



NEC ??????? EtherIP ????? VPN ?????

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EtherIP ??????????????????????IPSec ?????????????? SoftEther VPN Server ??????????????????
VPN Server ??????????????????

??? SoftEther.org ??????????????????????

- NEC UNIVERGE IX2015
- NEC UNIVERGE IX2105

????????? EtherIP over IPSec ??????????????????????

????

???????????????????? SoftEther VPN ? IPSec ??????????????????????

[01.png](#)

VPN Server Manager ??????????????????IPsec / L2TP ??????????????IPSec / L2TP / EtherIP ?
?????????????????

02.png

IPSec ??????????????????????????????????????EtherIP over IPSec ??????????????????????????????
?EtherIP ??????????????????????????????

03.png

?EtherIP ??????????????????EtherIP ?????? (????) ? VPN Server ??? IPsec ??????????
????? ISAKMP (IKE) Phase1 ? ID ?????????? HUB ??? HUB ??????????????????????
??????

????????????????????????????? EtherIP ?????? 1 ?? VPN Server ? IPsec ??????????????????
EtherIP ?????????? HUB ?? VPN Server
????????????????????
?????EtherIP ?????????? VPN Server ? IPsec ?????????? IPsec ?????????? (ISAKMP /
IKEv1) ? Phase 1 ? ID ?????????????????? ID ?????????? HUB ?????????????????????????????
??????????????

????????????IX???? ID ?????????????? EtherIP ?????? HUB ?DEFAULT?????????ix??????
??
(????ix???? HUB ?DEFAULT????????????????????????)

??ISAKMP (IKEv1) ? Phase 1 ID ???*? (?????) ???
VPN ???IPsec ?????????????????????????????????????
??????????

IX ???????????

????????????????IX2015 ??????????????????
????????????????????????????

- **Ethernet ??????**

FastEthernet0/0.0 : WAN

FastEthernet1/0.0 : ????

BVI1 : VPN ?? ping ??????????????????????

(IX2105 ???FastEthernet ? GigaEthernet0.0 ??????????????)

- **???????????? IP ????**

FastEthernet0/0.0 ?? DHCP ????????

(FastEthernet0/0.0 ??? NAT ? DHCP ???
????????????????)

- **??? IP**

1.2.3.4

- **ISAKMP (IKEv1) SA ????????????**

AES / SHA / DH Group 2 (1024bit)

- **IPsec SA ????????????**

AES / SHA

IX2015 ??????

?????????? IX2015 ??????????????????

```
ip ufs-cache enable
```

```
ip access-list access-list permit ip src any dest any
```

```
!
```

```
!
```

```
!
ike proposal ike-prop encryption aes hash sha group 1024-bit lifetime 3600
!
ike policy ike-policy peer 1.2.3.4 key vpntest mode aggressive ike-prop
ike keepalive ike-policy 10 2
ike local-id ike-policy keyid IX
ike nat-traversal policy ike-policy keepalive 10
!
ipsec autokey-proposal ipsec-prop esp-aes esp-sha lifetime time 3600
!
ipsec autokey-map ipsec-map access-list peer 1.2.3.4 ipsec-prop
!
!
!
bridge irb enable
!
watch-group keepalive 10
    event 10 ip unreachable 192.168.0.1 BVI1 source BVI1
!
!
network-monitor keepalive enable
!
interface FastEthernet0/0.0
    ip address dhcp receive-default
    no shutdown
!
interface FastEthernet1/0.0
    no ip address
    bridge-group 1
    no shutdown
!
interface Tunnel0.0
    tunnel mode ether-ip ipsec
    no ip address
    ipsec policy tunnel ipsec-map out
    bridge-group 1
    no shutdown
!
interface BVI1
    bridge-group 1
    ip address 192.168.0.123/24
    no shutdown
????????????SoftEther VPN Server (IP ???? : 1.2.3.4) ??? IPsec ???????????? (????IX
??? Phase 1 ID ??????)???????? EtherIP ????????????? VPN ??????????
```

FastEthernet0/0 ? WAN (???) FastEthernet1/0 (PC ?)
FastEthernet1/0 Ethernet (L2) ? SoftEther VPN
Server HUB

?????

- **?ike local-id ike-policy keyid IX?**

ISAKMP (IKEv1) (???) ? ID IX
VPN Server ? IPSec EtherIP ID HUB
????

- **?bridge-group 1?**

bridge-group Tunnel0.0 (EtherIP over IPSec ? VPN
Server) ? FastEther1/0?BVI1 ? Ethernet

- **?watch-group keepalive 10???**

IX2015 (??) VPN Server ? IPSec
IPSec
BVI1 bridge-group IP
192.168.0.123/24 IP 5 ? 1 ICMP 192.168.0.1
(watch-group)?ICMP 192.168.0.1
LAN (???) IP IP
ARP IPSec

?????

- **IPv6 ????**

IPv6 ? EtherIP

ip ufs-cache enable

!

ipv6 ufs-cache enable

ipv6 access-list sec-list permit ip src any dest any

!

ike proposal ike-prop encryption aes hash sha group 1024-bit lifetime

!

ike policy ike-policy peer 2001::1 key vpntest mode aggressive ike-p

ike keepalive ike-policy 10 2

ike local-id ike-policy keyid IX

ike nat-traversal policy ike-policy keepalive 10

!

ipsec autokey-proposal ipsec-prop esp-aes esp-sha lifetime time 3600

!

ipsec autokey-map ipsec-map sec-list peer 2001::1 ipsec-prop

!

!

!

```

bridge irb enable
!
!
watch-group keepalive 10
  event 10 ip unreachable 192.168.0.1 Tunnel0.0 source Tunnel0.0
!
network-monitor keepalive enable
!
ipv6 dhcp client-profile DHCPV6_CLIENT
  information-request
  option-request dns-servers
exit
!
interface FastEthernet0/0.0
  no ip address
  ipv6 address autoconfig receive-default
  ipv6 dhcp client DHCPV6_CLIENT
  no shutdown
!
interface FastEthernet1/0.0
  no ip address
  bridge-group 1
  no shutdown
!
interface Tunnel0.0
  tunnel mode ether-ip ipsec
  no ip address
  ipsec policy tunnel ipsec-map out
  bridge-group 1
  no shutdown
!
interface BVI1
  bridge-group 1
  ip address 192.168.0.123/24
  no shutdown
???????? IPv6 ??????????????access-list ? v6 ?????????????????????????
• ?ipv6 dhcp client-profile DHCPV6_CLIENT?
???? IPv6 ??? DNS ?????????????? DHCPv6 ??????????????
???????? FQDN ?????????????????????????
• ????? (FQDN) ??????????????
IX2025?? IX2105 ??????FQDN ??????????????
?????peer ? peer-fqdn-ipv4 ? peer-fqdn-ipv6 ??????FQDN ??????????
?????Proxy-DNS ?????????????????? DHCPv6 ??????????????????
???????????????? VPN ??????????????????

```