



# Cisco ?????? L2TPv3 ????? VPN ?????

## Cisco ?????

Cisco ????? 2005 ?????????L2TPv3 over IPsec ?????? (????????????????????IOS ??  
?????????????????????)?

?? Web ?????????????????????Cisco 1812????Cisco 892????????????????????  
?? Cisco ?????? L2TP over IPsec ?????????????? (?????????????????)?

- [PacketiX VPN ? Cisco ?????????????????????????????????](#)

ciscopic.png

Cisco ?????

????

Cisco ?????????????SoftEther VPN ? IPsec ?????????????????

[01.png](#)

????????EtherIP / L2TPv3 over IPsec ???  
??

02.png

???????L2TPv3 ?????? (????) ? VPN Server ??? IPsec ????????????????? ISAKMP  
(IKE) Phase 1 ? ID ?????????? HUB ?? HUB ?????????????????????????????????????

???????????????????? L2TPv3 ?????? ?? VPN ?????? HUB ?DEFAULT?????????l2tpv3?  
??

(?????l2tpv3???? HUB ?DEFAULT????????????????????)

??????? Cisco ??? VPN Server ???????? ISAKMP (IKE) Phase 1 ? ID ?? ?? IP ??????  
????????????????????????????????????\*? (?????) ?? 1 ?? ID ?????????????????????????????????  
ID ????? VPN ?????????????????????????????

????????????????VPN Server ?????? ID ??? Cisco ?????????????????????????????????????  
??????????????

**Cisco ????????????? #1 (?? IP ??????????)**

1 ???????? Cisco ????????????????????? SoftEther VPN Server ??? VPN ?????????????????  
??????

????????????Cisco ???????? IP ??? (????? IP ???????? NAT ????????? IP ?????????  
?????????) ?????????????????Cisco ???????? IP ?????????????PPPoE ?? ISP ?? IP ???  
????????????????????????????????

??

- **Ethernet ??????**  
FastEthernet 0: WAN ? (IP ??????: 2.3.4.5?NAT ??????)  
FastEthernet 1: ?????
- **???????????? (????????????????) ?????? IP ????**  
FastEthernet 0 ??? Ethernet ??????????  
IP ?????: 2.3.4.5 / 255.255.255.0  
?????????????: 2.3.4.254  
????????????????????????????
- **??????? SoftEther VPN Server ???????? IP ????**  
1.2.3.4
- **ISAKMP SA ????????????**  
AES-256 / SHA / DH Group 2 (1024 bit)
- **IPsec SA ????????????**  
AES-256 / SHA

- **IPsec Pre-Shared Key (?????) ???**  
vpn

????????? Cisco ?????????????????????????????????

### **Cisco Configuration Sample**

```
conf t
ip classless
ip subnet-zero
no ip domain-lookup
no bba-group pppoe global

spanning-tree mode mst
spanning-tree extend system-id
vtp mode transparent

interface FastEthernet 0
ip address dhcp
duplex auto
speed auto
arp timeout 300
no shutdown
exit

interface FastEthernet 1
no ip address
duplex auto
speed auto
arp timeout 300
no shutdown
exit

ip routing
ip cef

no cdp run

pseudowire-class L2TPv3
encapsulation l2tpv3
ip local interface FastEthernet 0
exit

crypto isakmp policy 1
```

```
encryption aes 256
authentication pre-share
group 2
exit
```

```
crypto isakmp key vpn address 0.0.0.0 0.0.0.0
crypto isakmp keepalive 10 2 periodic
crypto ipsec fragmentation after-encryption
crypto ipsec transform-set IPSEC esp-aes 256 esp-sha-hmac
mode transport
exit
```

```
crypto map MAP 1 ipsec-isakmp
set peer 1.2.3.4
set transform-set IPSEC
match address IPSEC_MATCH_RULE
exit
```

```
ip access-list extended IPSEC_MATCH_RULE
permit 115 any any
exit
```

```
interface FastEthernet 0
crypto map MAP
exit
```

```
interface FastEthernet 1
no cdp enable
xconnect 1.2.3.4 1 pw-class L2TPv3
bridge-group 1
exit
```

????????????Cisco ???SoftEther VPN Server (IP ????: 1.2.3.4) ??? IPsec ???????????  
?????????? L2TPv3 ??????????????????? VPN ???????????

FastEthernet 0 ??? WAN ? (?????????)FastEthernet 1 ? VPN ?????? (VPN ??????????????  
?????????) ?????????????FastEthernet 1 ??????????????????? PC ??Ethernet ????? (L2) ???  
SoftEther VPN Server ??? HUB ???

**Cisco ????????????? #2 (DHCP ??? IP ????????)**

1 ??????? Cisco ??????????????????????? SoftEther VPN Server ??? VPN ??????????????????  
???????

????????????Cisco ????????????????????? IP ??? (???? IP ??????? NAT ???????  
IP ??????????????????) ? DHCP ?????????????????????

??

- **Ethernet ??????**  
FastEthernet 0: WAN ? (DHCP ??? IP ???????NAT ??????)  
FastEthernet 1: ?????
- **?????????? (?????????????????) ????? IP ????**  
FastEthernet 0 ??? Ethernet ??????? DHCP ????? IP ?????????????????????  
????????????????????????????????????
- **?????? SoftEther VPN Server ??????? IP ????**  
1.2.3.4
- **ISAKMP SA ???????????**  
AES-256 / SHA / DH Group 2 (1024 bit)
- **IPsec SA ???????????**  
AES-256 / SHA
- **IPsec Pre-Shared Key (?????) ???**  
vpn

????????? Cisco ?????????????????????????????????

### Cisco Configuration Sample

```
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ip subnet-zero
no ip domain-lookup
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spanning-tree mode mst
spanning-tree extend system-id
vtp mode transparent

interface FastEthernet 0
ip address dhcp
duplex auto
speed auto
arp timeout 300
no shutdown
exit

interface FastEthernet 1
no ip address
```

```
duplex auto
speed auto
arp timeout 300
no shutdown
exit
```

```
ip routing
ip cef
```

```
no cdp run
```

```
pseudowire-class L2TPv3
encapsulation l2tpv3
ip local interface FastEthernet 0
exit
```

```
crypto isakmp policy 1
encryption aes 256
authentication pre-share
group 2
exit
```

```
crypto isakmp key vpn address 0.0.0.0 0.0.0.0
crypto isakmp keepalive 10 2 periodic
crypto ipsec fragmentation after-encryption
crypto ipsec transform-set IPSEC esp-aes 256 esp-sha-hmac
mode transport
exit
```

```
crypto map MAP 1 ipsec-isakmp
set peer 1.2.3.4
set transform-set IPSEC
match address IPSEC_MATCH_RULE
exit
```

```
ip access-list extended IPSEC_MATCH_RULE
permit 115 any any
exit
```

```
interface FastEthernet 0
crypto map MAP
exit
```

```
interface FastEthernet 1
no cdp enable
```

```
xconnect 1.2.3.4 1 pw-class L2TPv3
bridge-group 1
exit
```

????????????Cisco ?????SoftEther VPN Server (IP ????: 1.2.3.4) ??? IPsec ???????????  
?????????? L2TPv3 ??????????????? VPN ???????????

FastEthernet 0 ??? WAN ? (?????????)FastEthernet 1 ? VPN ????? (VPN ?????????????  
????????) ?????????FastEthernet 1 ??????????????? PC ??Ethernet ????? (L2) ??  
SoftEther VPN Server ??? HUB ?????????????????????????????????

### Cisco ????????????? #3 (PPPoE ??? IP ????????)

1 ??????? Cisco ????????????????????? SoftEther VPN Server ??? VPN ?????????????????  
??????

????????????Cisco ????????????? PPPoE ??? ISP ????????????? ISP ??? IP ???????  
????????????

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- **Ethernet ??????**  
FastEthernet 0: WAN ? (PPPoE ??? IP ?????????NAT ??????)  
FastEthernet 1: ?????
- **???????????? (????????????????) ????? IP ????**  
FastEthernet 0 ??? Ethernet ????? NTT ??????????? ONU ?????????????????  
??? NTT ????? PPPoE ????????? ISP ?????ISP ?? IP ?????????????????????  
????????????????????????????????????
- **Cisco ????????????? PPPoE ????????????**  
ID: abc12345 @ isp.ad.jp  
?????: nekojamu
- **????? SoftEther VPN Server ??????? IP ????**  
1.2.3.4
- **ISAKMP SA ????????????**  
AES-256 / SHA / DH Group 2 (1024 bit)
- **IPsec SA ????????????**  
AES-256 / SHA
- **IPsec Pre-Shared Key (?????) ???**  
vpn

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## Cisco Configuration Sample

```
conf t
ip classless
ip subnet-zero
no ip domain-lookup
no bba-group pppoe global

spanning-tree mode mst
spanning-tree extend system-id
vtp mode transparent

interface FastEthernet 0
no ip address
duplex auto
speed auto
arp timeout 300
no shutdown
exit

interface FastEthernet 1
no ip address
duplex auto
speed auto
arp timeout 300
no shutdown
exit

ip routing
ip cef

no cdp run

interface FastEthernet 0
pppoe enable
pppoe-client dial-pool-number 1
exit

interface FastEthernet 1
no ip address
exit

interface Dialer 1
ip address negotiated
```



```
encapsulation ppp
dialer pool 1
dialer-group 1
ip mtu 1454
keepalive 15 6
ppp authentication chap callin
ppp chap hostname abc12345@isp.ad.jp
ppp chap password 0 nekojamu
dialer idle-timeout 0
dialer persistent
exit

ip route 0.0.0.0 0.0.0.0 Dialer1 permanent

pseudowire-class L2TPv3
encapsulation l2tpv3
ip local interface Dialer 1
exit

crypto isakmp policy 1
encryption aes 256
hash sha
authentication pre-share
group 2
exit

crypto isakmp key vpn address 0.0.0.0 0.0.0.0
crypto isakmp keepalive 10 2 periodic
crypto ipsec fragmentation after-encryption
crypto ipsec transform-set IPSEC esp-aes 256 esp-sha-hmac
mode transport
exit

crypto map MAP 1 ipsec-isakmp
set peer 1.2.3.4
set transform-set IPSEC
match address IPSEC_MATCH_RULE
exit

ip access-list extended IPSEC_MATCH_RULE
permit 115 any any
exit

interface Dialer 1
crypto map MAP
```

exit

```
interface FastEthernet 1
no cdp enable
xconnect 1.2.3.4 1 pw-class L2TPv3
bridge-group 1
exit
```

????????????Cisco ???SoftEther VPN Server (IP ????: 1.2.3.4) ??? IPsec ???????????  
?????????? L2TPv3 ?????????????????? VPN ????????????

FastEthernet 0 ??? WAN ? (?????????)FastEthernet 1 ? VPN ?????? (VPN ??????????????  
?????????) ???????????FastEthernet 1 ?????????????????? PC ??Ethernet ????? (L2) ??  
SoftEther VPN Server ??? HUB ???

[SoftEther VPN ? Cisco ???](#)