Linking 2 Sites Together Using VPN
How To

The purpose of this document is to explain you how to connect 2 remote equipments over the Internet using the second Ethernet interface of 2 eWONs (though a VPN connection).
# Table of Contents

1. Hardware and software requirements ..................................................................................................3  
   Hardware requirements ....................................................................................................................3  
   Software requirements ....................................................................................................................3  
   eWON Firmware Version ...............................................................................................................3  

2. Introduction ........................................................................................................................................4  

3. Configure the eWON VPN Server ....................................................................................................5  
   LAN and WAN IP Interface Configuration .......................................................................................5  
   VPN Configuration ..........................................................................................................................6  
   Internet Connection Configuration ...................................................................................................7  
   Routing Configuration ......................................................................................................................7  
   Security Configuration ......................................................................................................................9  
   Reboot your eWON ..........................................................................................................................9  

4. Configure the eWON VPN Client .....................................................................................................10  
   LAN and WAN IP Interface Configuration .......................................................................................10  
   VPN Configuration ..........................................................................................................................11  
   Internet Connection Configuration ...................................................................................................12  
   Routing Configuration ......................................................................................................................12  
   Security Configuration ......................................................................................................................13  
   Reboot your eWON ..........................................................................................................................14  

5. Configuration of the ADSL Routers ................................................................................................15  
   Port Forwarding ................................................................................................................................15  
   Public IP address ............................................................................................................................15  

6. Configuration of the devices behind the eWONs .............................................................................16  

7. Connection Establishment ................................................................................................................17  

8. Troubleshooting ................................................................................................................................19  
   If a VPN connection has been established, but the devices behind the eWONs do not communicate: .........................................................................................................................19  
   If the VPN connection cannot be established: ................................................................................19  
   If the VPN connection is interrupted: .............................................................................................19  

Revisions ..............................................................................................................................................20
Hardware and software requirements

Hardware requirements

In order to follow this guide you will need:

- 2 eWONs with a second Ethernet interface (2005 CD or eWON 4005 CD)

Software requirements

**eWON configuration software:**

The eWON is configured through its web server. So all you need is a standard Web Browser software like Internet Explorer or Firefox. Additionally we suggest you to download the eBuddy utility on our website: [http://support.ewon.biz](http://support.ewon.biz). This utility allows to list all the eWONs on your network and to change the default IP address of an eWON to match your LAN IP address range. With eBuddy you can also easily upgrade the firmware of your eWON (if required).

**Other programming software:**

N/A

**eWON Firmware Version**

To be able to follow this guide your eWON needs a firmware version 5.0 or higher. A simple way to realize the eWON firmware upgrade is to use eBuddy, the eWON software companion.
In this document, we will see how to link 2 remote sites together using VPN over the Internet. We will use 2 eWONs 2005CD and establish a VPN connection over the Internet using the second Ethernet interface.

Here are the steps to make 2 networks communicate (eWON A – eWON B) through a VPN connection:

- Configure the Internet connection on both eWONs
- Configure the eWON A for VPN incoming (as VPN Server)
- Configure the eWON B for VPN outgoing (as VPN Client Server)
- Set the eWON A LAN address as default gateway of your devices of site A
- Set the eWON B LAN address as default gateway of your devices of site B

**NOTE** Make sure that the IP addresses of site A are on a different range than the addresses of site B, otherwise, the routing will be impossible.
Configure the eWON VPN Server

In our example, eWON A is the VPN Server.

LAN and WAN IP Interface Configuration

- **Configuration → System Setup → Communication → Network Connections → Ethernet → Eth1-LAN**

Set the eWON LAN IP Address.

- **Configuration → System Setup → Communication → Network Connections → Ethernet → Eth2-WAN**

Set the eWON WAN IP Address.

The default gateway should be the IP address of the ADSL router of eWON A.
3. Configure the eWON VPN Server

VPN Configuration

Configuration → System Setup → Communication → Network Connections → VPN → Global

Adapt the UDP port used for the Incoming VPN connection if needed. By default *Port In* is set on 0 which means that the eWON is listening on port 1194 for the incoming VPN connection.

Configuration → System Setup → Communication → Network Connections → VPN → Incoming

Check «listen for incoming VPN connection».

Enter a Passphrase (and remember the Passphrase !!)
3. Configure the eWON VPN Server

Assign the VPN IP address: leave it on automatic. Set it manually only in case of address conflict.

Internet Connection Configuration

Select «Ethernet Wan connection» for the Network connection.
Check «Maintain connection».
Disable the Publish WAN IP address.

Routing Configuration
3. Configure the eWON VPN Server

Make sure that the VPN network setup is on «Listen for incoming VPN from client».

Enable «Route all gateway traffic through VPN».
Select «NAT and TF disabled».
3. Configure the eWON VPN Server

Security Configuration

Configuration → System Setup → Communication → Networking Config → Security

In **WAN Protection level**: select «Allow all...», and perhaps, adjust it later to «Discard all traffic excepted VPN and initiated traffic».

**Reboot your eWON**

For the eWON to take the VPN connection configuration into account, you will have to reboot it. Otherwise the VPN parameters will not be applied.
Configure the eWON VPN Client

In our example, eWON B is the VPN Client.

LAN and WAN IP Interface Configuration

Configuration → System Setup → Communication → Network Connections → Ethernet → Eht1-LAN

Set the eWON LAN IP Address.

Configuration → System Setup → Communication → Network Connections → Ethernet → Eht2-WAN

Set the eWON WAN IP Address.

The default gateway should be the IP address of the ADSL router of eWON B.
4. Configure the eWON VPN Client

VPN Configuration

Adapt the UDP port used for the outgoing VPN connection if needed. By default, 1194 is used on the other eWON for the incoming VPN connection.

Enable «Establish VPN connection».

Configure the eWON for outgoing VPN connection to another eWON.
4. Configure the eWON VPN Client

For the «Primary server» enter the public IP address of the ADSL Router of eWON A. Select «Other eWON» for the «Connect to...» Passphrase: enter the Passphrase you configured for eWON A. Assign the VPN IP address: leave it on automatic. Set it manually only in case of address conflict.

**Internet Connection Configuration**

Select «Ethernet Wan connection» for the Network connection. Check «Maintain connection». Disable the Publish WAN IP address.

**Routing Configuration**
4. Configure the eWON VPN Client

Choose: «Establish outgoing VPN to server».

Select «NAT and TF disabled».
Enable «Route all gateway traffic through VPN».

Security Configuration

Configuration → System Setup → Communication → Networking Config → Security
4. Configure the eWON VPN Client

**WAN Protection level**: select «Allow all...», and perhaps adjust it later to «Discard all traffic excepted VPN and initiated traffic».

**Reboot your eWON**

For the eWON to take the VPN connection configuration into account, you will have to reboot it. Otherwise the VPN parameters will not be applied.
Port Forwarding

You will have to configure the ADSL router of site A to make a port forwarding (router A).

For example, if you use the eWON standard VPN configuration you will have to define that all the incoming packets on UDP port 1194 will have to be redirected to the WAN IP address of your eWON (eWON A) at UDP port 1194. (Attention: UDP port <> TCP port).

On router B we do not need to configure the port forwarding, because only outgoing connections are used on this eWON.

Public IP address

To make the VPN connection work, you need to specify in the eWON VPN Client (eWON B) the public IP address of the router of site A. So, you need a static public IP address for the site A. If you do not have a static IP address, then you can configure your router for dynamic DNS and use the dynamic domain name in the eWON VPN Client. Instead of router A, eWON can also be configured for dynamic DNS.

The public IP address of the router of site B do not need to be static and it is not necessary to know.
Configuration of the devices behind the eWONs

All the devices connected to the LAN of eWON A must have the LAN IP address of eWON A as Gateway.

All the devices connected to the LAN of eWON B must have the LAN IP address of eWON B as Gateway, as shown in our introduction picture.
Connection Establishment

One the VPN connection has been configured, the connection will be automatically established when the eWON is powered on. To make sure that the VPN connection is indeed established, follow this path:

Diagnostic → Status → Status

Click on «Status» to make the following page open:

In our example the VPN allocated IP address is 10.254.0.2 for eWON A.

<table>
<thead>
<tr>
<th>Description</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPP allocated IP address</td>
<td>10.254.0.0</td>
</tr>
<tr>
<td>Current IP transparent forward add</td>
<td>10.254.0.0</td>
</tr>
<tr>
<td>VPN allocated IP address</td>
<td>10.254.0.2</td>
</tr>
<tr>
<td>PPP accumulated incoming traffic</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>PPP accumulated outgoing traffic</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>ADSL Line status</td>
<td></td>
</tr>
<tr>
<td>ADSL WAN status</td>
<td></td>
</tr>
<tr>
<td>ADSL Local IP</td>
<td>10.254.0.0</td>
</tr>
<tr>
<td>ADSL Remote IP</td>
<td>10.254.0.0</td>
</tr>
<tr>
<td>ADSL Primary DNS</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>ADSL Secondary DNS</td>
<td>0.0.0.0</td>
</tr>
</tbody>
</table>
The eWON B received the VPN IP address 10.254.0.1

<table>
<thead>
<tr>
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<th>Value</th>
<th>Unit</th>
<th>Stat</th>
<th>?</th>
</tr>
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<tr>
<td>Current IP transparent forward address</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>VPN allocated IP address</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>PPP accumulated outgoing traffic</td>
<td>0</td>
<td>Bytes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Troubleshooting

If a VPN connection has been established, but the devices behind the eWONs do not communicate:

- Check that devices on site A are not on the same LAN IP address range as the LAN IP address range of devices on site B.
- Make sure that each eWON is the default gateway of the devices linked to it.

If the VPN connection cannot be established:

- Verify that the eWON Server WAN IP address range is different from the eWON Client WAN IP address range.
- Make sure that each router is the default gateway of the eWON it is linked to: router A=default gateway of eWON A and router B=default gateway of eWON B.

If the VPN connection is interrupted:

- Check if the «Maintain Connection» is indeed activated in each eWON (in the Internet Connection configuration page).
Revisions

<table>
<thead>
<tr>
<th>Revision Level</th>
<th>Date</th>
<th>Description</th>
</tr>
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<tr>
<td>1.0</td>
<td>2008-12-20</td>
<td>First release.</td>
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