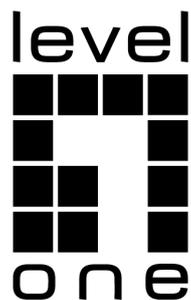


# Network Protocol Configuration



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# Chapter 1 Configuring IP Addressing

## 1.1 IP Introduction

### 1.1.1 IP

Internet Protocol (IP) is a protocol in the network to exchange data in the text form. IP has the functions such as addressing, fragmenting, regrouping and multiplexing. Other IP protocols (IP protocol cluster) are based on IP. As a protocol working on the network layer, IP contains addressing information and control information which are used for routing.

Transmission Control Protocol (TCP) is also based on IP. TCP is a connection-oriented protocol which regulates the format of the data and information in data transmission. TCP also gives the method to acknowledge data is successfully reached. TCP allows multiple applications in a system to communicate simultaneously because it can send received data to each of the applications respectively.

The IP addressing, such as Address Resolution Protocol, are to be described in section “Configuring IP Addressing.” IP services such as ICMP, HSRP, IP statistics and performance parameters are to be described in “Configuring IP Services.”

## 1.2 Configuring IP Address Task List

An essential and mandatory requirement for IP configuration is to configure the IP address on the network interface of the routing switch. Only in this case can the network interface be activated, and the IP address can communicate with other systems. At the same time, you need to confirm the IP network mask.

To configure the IP addressing, you need to finish the following tasks, among which the first task is mandatory and others are optional. For creating IP addressing in the network, refer to section “IP Addressing Example.”

IP address configuration task list:

- Configuring IP address at the network interface
- Detecting and maintaining IP addressing

## 1.3 Configuring IP Address

### 1.3.1 Configuring IP Address at the Network Interface

The IP address determines the destination where the IP message is sent to. Some IP special addresses are reserved and they cannot be used as the host IP address or network address. Table 1 lists the range of IP addresses, reserved IP addresses and available IP addresses.

Type	Address or Range	State
A	0.0.0.0	Reserved
	1.0.0.0 to 126.0.0.0	Available
	127.0.0.0	Reserved
B	128.0.0.0 to 191.254.0.0	Available
	191.255.0.0	Reserved
C	192.0.0.0	Reserved
	192.0.1.0 to 223.255.254.0	Available
	223.255.255.0	Reserved
D	224.0.0.0 to 239.255.255.255	Multicast address
E	240.0.0.0 to 255.255.255.254	Reserved
	255.255.255.255	Broadcast

The official description of the IP address is in RFC 1166 "Internet Digit". You can contact the Internet service provider.

An interface has only one primary IP address. Run the following command in interface configuration mode to configure the primary IP address and network mask of the network interface:

Command	Purpose
<b>ip address</b> <i>ip-address mask</i>	Configure the main IP address of the interface.

The mask is a part of the IP address, representing the network.

**Note:**

Our switches only support masks which are continuously set from the highest byte according to the network character order.

### 1.3.2 Detecting and maintaining IP addressing

To detect and maintain the network, run the following command:

Clearing cache, list and database

You can clear all content in a cache, list or the database. When you think some content is ineffective, you can clear it.

Run the following command in management mode to clear the cache, list and database:

Command	Purpose
<b>clear arp</b>	Clear the IP ARP cache.

Displaying statistics data about system and network

The system can display designated statistics data, such as IP routing table, cache and database. All such information helps you know the usage of the systematic resources and solve network problems. The system also can display the reachability of the port and the routes that the message takes when the message runs in the network.

All relative operations are listed in the following table. For how to use these commands, refer to Chapter “IP Addressing Commands”. Run the following commands in management mode:

Command	Purpose
<b>show arp</b>	Display content in the ARP table.
<b>show ip interfacebrief</b>	Displays the state of a port.
<b>ping {host   address}</b>	Test the reachability of the network node.

## 1.4 IP Addressing Example

The following case shows how to configure the IP address on interfaceVLAN11.

```
interface vlan11
```

```
ip address 202.96.2.3 255.255.255.0
```