

nm

背景  
实现

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2022 年 12 月 19 日

# 网络配置

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背景  
实现

## 网络配置包含什么

- 接口
- 地址
- 路由
- DNS

## 配置方式

- 写文件（例如/etc/resolv.conf）
- iproute2
- NetworkManager, systemd-networkd, ...

# iproute2

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```
Usage: ip [ OPTIONS ] OBJECT { COMMAND | help }
where  OBJECT := { address | addrlabel | amt | fou
                  | help | ila | ioam | l2tp | link
                  | macsec | maddress | monitor
                  | mptcp | mroute | mrule
                  | neighbor | neighbour | netconf
                  | netns | nexthop | ntable | ntbl
                  | route | rule | sr | tap
                  | tcpmetrics | token | tunnel
                  | tuntap | vrf | xfrm }
```

## netlink

iproute2 可以管理的资源很多，但其本质通过的是内核提供的 netlink 接口，与修改文件等配置有本质的不同

*Netlink is used to transfer information between the kernel and user-space processes. It consists of a standard sockets-based interface for user space processes and an internal kernel API for kernel modules.*

*netlink\_family selects the kernel module or netlink group to communicate with. The currently assigned netlink families are:*

## *NETLINK\_ROUTE*

*Receives routing and link updates and may be used to modify the routing tables (both IPv4 and IPv6), IP addresses, link parameters, neighbor setups, queueing disciplines, traffic classes, and packet classifiers (see rtnetlink(7)).*

...

# 后端

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## Rust

高效，可靠，易于编写与操作系统直接交互的代码

rtnetlink <https://crates.io/crates/rtnetlink>

NETLINK\_ROUTE 协议的高层抽象

axum <https://crates.io/crates/axum>

基于 tokio 的 web 框架，模块化设计，十分易用

## 接口

基于 JSON 的类 restful 接口，提供增删改查功能