 192.168.15.1 255.255.255.0
```

9. allerlei

set clock:

```
S1# clock set 10:55:00 15 oct 2012
```

set history size:

```
S1(config)# line vty 0 15  
S1(config-line)# history size 50
```

disable domain lookup:

```
S1(config)# no ip domain lookup
```

banner - message of the day:

```
S1(config)# banner motd #Authorized Access Only#
```

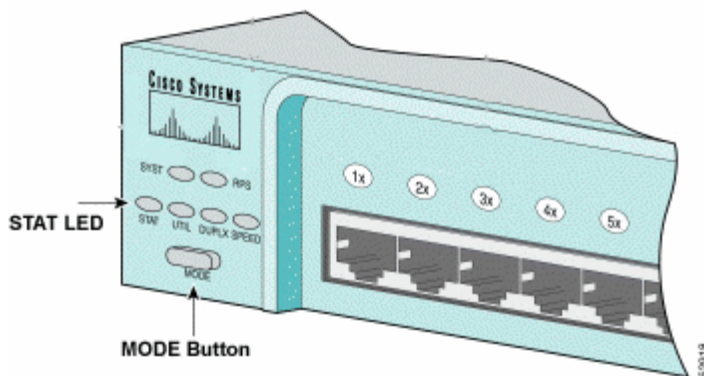
configure a switch to boot using a different Cisco IOS image:

```
S1(config)# boot system flash:c2960-lanbase-mz.122-25.SEE1.bin
```

10. password reset

- Verbind een pc met de console poort van de switch. Schakel dan switch uit door de stroomstekker uit te trekken.
- Belangrijk! Voer volgende 2 stappen tegelijkertijd uit.

schakel nu de switch opnieuw in door de stroomstekker in te steken en houd tijdens het opstarten de mode knop een tiental seconden ingedrukt



Je moet nu de **“switch:”** prompt zien. (indien niet het geval voer de hogere stappen opnieuw uit)

The system has been interrupted prior to initializing the flash file system to finish loading the operating system software:

```
flash_init
load_helper
boot
switch:
```

- voer aan de **“switch:”** prompt het volgende commando uit:

```
switch: flash_init
Initializing Flash...
flashfs[0]: 143 files, 4 directories
flashfs[0]: 0 orphaned files, 0 orphaned directories
flashfs[0]: Total bytes: 3612672
flashfs[0]: Bytes used: 2729472
flashfs[0]: Bytes available: 883200
flashfs[0]: flashfs fsck took 86 seconds
...done Initializing Flash.
Boot Sector Filesystem (bs:) installed, fsid: 3
Parameter Block Filesystem (pb:) installed, fsid: 4
```

dit doen we om het flash geheugen, waarop de config file wordt bewaard, te mounten.

- tik vervolgens in:

```
switch: dir flash:
Directory of flash:/
 2  -rwx 1803357  <date>          c3500x1-c3h2s-mz.120-5.WC7.bin
 4  -rwx 1131    <date>          config.text
 5  -rwx 109    <date>          info
 6  -rwx 389    <date>          env_vars
 7  drwx 640    <date>          html
18  -rwx 109    <date>          info.ver
403968 bytes available (3208704 bytes used)
```

normaal zou je nu de root-directory in het flash geheugen moeten zien; voor ons is het bestand `config.text` van belang.

- tik nu in:

```
switch: rename flash:config.text flash:config.old
```

wanneer de switch vervolgens opstart zal deze geen startup-config gebruiken
- herstart vervolgens de switch met het commando "boot" uit

```
switch: boot
Loading
"flash:c3500xl-c3h2s-mz.120-5.WC7.bin"...#####
#####
#####
File "flash:c3500xl-c3h2s-mz.120-5.WC7.bin" uncompressed and installed, entry
point: 0x3000
executing...
...
--- System Configuration Dialog ---
At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '['].
Continue with configuration dialog? [yes/no]: n

Press RETURN to get started. <ENTER>

Switch>
```
- ga naar privileged exec mode

```
Switch> enable
Switch#
```
- verwijder de oude config-file:

```
Switch# delete flash:config.old
```
- schrijf de huidige LEGE config file als volgt:

```
Switch# copy running-config startup-config
```
- herstart tenslotte de switch met:

```
Switch# reload
```