1. 配置 IP 网络

> Redhat 7 Network Guide - Configuring IP Networking

- `ifconfig` (net-tools)，已废弃
- `ip` (iproute2)
- `nmcli`
- `nmtui`
- GNOME GUI

> Note that the ip utility replaces the ifconfig utility because the net-tools package (which provides ifconfig) does not support InfiniBand addresses.

通过 `nmcli` 命令指定的配置项，在系统重启后会继续生效。而 `ip` 命令配置的 IP 信息只临时生效，重启系统后失效，要永久生效的话，需要手动修改 `/etc/sysconfig/network-scripts/ifcfg-xxx`

2. 配置静态路由和默认网关

> Redhat 7 Network Guide - Configuring Static Routes and the Default Gateway

`默认网关` 适用于未发往本地网络、且未在路由表中指定首选路由的任何流量

要永久生效的话，请使用 `nmcli` 命令配置路由，或者手动修改 `/etc/sysconfig/network-scripts/route-xxx`

3. 策略路由 Policy-routing

`Policy-routing` also known as source-routing, is a mechanism for more flexible routing configurations. Routing decisions are commonly made based on the **destination IP address** of a package. `Policy-routing` allows more flexibility to select routes based on other routing properties, such as **source IP address**, source port, protocol type.

3.1 安装 NetworkManager-config-routing-rules

CentOS 默认使用 `NetworkManager` 来管理网络，所以需要安装一个插件包来支持 Policy-routing

```
# yum install NetworkManager-config-routing-rules
```

3.2 启动 NetworkManager-dispatcher 服务

```
# systemctl enable NetworkManager-dispatcher.service
# systemctl start NetworkManager-dispatcher.service
```

3.3 新增路由表

Routing tables stores route information about networks. They are identified by either numeric values or names, which can be configured in the `/etc/iproute2/rt_tables` file. The default table is identified with `254`.

```
添加一张新的路由表，ID 需要小于 253
# echo '200 s3' >> /etc/iproute2/rt_tables
```

3.4 添加策略路由规则

> 帮助文档: `man 8 ip-rule`

Using `policy-routing`, you also need `rules`. Rules are used to select a routing table, based on certain properties of packets

在 `/etc/sysconfig/network-scripts/` 目录下添加 `rule-xxx`，其中 xxx 是网络接口名称，比如 `s3addr` （VLAN 名称），假设此 VLAN 创建在聚合设备 team1.5 上，那么 `/etc/sysconfig/network-scripts/rule-s3addr` 的内容如下：

```
from 172.18.0.11 table s3
```

表示 `源地址` 为 172.18.0.11 的数据包（即服务器回复客户端的数据包）将使用 `s3` 这张路由表（默认是 `main` 路由表）

临时生效也可以执行：

```
# ip rule add from 172.18.0.11 table s3
```

3.5 为新路由表指定默认网关

> 帮助文档： `man 8 ip-route`

在 `/etc/sysconfig/network-scripts/` 目录下添加 `route-xxx`，其中 xxx 是网络接口名称，比如 `s3addr` （VLAN 名称），假设此 VLAN 创建在聚合设备 team1.5 上，那么 `/etc/sysconfig/network-scripts/route-s3addr` 的内容如下：

```
default via 172.18.0.1 dev team1.5 src 172.18.0.11 table s3
```

表示 `s3` 这张路由表的默认网关为 `172.18.0.1`，即 `源地址` 为 172.18.0.11 的数据包全部从 team1.5 网络设备出去

临时生效也可以执行：

```
# ip route add default via 172.18.0.1 dev team1.5 src 172.18.0.11
table s3
```

3.6 重启系统

3.7 检查配置

```
# ip route show
# ip route show table s3

# ip rule list
# ip rule list table s3
```

如果规则不对，可以用 `ip route flush table s3` 清空路由表

> 参考：

- Redhat 7 Network Guide - Understanding Policy-routing
- How do I create CentOS 7 Persistent Policy-Based-Routing Rules?