How To Bridge Private Two LAN

Bridge LANs Over The Internet Between Main Office and Branch Office
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How To Bridge Private Two LAN

Bridge LANs Over The Internet Between Main Office and Branch Office Can use EOIP
VPN Tunneling Protocol

- PPTP (Point-to-Point Tunneling Protocol)
- L2TP (Layer 2 Tunnel Protocol)
- SSTP (Secure Socket Tunneling Protocol)
- OpenVPN (OpenVPN is a fairly new open source technology)
- IKEv2 (Internet Key Exchange (version 2))
- Etc..........................
VPN (Virtual private network)
MikroTik Router OS support Protocol

- PPTP
- SSTP
- L2TP
- OVPN
- IPIP
- GRE
- EOIP (MikroTik Router OS Proprietary protocol)
- VPLS
EOIP (Ethernet Over IP)

- MikroTik RouterOS Proprietary protocol
- That creates an Ethernet tunnel between two routers on top of an IP connection.
- EoIP tunnel may run over IPIP tunnel, PPTP tunnel or any other connection capable of transporting IP.
- When the bridging function of the router is enabled, all Ethernet traffic (all Ethernet protocols) will be bridged just as if there were a physical Ethernet interface and cable between the two routers (with bridging enabled).
- This protocol makes multiple network schemes possible.
IANA has reserved

• Media Access Control number of an interface. The address numeration authority IANA allows the use of MAC addresses in the range from 00:00:5E:80:00:00 - 00:00:5E:FF:FF:FF freely
Use for those services

- Access Branch Office resource from Main Office
- PPPOE
- DHCP
- Application Server
- Etc..
Bridge LANs Over The Internet Between Main Office and Branch Office
**SSTP Tunnel** *(Secure Socket Tunneling Protocol)*

- Secure Socket Tunneling Protocol (SSTP) transports a PPP tunnel over a TLS 1.0 channel. The use of TLS over TCP port 443 allows SSTP to pass through virtually all firewalls and proxy servers.
EOIP (Ethernet Over IP) Overhead

**SSTP-**
- **Note:** EoIP tunnel adds at least 154 byte overhead (120 byte SSTP + 14 byte Ethernet + 20 byte IP)
- **Note:** RSA Key length must be at least 472 bits if certificate is used by SSTP

**PPTP-**
- **Note:** EoIP tunnel adds at least 42byte overhead (8byte GRE + 14 byte Ethernet + 20 byte IP)
Advantages and Disadvantages

- **Advantages**
  - Easy to setup
  - Portability
  - Security

- **Disadvantages**
  - Only for MikroTik Router OS
  - Increase Overhead
  - More Bandwidth Requirement
EOIP (Ethernet Over IP) configuration
-create SSTP Tunnel
### SSTP Server Enable (Main Office)

#### SSTP Server Configuration

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>L2 MTU</th>
<th>Tx</th>
<th>Rx</th>
<th>Tx Pac.</th>
<th>Rx Pac.</th>
<th>Tx Bytes</th>
<th>Rx Bytes</th>
<th>Tx Drops</th>
<th>Rx Drops</th>
<th>Tx Errors</th>
<th>Rx Errors</th>
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<td>DR</td>
<td>SSTP Server</td>
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<td>0</td>
<td>0</td>
<td>137</td>
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<td>0</td>
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<tr>
<td>DR</td>
<td>SSTP Server</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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#### SSTP Server Profiles

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<th>RX</th>
<th>TX Pac.</th>
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<th>TX Bytes</th>
<th>RX Bytes</th>
<th>TX Drops</th>
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<th>TX Errors</th>
<th>RX Errors</th>
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</table>

#### SSTP Server Settings

- **Enabled**: Yes
- **Port**: 443
- **Max MTU**: 1500
- **Max MRU**: 1500
- **MRACK**: 1
- **LCP Keepalive**: 60
- **Default Profile**: default

- **Authentication**: EAP-MD5, EAP-TLS
- **Certificate**: none

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Kyaw Ko Ko Thu
ADD SSTP User name & password
SSTP Client Configuration (Branch Office)
EOIP (Ethernet Over IP) configuration

- Create EOIP Tunnel
EOIP (Ethernet Over IP) configuration
- Create EoIP tunnel On Main Office

- Enable EOIP tunnel
- Local Address and Remote Address is SSTP Tunnel Ip address
**EOIP (Ethernet Over IP) configuration**

- Create EoIP tunnel On Branch Office

- Enable EoIP tunnel
- Local Address and Remote Address is SSTP Tunnel Ip address
EOIP (Ethernet Over IP) configuration

- Create Bridge interface On Both side
- Bridge local interfaces with EoIP tunnel on both side
EOIP (Ethernet Over IP) configuration

- Now both sites are in the same Layer2 broadcast domain. You can set up IP addresses from the same network on both sites.
EOIP (Ethernet Over IP) configuration

- Enable SSTP Server and SSTP Client
- Create SSTP Tunnel
- Add to LAN Interface and EOIP Tunnel Interface in Bridge Interface
Check & Test
EOIP (Ethernet Over IP) configuration
- Create SSTP tunnel
- Create EoIP tunnel
- Bridge local interfaces with EoIP tunnel
EOIP (Ethernet Over IP) configuration

Test DHCP requests over EoIP
EOIP (Ethernet Over IP) configuration

- Test Mikrotik Neighbor discovery software (Winbox)
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>L2 MTU</th>
<th>Tx</th>
<th>Rx</th>
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<th>Rx Packet (p/s)</th>
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<td>220.6 kbps</td>
<td>317.9 kbps</td>
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<td>284.0 kbps</td>
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<td>11</td>
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<td>137.0 kbps</td>
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<td>sipf-out1</td>
<td>SSTP Client</td>
<td>6.9 kbps</td>
<td>203.1 kbps</td>
<td>14</td>
<td>123</td>
<td></td>
</tr>
</tbody>
</table>
Thank You
Good Bye

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Myanmar MikroTik User Meeting
Welcome To Next Years