



# 1.4 VPN ????????????

????SoftEther VPN ?????????????? VPN ?????????????? VPN ??????????????????????  
?? SoftEther VPN ?????????????????? VPN ??????????????????

## 1.4.1 ??? Ethernet ???

SoftEther VPN ???Ethernet ?? VPN ??????????????????  
???? Ethernet ??

### Ethernet ???

?? 100Base-TX ? 1000Base-T ?????? Ethernet ?? (IEEE802.3) ????? LAN ?????  
Ethernet ????????? (LAN ??) ????????????????????????????? HUB (?? 2 ?????????????????) ??  
??

### ?????? HUB ? LAN ???

Ethernet ??? Ethernet ?????????????????????  
?LAN ????(????????????????????) ?????????? Ethernet ????????

?????LAN ????? UTP ??????????????????LAN ????????????????????????????????? Ethernet ??  
???? HUB ????????

Ethernet ????????? HUB ? LAN ???

**MAC ????**

Ethernet ????????????????????? ID ????????????????????? LAN ??????? 48bit ? ID ?  
?????????????? 48 bit ? ID ?????MAC ????????????????? LAN ???? MAC ?????????????????  
???????????????? (SoftEther VPN ???? LAN ????????????????? LAN ?????????????MAC  
???)

**Ethernet ???????????? (Ethernet ????)**

Ethernet ?????????????????????Ethernet ???????MAC ???????Ethernet ?????????????  
(????????????Ethernet ??????????????????)Ethernet ????????????????????????????? (????  
?) ????????????????????????? 4 ???????

[1-4-2.png](#)

**Ethernet ???? (MAC ????)**

??? MAC ???? (48bit)??Ethernet ????????????????????????????????????? Ethernet ???????  
????????????? MAC ?????????????????Ethernet ?????????? HUB ??????????? MAC ?????  
?????? Ethernet ????????????

???? MAC ???? (48bit)???? Ethernet ??????????????????LAN ???? MAC ??????????????  
?????

????????? (16bit)????? Ethernet ?????????? (?????) ???? 3 ?????????????????????? 16bit ??  
?????????IP ???? 0x0800?ARP ?? 0x0806 ???  
??

?????? (?? 1,500 Bytes)?? Ethernet ??????????????????????????????

**????????????????????**

Ethernet ??????Ethernet ????????????????????????????? LAN ???? MAC ?????????????????? (?  
?????) ??Ethernet ????????????????? LAN ????????????????? (????????) ? 2 ??????????????  
??????

?? MAC ????????? LAN ??? MAC ?????????????????????????????  
???????????????????? MAC ????????????? MAC ?????????FF:FF:FF:FF:FF:FF????????????  
FF:FF:FF:FF:FF:FF ??? MAC ???  
????? Ethernet ?????????????????????????? (LAN ???) ????????

**?????? HUB ????**

Ethernet ????????????????? HUB?(??? 2 ????) ??Ethernet ?????????????????????????????  
???????? HUB ??????? (??? 8 ??????????????????????????) ????????? Ethernet ?????????????  
???? LAN ????????????????????????????? HUB ????????? LAN ????????????????????????????? 2  
???? Ethernet ??????????????????

???????? HUB ????????????????? HUB ??? HUB ?????????  
Ethernet ????????????????????????????? LAN ????????????????????? Ethernet ?????????????????  
?????? (?????????????????????)?

???????????????? 2 ????????? HUB ???

1-4-3.png

?????? HUB ??????????????????????????

**?????? HUB ??? MAC ??????????????????**

?????? HUB ????????????????????? MAC ???  
????????????MAC ??????????????????

?????? HUB ? Ethernet ????????????????? Ethernet ??????? MAC ????????? MAC ?????  
MAC ??? IP ????? MAC ?????????????????  
??

???????? HUB ??? MAC ?????????????????? MAC ?????????????????? Ethernet  
???????????????? Ethernet ?????? MAC ?????????????????????

?? HUB ???  
MAC ?????????????????????

**Ethernet ????? (????????????)**

????????Ethernet ??? 1 ??????????????  
?Ethernet ???1 ????????? HUB ??????  
Ethernet ?????? 1 ????????????????????????????????????? 2 ?????????? LAN ?????????????????????????  
1 ?????????????????????

**???????**

?????????????????2 ????????? HUB ????????????? 2 ?????????????????1 ?????????????????????  
????????????????????????Ethernet ???  
????? Ethernet ????????????????????? 1 ????????????????????????????????? HUB ?????????? HUB ????  
??

**???????**

?? 2 ? Ethernet ?????????????????????????????????????  
??

?? 1 ????????????????????????????????? HUB  
?? 2 ?????????????????????????????????????  
?????????

**1.4.2 ?? HUB**

SoftEther VPN ????????????????? HUB??LAN ?????????????????Ethernet ?????? VPN ???  
???????????????? HUB ?????????????????[1.6 VPN ??????](#) ????????? HUB ?????????????

**?? HUB ???**

?? HUB??SoftEther VPN ????????????? 1 ?????? HUB ?????????????2 ?????? HUB ????  
???????????????????????????? HUB ? MAC ???  
?????? HUB ?????????????????????????????????????SoftEther VPN ?? HUB ?????????????????  
??????????

?? HUB ?? VPN ?????????????? ?[1.6 VPN ??????](#) ?? ?[3.4 ?? HUB ???](#) ??????????

SoftEther VPN Server ???1 ?????????? HUB ?????????????? HUB ???????????? CPU ??  
?? HUB ? VPN ?????????????? Ethernet ??????????  
MAC ?????????????????????????? VPN ?????????????????? Ethernet ?????????????????????  
? 2 Ethernet ??????????????????

[1-4-4.png](#)

?? HUB ?? HUB ????? LAN ??????????

**?????? HUB ??????????**

1 ?? VPN Server ??????? HUB ?????????????????? HUB ?????????????????????????????????  
HUB ?????????VPN Server ?????????? Ethernet ?????????????????????

SoftEther VPN ?? HUB ?????? Ethernet ?????????????????? HUB ??????LAN ?????????????????  
???????? IP ?????? (?????????) ?????? TCP/IP ?????????????????? (SoftEther VPN ??????) ??  
???????????????????? HUB ?????????????????? HUB ?? LAN ?????????????????????????????  
?? LAN ?????????????????? SoftEther VPN ???  
????? VPN ??????????????????1 ?? VPN Server ??????? HUB ?????????????????? HUB ???????  
???????????????????????????????? HUB ?????????VPN Server ?????????? Ethernet ??????????????????  
??

VPN Server ??? HUB ?????????

**???????**

???????? HUB ?????? SoftEther VPN ???  
???????????????? HUB ????????????????????????????????????? HUB ?????????????????????????????  
???????? (????????????????????????????) ????????????????????????????????????? HUB ??  
??  
??

???????????? HUB ???VPN Server ?????  
???????????? HUB ??? HUB ?????????????????????????????  
?? HUB ????????????????????? HUB ?????????????????

**?? HUB ???????**

?? HUB ??? VPN Server ?????????????? VPN Server ?????????? HUB ?????????????????????  
???????????????????? HUB ????????????????????????????????????? 1 ?????????????????????

????? VPN Server ?????????? HUB ?????????? 3 ?????????????IP ?????????????? HUB ?????  
???????? 3 ?????????????????

**1.4.3 ?? LAN ??**

SoftEther VPN ?????????????? HUB ????????? HUB ????????????????????? LAN ?????????????  
????????????? LAN ?????????????????? LAN ??????TCP/IP ??? SoftEther VPN ??????????????  
????????????????? SoftEther VPN Server ????????????? HUB ?????????????????

SoftEther VPN Client ????? LAN ?????????? ?4. [SoftEther VPN Client ?????? ??????????](#)

1-4-6.png

???????????????? LAN ????????????????? SoftEther VPN ??? LAN ???

?? LAN ?????? Windows ?? Linux ??????????????SoftEther VPN Client?????????????  
SoftEther VPN Client ?????????????????VPN ?????????? VPN Server ??????????????????  
SoftEther VPN Client ?????????????? LAN ??????????????????????????????????????  
LAN ??????Windows ??  
LAN ?????? 1 ?? LAN ?????????????????????? Ethernet ??????????????????????????  
TCP/IP ?????? SoftEther VPN ?????????????? HUB ??????VPN ??????????????????????

?? LAN ??????????

**1.4.4 ?????????????? 3 ????**

SoftEther VPN Server ??????? HUB ????????????????????????????????????? HUB ???????????  
??? 2 ??? HUB ??? HUB ?  
??

????????

???????????????????????? VPN Server ????????????????????????????????????? HUB ?????????????  
??  
? [3.4 ?? HUB ????](#) ??? VPN ????????????? [10.5 ??????](#)  
[VPN ??? \(?????????\)](#)? ??????????

????? 3 ????

????? 3 ?????????????? 3 ?????????IP ?????????????IP ?????????????IP ?????????????????????????????????  
???????????

??? 3 ????? IP ????????????????????????????????????? 2 ??? 3 ? IP ?????  
???????????????????????????????????? 3 ?????????????????????????????????????IP ????????????????????????? 2 ?????????????? 3 ?





SoftEther VPN ??????????

### 1.4.6 ??????? VPN

SoftEther VPN ??? 3 ???????????

- ??????? VPN
- ??????? VPN
- ?????? VPN

?? [10. VPN ??????????????](#)  
[?????????](#) ???????????

????????? VPN?? SoftEther VPN ???  
VPN ???

????????? VPN ???  
SoftEther VPN Server ??? HUB ???  
SoftEther  
VPN Client ??? LAN ???  
HUB ? VPN ???  
Ethernet ???  
VPN ?????????????  
??

??  
VPN ?? SoftEther VPN Client ???  
??

?? [10.3 ??????? VPN ????](#) ???????????

?????? VPN

### 1.4.7 ??????? VPN

?????? VPN?? SoftEther VPN ??????????? VPN ?????????? LAN ???????????  
??

?????? LAN ??????????????????? ISDN ?????????????????? PPP ??????????????????  
??

SoftEther VPN ??????????? VPN????SoftEther VPN Client ??????????????????????  
?? LAN ????? SoftEther VPN Server ? VPN ??  
??? LAN ????????????????????????????????? VPN ?????????????????????????

???????? VPN ?????????????? LAN ? SoftEther VPN Server ?????? VPN Server ??????  
HUB ????????? Ethernet ??? HUB ??????  
VPN Client ????????????????????????????? LAN ?????????????????????

??? VPN ????????????????? TCP/IP ????????????????????? Ethernet ?????????????????  
?? VPN ??? NAT ????? VPN ?????????????????  
????

????????????????[10.4 ????????????? VPN ???](#) ?????????

???????? VPN

### 1.4.8 ?????????? VPN

????????? VPN????1 ?????????????????????????????????? VPN Client ??????????????????????????????????  
????????????????????????????? VPN ??????

????????????????? VPN??? VPN ??????????2 ??????????????????  
??? VPN ??????????????

????? VPN ?????????? VPN Server ??? VPN Bridge ?????????????????????????????????? VPN  
Server ??? VPN Bridge ??? HUB ?????????????????? Ethernet ??????????????????????????????????????  
????????????? 1 ?????? VPN Server ?????????? VPN Bridge ?????? HUB ??????????????????????????????????  
????????????????????? 2 ?????????? 1 ??SoftEther VPN ??  
?? 1 ?? LAN ??????????????????????????????????  
????????????????????????????????????? VPN ??

????????????????????????????? VPN ???  
?????????????????????????????????

????????????????????[10.5](#) ?????? VPN ??? (?????????)? ??????????

?????????? VPN

### 1.4.9 ?????????? VPN

???????????? VPN???????????????????? Ethernet ?????????? VPN ??????????VPN ??????????  
??  
??

- ?????????????????????ARP ? NetBIOS ???  
VPN ??????????????
- ?? 2 ??? 1 ?????????????????????????????????????  
???????????????????????????? IP ???  
?????????????

????????????????????????????????????SoftEther VPN Server ?????????? 3 ????????????????? 2 ?????????????????  
???????????????????????? 3 ??? 2 ????????????????????????????? 3 ? IP ???  
?? IP ???????  
??[10.6 ?????? VPN ??? \(IP ??????????\)](#)? ??????????

???????????????? PPTP ? L2TP/IPSec ??? VPN ????????????????? IP ????????????????????? VPN ?????  
?? VPN ????????????? SoftEther VPN ?????????????????????????????????

1-4-13.png

????????? VPN