

# Cisco Cheat Sheet

## Basic Configuration

### Initial Commands

Name the device:

```
Router# configure terminal
```

```
Router(config)# hostname [hostname]
```

Configure a banner:

```
R1(config)# banner motd $Authorized Access Only$
```

Save the Changes:

```
R1# copy running-config startup-config
```

Configure Interface IPv4:

```
R1(config)# interface gigabitethernet 0/0
```

```
R1(config-if)# description Link to LAN 1
```

```
R1(config-if)# ip address 192.168.10.1 255.255.255.0
```

```
R1(config-if)# no shutdown
```

-or-

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

```
R1(config-if)# description Link to R2
```

```
R1(config-if)# ip address 209.165.200.225 255.255.255.252
```

```
R1(config-if)# clock rate 128000
```

```
R1(config-if)# no shutdown
```

### Secure Management Access

```
R1(config)# enable secret class
```

```
R1(config)# line console 0
```

```
R1(config-line)# password cisco
```

```
R1(config-line)# login
```

```
R1(config-line)# exit
```

```
R1(config)# line vty 0 4 ← depending on the number of VTYs!
```

```
R1(config-line)# password cisco
```

```
R1(config-line)# login
```

```
R1(config-exit)# exit
```

```
R1(config)# service password-encryption
```

## VLAN

## Access Control Lists

This chapter describes how to configure Access Control Lists (ACLs).

**Note!** Each ACL contains an implicit DENY at the end!

## IPv6

This chapter describes how to configure IPv6.

### IPv6 Autoconfiguration

**Note!** Autoconfiguration requires the least amount of configuration but makes it difficult to remember the IPv6 addresses. This method uses the MAC address of the device to create an IPv6 address with the FE80:: prefix.

Begin by configuring the router. Enter the interface configuration mode and enable IPv6 on the interface.

```
R1(config)# ipv6 unicast-routing
```

```
R1(config)# interface FastEthernet0/0
```

```
R1(config-if)# ipv6 enable
```

Next, configure a link local address and a global unicast address on the interface. This example uses eui-64 to reduce the configuration.

```
R1(config-if)# ipv6 address autoconfig
```

```
R1(config-if)# ipv6 add 2000::/64 eui-64
```

```
R1(config-if)# no shutdown
```

Verify the interface is *up* and has two IPv6 addresses.

```
R1>show ipv6 interface brief
```

### IPv6 Static

Begin by configuring a static IPv6 address on the router

```
R1(config)# ipv6 unicast-routing
```

```
R1(config)# interface FastEthernet0/0
```

```
R1(config-if)# ipv6 enable
```

```
R1(config-if)# 2000::1/64
```

```
R1(config-if)# no shutdown
```

## Spanning Tree

This chapter describes how to configure Spanning Tree.

## Link Aggregation

This chapter describes how to configure port channels and to apply and configure the Link Aggregation Control Protocol (LACP).

### Configure Interfaces

```
s1(config)# interface range fe0/1-2
```

```
s1(config-if-range)# shutdown
```

```
s1(config-if-range)# channel-group 1 mode active
```

```
s1(config-if-range)# exit
```

```
s1(config)# interface port-channel 1
```

```
s1(config-if)# switchport mode trunk
```

```
s1(config-if)# switchport trunk allowed vlan 1,2,20
```

### Verify Link Aggregation

```
s1# show interface port-channel1
```

```
s1# show etherchannel summary
```

```
s1# show etherchannel port-channel
```

```
s1# show interfaces f0/1 etherchannel
```

More information about Link Aggregation Control Protocol (LACP) (802.3ad) for Gigabit Interfaces.

## OSPF

This chapter describes how to configure OSPF.

## Single-Area OSPF

```
R1(config)# interface GigabitEthernet0/0
```

```
R1(config-if)# bandwidth 1000000
```

```
R1(config-if)# exit
```

```
R1(config)# router ospf 10
```

```
R1(config-router)# router-id 1.1.1.1
```

```
R1(config-router)# auto-cost reference-bandwidth 1000
```

```
R1(config-router)# network 172.16.1.0 0.0.0.255 area 0
```

```
R1(config-router)# passive-interface g0/0
```

### Single-Area OSPFv3

```
R1(config)# ipv6 router ospf 10
```

```
R1(config-router)# router-id 1.1.1.1
```

```
R1(config-router)# auto-cost reference-bandwidth 1000
```

```
R1(config-if)# interface GigabitEthernet 0/0
```

```
R1(config-if)# bandwidth 1000000
```

```
R1(config-if)# ipv6 ospf 10 area 0
```

## Verifying Single-Area OSPF

**Note!** To verify Single-Area OSPFv3 please use the `ipv6` command.

```
R1# show ip ospf neighbor
```

```
R1# show ip protocols
```

```
R1# show ip ospf
```

```
R1# show ip ospf interface
```

```
R1# show ip ospf interface brief
```

## Multi-Area OSPF

**Note!** The same commands are used as for Single-Area OSPF, except there are more areas. Carefully look which device belongs to which area.

## Configure PPP

This chapter describes how to configure a PPP connection.

### Basic PPP Configuration

```
R1(config)# interface Serial 0/0/0
```

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

### Basic PPP Compression

```
R1(config)# interface Serial 0/0/0
```

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

```
R1(config-if)# compress predictor
```

### Basic PPP Link Quality Control

```
R1(config)# interface Serial 0/0/0
```

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

```
R1(config-if)# ppp quality 80
```

### Basic PPP Link Quality Control

```
R1(config)# interface multilink 1
```

```
R1(config-if)# interface Serial 0/0/0
```

```
R1(config-if)# interface Serial 0/0/1
```

## Basic PPP PAP Authentication

**Note!** The first command is the expected username and password which R3 will send!

```
R1(config)# username R3 secret class
R1(config)# interface s0/0/0
R1(config-if)# ppp authentication pap
R1(config-if)# ppp pap sent-username R1 password cisco
```

## Basic PPP CHAP Authentication

**Note!** As opposed of PAP. CHAP passwords need to be identical

```
R1(config)# hostname Router1
Router1(config)# username Router 3 secret cisco
Router1(config)# interface s0/0/0
Router1(config-if)# ppp authentication chap
```

## Troubleshoot PPP

```
R1# debug ppp packet R1# debug ppp negotiation
R1# debug ppp authentication R1# debug ppp error
```

## Verifying PPP Connection

```
R1# show interface serial 0/0/0
R1# show ppp multilink
```

## Security

This chapter explains how to secure devices

### Commands to increase Acces Security

```
R1(config)# security passwords min-length 10
R1(config)# service password-encryption
R1(config)# line vty 0 4
R1(config)# exec-timeout 3 30
R1(config)# line console 0
R1(config)# exec-timeout 3 30
```

### Enable Stronger Password Encryption

**Note!**There are two methods of enabling a stronger password hash. The first one is when you already have a hash of the encrypted password. The second one is if you want to enter a password. The Second method does not work in Packet Tracer

First Methode

```
R1(config)# enable secret 9 HZWdzLHwhPtZ3UD90lUDSGvBy.m8Tf9vCGDJRcY
```

Second Method

```
R1(config)# enable algorithm-type scrypt secret cisco
```

### Password Encryption for username secret

```
R1(config)# username Bob algorithm-type scrypt secret cisco
```

### Configure Secure Line Acces

```
R1(config)# username Bob algorithm-type scrypt secret cisco
```

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<https://github.com/roaldnefs/cisco-cheatsheet>