eWON Application User Guide AUG 027 / Rev 1.0





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Hardware and software requirements

Hardware requirements

In order to follow this guide you'll need:

- Minimum 1 eWON-VPN (several is better) with Internet connection for example: an eWON2005CD on your corporate LAN or an eWON2101-gprs with a SIMCard or an eWON2104 with an ADSL connection
- 2 Endian4ewon devices.
- One Broadband Internet connection without any port restrictions For example: an ADSL line with an ADSL modem

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 Explorerⁱ or Firefoxⁱⁱ.

Additionally we suggest you to download the eBuddy utility on our website : <u>http://support.ewon.biz.</u>

This utility allows you 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:

ENDIAN Firewall is configurable through its web server. So, all you need is a standard Web Browser software like Internet Explorerⁱ or Firefoxⁱⁱ.

eWON Firmware Version

To be able to follow this guide your eWON needs a firmware version 5.6s2 or higher. A simple way to realize the eWON firmware upgrade is to use eBuddy, the eWON software companion.



Topology 1: Dedicated SA network

Supervisor Application ADSL modem **INTERNET** LAN

SA stands for Supervisor Application.

Figure 1: Dedicated SA network

This network topology is the simplest one, you have a dedicated Internet connection to your Supervisor Network.

Your Endian Device will do all the connectivity and security tasks to allow your remote eWONs to be connected to the LAN network.

ENDIAN Connectivity Setup

On this Endian, you need only to setup 2 interfaces, the GREEN and the RED.

For that, simply use the Network Configuration wizard.



With my ADSL Modem (D-LINK DSL-300T), if I use it as ADSL-Router, the internal D-Link firewall will block all ports excepts 80 and 21.

As the ENDIAN is firstly a Firewall and because I want to use OpenVPN (UDP1194), it's required to setup the ADSL Modem in Bridge mode to disable the D-Link firewall.

Then, the PPPoE parameters will be setup in the ENDIAN.



>> Network setup wizard	
Step 1/7: Choose type of RED interface	
RED: untrusted, internet connection (VVAN) Hardware information	>> Network setup wizard
C ETHERNET STATIC	Step 2/7: Choose network zones
C ETHERNET DHCP	
© PPPoE	ORANGE: network segment for servers accessible from internet (Div BLUE:
C ADSL (USB, PCI)	
CISDN	
C ANALOG/JMTS Modern	OBLIE
C GATEWAY	
Cancel	< Cancel >>>
>> Network setup wizard	Network setup wizard
Step 3/7: Network preferences	Step 4/7: Internet access preferences
GREEN (trusted, internal network (LAN)):	Substep 17. supply connection information
IP address: 192.168.120.16 network mask: /24 - 25	55.255.255.0 💌 Interfaces:
Add additional addresses (one IP/Netmask or IP/CIDR per line) :	Port Link Description MAC Device
	1 🛷 Realtek <u>?</u> 00:60:e0:43:65:f5 eth0
	C 2 🖌 Intel ? 00:60:e0:e2:c6:d4 eth1
	O 3 🗙 Intel ? 00:60:e0:e2:c6:d5 eth2
Interfaces:	● 4 🖋 Intel <u>2</u> 00:60:e0:e2:c6:d6 eth3
Port Link Description MAC Device	○ 5 X Intel 2 00:60:e0:e2:c6:d7 eth4
✓ 1 ✓ Realtek ? 00:60:e0:43:65:15 eth0	
□ 2 ✓ Intel ? 00:60:e0:e2:c6:d4 eth1	Add additional addresses (one IP/Netmask or IP/CIDR per line) :
□ 3 ¥ Intel ? 00:60:e0:e2:c6:d5 eth2	
□ 4 ✔ Intel ? 00:60:e0:e2:c6:d6 eth3	
5 🗶 Intel ? 00:60:e0:e2:c6:d7 eth4	
	Username:
	Password:
Hostname: efw-1221755121	Authentication method: PAP or CHAP
Domainname: localdomain	MTU: • 1400
/// Careal XXX	DNS: O automatic O manual
	Service:
33 Nathune Lendurs universel	Concentrator name: •
	• This field may be blank.
Step 5//: Contigure Divis resolver	
DNS: automatic	<pre></pre> Cancel
<<< Cancel >>>	





Now, the ENDIAN has the LAN IP address 192.168.120.16 and is connected to Internet by the ADSL Line.

To easily manage the "Supervisor Network", configure the DHCP service with, for example, DHCP IP range from 120 to 254.

	System Status Network	Services Firewall	Proxy VPN Logs	
	DHCP configuration			
DHCP server	» DHCP			
Dynamic DNS				
Clamav antivirus	Green interface	Enabled 🔽	Save	
Time server	E Settings			
Traffic shaping	Start address	192.168.120.120	End address 192.168.120.254	
	Default lease time (min) *	60	Max lease time (min) * 120	
	Domain name suffix	localdomain		
	Primary DNS	192.168.120.16	Secondary DNS	
	Primary NTP server		Secondary NTP server	
	Primary WINS server address		Secondary WINS server address	
	Save all		* This field is required.	_

Then, our "Supervisor Network" is divided in two ranges:

- the lower IP addresses (till 119) reserved for fixed IP addresses
- the upper IP addresses (from 120) reserved for DHCP IP addresses.



With my ADSL line, the public IP address is dynamic, then, it is useful to setup a Dynamic DNS service to help eWONs to find the server.

	System	Status	Network	Services	Firewall	Proxy	VPN	Logs				
	Dynamic	: DNS cl	ient									
DHCP server	>> Curre	ent hosts										
Dynamic DNS												
Clamav antivirus	Add a	<u>i host</u>										
Time server	Service		Hostname	D	omain		Anonymou	is web proxies	Wildcards	Enabled	Actions	
Traffic shaping	dyndns.c	org	ewon	dy	/nalias.net						Ø	7
Force update												
	Legend:	🗹 Enable	ed (click to disab	ole) 🗌 Di	isabled (click to er	nable) 🍐	🖉 Edit 🛛 🗍	Remove				

On the *Dynamic DNS* page, click on the O Add a host link and configure your dynamic DNS account (among dyndns.org, dyns.cx, easydns, no-ip, ...). My Endian Firewall is now reachable at the address *ewon.dynalias.net*.

OpenVPN setup

To allow eWONs or computers to join the "Supervisor Network", you need to configure the VPN of the ENDIAN.

	System	Status	Network	Services	Firewall	Proxy	VPN	Logs
	OpenVF	PN - Virtu	ial Private	Networking				
OpenVPN server	» Ser	ver configu	ration Acc	ounts Advanc	ced VPN cli	ent download	1	
OpenVPN client (Gw2Gw)	_							
IPsec	>> Glob	al settings						
	OpenVPI Dynamic Dynamic Save a	N server ena IP pool start IP pool end a and restart	bled: address: address:		☐ 192.16 192.16 Downle	8.120.20 8.120.40 ad CA certifi	<u>cate</u>	

Here above, we reserve the addresses from 192.168.120.20 to 40 for the pool of OpenVPN Clients (eWONs or computers).



	System Status	Network Services	Firewall Proxy V	PN Logs			
	OpenVPN - Virtu	al Private Networking					
oenVPN server	>> Server configure	ation Accounts Advance	d VPN client download				
enVPN client (Gw2Gw) ec	>> Account configu	ration					
	Username	Remote nets	Push nets	Static ip	Actions		
	UserPRK			dynamic		7	6
	ewon100	10.0.100.0/24		dynamic	S	7	6
	ewon101	10.0.101.0/24		dynamic	S	7	6
	ewon102	10.0.102.0/24		dynamic	S	1	6
	ewon45	10.0.45.0/24		dynamic		î	6
	Add account	Re	start OpenVPN server		Download CA certific	<u>:ate</u>	
	Legend: 🗹 Enabl	ed (click to disable) 📃 Disa	bled (click to enable) 🛛 🥜 Edii	: 🗊 Remove			

We need to create one Account for each OpenVPN clients.

Here above, we defined 5 accounts, one for a User where we don't defined any remote nets behind this remote computer, and 4 accounts for eWON devices where we defined one remote network.

In the *Advanced* page, you can defined the Protocol/Port (UDP/1194) used by the OpenVPN and the authentication method (PSK username/password).

	System	Status	Network	Services	Firewall	Proxy	VPN	Logs		
	OpenVF	PN - Virtua	al Private N	letworking						
OpenVPN server	» Serv	er configurat	ion Accounts	Advanced	VPN clien	t download				
OpenVPN client (Gw2Gw)										
IPsec	>> Adva	anced setting	IS							
	Port:		1194		Bloc	k DHCP respo	onses cor	ning from tunnel:	F	7
	Protocol:		UDP 💽	•	Don	t block traffic	: between	clients:		
	Note: You m	nay allow multip	ole ports by port fo	orward them						
	Save a	and restart								
		al push optio	ns							
	>> Auth	entication se	ttings							
	Authentic	ation type								
	€ PSK (u	isername/pas	sword)							
	O X.509	certificate								
	O x.509	certificate & I	PSK (two factor)						

Now, the ENDIAN firewall is well configured to manage the LAN, connect to Internet and handle the OpenVPN Clients.



eWON setup

To configure an eWON, fill the VPN \rightarrow Outgoing Page with one account defined in the ENDIAN firewall and with the certificate of it.

@ COM Config	Establish outgoing VPN connection confi	guration					
⊞… 🛫 Interfaces	VPN activation rule						
Network connections	The VPN activation rule is normally defined in <u>Networking Config</u> (duplicated here for simplicity)						
🕀 📥 Culernet	Establish VPN connection		During Internet connections				
E- 2 VPN	Remote VPN WAN address or name:	efined manually 💌					
Global	Primary server	ewon.dynalias.net	Remote IP address or name				
Outgoing	Secondary server		Leave empty if no secondary server				
🖭 🔟 Networking Config	Connect to: ENDIAN VPN Server 💌						
🗄 🖟 Manage Config	This con	figuration is compatible with the Endian VPN Server	. See <u>www.endian.com</u>				
	Username:	ewon45					
	Password:	•••••					
	CA (Certificate Authority) CERTIFICATE:	BEGIN CERTIFICATE MIIDWjCCAkKqAwIBAgIBADANBgkqhkiG9wOBAQQFADAsMQswCQYDVQQGEwJJ MAoGA1UEChMDZWZ3MQ8wDQYDVQQDEwZ1ZncgQOEwHhcNMDgxMDIwMTI1MDA2 MjQwoDMxMDMyNDQ2WjAsMQswCQYDVQQGEwJJVDEMMAoGA1UEChMDZWZ3MQ8w VQQDEwZ1ZncgQOEwggEiMAOGCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQDh ▼					

You can also use the eWON wizard to setup these parameters.



Conclusions



Your Supervisor Network holds 2 computers, one at fixed IP address 192.168.120.10, another using DHCP to get the address 192.168.120.153.

These 2 computers have access to Internet through the ENDIAN.

The *ewon45* is connected to Internet and is linked to the Supervisor Network by the address *ewon.dynalias.net*. Its VPN interface receives the address 192.168.120.21.

Its VPN interface receives the address 192.168.120.21.

- 1. From the Supervisor Network, ewon45 is reachable at 192.168.120.21 exactly like if it was on the same network.
- 2. From the Supervisor Network, devices connected on the ewon45 LAN are directly reachable because the ENDIAN Firewall routes all 10.0.45.x requests to the ewon45 VPN client.
- 3. From the ewon45, the Supervisor Network is reachable.



Topology 2a: SA in separate network

 Supervisor

 SA LAN

 SA LAN

 MZ

 ADSL modem

 Image: Sa Lan

 Corporate IT

 Infrastructure

SA stands for Supervisor Application.

With this network topology, you will place the Supervisor Network in an existing IT infrastructure but not directly on the Corporate IT LAN. The purpose is exactly the same as in *Topology 1: Dedicated SA network* (link eWONs to the SA Network) but you must pass through a corporate network.

ENDIAN connectivity setup

On this "SA Router", you need only to setup 2 interfaces, the GREEN and the RED, and both are Ethernet connections.

As the DMZ network is controlled by the Corporate IT, ask the IP address your SA Router (RED interface) to them.

With the Network Setup Wizard, you will have the following configuration screens:







Now, the ENDIAN has the LAN IP address 192.168.120.16 and is WAN side is connected to Internet by another Ethernet link (192.168.220.x).

To easily manage the "Supervisor Network", configure the DHCP service with, for example, DHCP IP range from 120 to 254.

» DHCP			
Green interface	Enabled 💌		Save
Settings			
Start address	192.168.120.120	End address	192.168.120.254
Default lease time (min) *	1440	Max lease time (min) *	1440
Domain name suffix	endiandomain		
Primary DNS	192.168.120.16	Secondary DNS	
Primary NTP server		Secondary NTP server	
Primary WINS server address		Secondary WINS server addre	222
Save all			* This field is required.

OpenVPN setup

The OpenVPN setup is exactly the same as in Topology 1.

see OpenVPN setup on page 7

eWON Setup

To configure an eWON, fill the VPN \rightarrow Outgoing Page with one account defined in the ENDIAN firewall and with the certificate of it.

The only difference with the eWON setup from Topology 1 is that you need to reach the Public IP address of the Corporate Network where your SA Network is placed.

Establish outgoing ¥PN connection configuration							
VPN activation rule							
The VPN activation rule is normally defined in	Networking Config (duplicated here for simplicity)						
Establish VPN connection		During Internet connections					
Remote VPN WAN address or name:	efined manually 💌						
Primary server	corporate.dyn-o-saur.com	Remote IP address or name					
Secondary server		Leave empty if no secondary server					
Connect to: ENDIAN VPN Server 💌							
This c	onfiguration is compatible with the Endian VPN Server. Se	e <u>www.endian.com</u>					
Username:	ewon45						
Password:	•••••						
CA (Certificate Authority) CERTIFICATE:	BEGIN CERTIFICATE MIIDWjCCAkKgAwIBAgIBADANBgkqhkiG9wOBAQQFADAsMQswCQYDVQQGEwJJ MAoGA1UEChMDZWZ3MQ8wDQYDVQQDEwZ1ZncgQOEwHhcNMDgxMDIwMTI1MDA2 MjQwODMxMDMyNDQ2WjAsMQswCQYDVQQGEwJJVDEMMAoGA1UEChMDZWZ3MQ8w VQQDEwZ1ZncgQOEwggEiMAOGCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQDh						

You can also use the eWON wizard to setup these parameters.



What ask to the Corporate IT

The minimum you need to ask to IT Guys is:

• to forward the incoming UDP/1194 traffic to the Endian Router

Then, eWONs and Users could establish a VPN connection with the *Supervisor Network* placed inside the Corporate network.



As this is the Corporate Router securing the *Corporate LAN*, there is no security problem with this topology. The IT staff manages alone the security of his network.



By default, you will not be able to go on Internet from the SA Network. Thus, if you need to go on Internet, you must ask to the IT Staff to allow it.

Common setup of the Corporate Firewall is to allow Corporate LAN to go on the DMZ but to disable the DMZ to go on the Corporate LAN.

Pay attention that DMZ is only addresses 192.168.220.0/24 (distinct than SA Network addresses).

By default, as the DMZ link of the Corporate router enters in the WAN (aka Internet) of the SA Router, all incoming connections are blocked.

Then, from the IT LAN, **you must open a VPN connection** to gain access to the *SA Network*.

Then, the *SA Router* controls all the security of its *SA Network* (by creating one VPN account for each user) and the *Corporate Router* controls all the security of its *Corporate Network*.

If you don't want to open a VPN between IT LAN and SA LAN, one simple way is, on the SA Router, to add a Firewall rule to forward the incoming TCP80 on the *Supervisor Application Computer*.

Proto	Source		Destination	Remark	Actions
TCP	192.168.220.10 : 80(HTTP)	>>	192.168.120.10: 80(HTTP)	ROUTE TO 10	V O 🦉 🕤

Then, from the *IT LAN*, you can access to the *Supervisor website* at the address http://192.168.220.10.

That allows ALL Users from the IT LAN to access to the Supervisor.



Conclusions



Your SA Network holds only the main Server and is isolated behind the Corporate Firewall.

The *ewon45* is connected to Internet and is linked to the *SA Network* by the address of the Corporate Network, generally a fixed IP address like http://www.mycompany.com using the port UDP 1194. Its VPN interface receives the address 192.168.120.21.

- 1. From the *SA Network*, *ewon45* is reachable at 192.168.120.21 exactly like if it was on the same network.
- 2. From the SA Network, devices connected on the ewon45 LAN are directly reachable because the SA Router routes all 10.0.45.x requests to the ewon45 VPN client.
- 3. From the SA Network, the Corporate Network is unreachable.
- 4. From the *ewon45*, the *SA Network* is reachable.
- 5. From the *Corporate Network*, the *SA Network* may be reachable
 either by opening a VPN Client connection to the *SA Network*.
 either by adding port forwarding in the *SA Router*.
 But *Corporate Firewall* could block all traffic from *Corporate Net* to *SA Net*





Topology 2b: SA in DMZ network

This topology is similar to the Topology 2a: SA in separate network but the Endian4ewon only play the role of VPN Server (no Firewall). The Supervisor Server is placed on the DMZ (and not behind the DMZ like in Topology 2a).

The *Supervisor Network* is behind an existing IT infrastructure but not directly on the Corporate IT LAN.

The purpose is always the same as in other topologies (link eWONs from Internet to the SA Network).

ENDIAN connectivity setup

On this Endian4ewon configured as "VPN Server", you need only one interface because you don't need to physically separate 2 networks.

In the Endian4ewon, you will need to "disable" the RED, in fact configure it on Gateway.

As you place your Supervisor Server and the VPN Server on a network fully controlled by the Corporate IT, you must ask which addresses you can use.

With the Network Setup Wizard, you will have the following configuration screens:





Now, the Endian4ewon has the LAN IP address 192.168.120.16 (on two interfaces, see Step 3 of the wizard) and is connected to Internet by a Gateway (the Corporate Router).

As the Endian4ewon (VPN Server) is placed in the DMZ of the Corporate Network, disable the DHCP Service on your Endian4ewon.

>> DHCP		
Green interface	Enabled	Save

OpenVPN setup

The OpenVPN setup is exactly the same as previous Topologies.

see OpenVPN setup on page 7

eWON Setup

To configure an eWON, fill the VPN \rightarrow Outgoing Page with one account defined in the ENDIAN firewall and with the certificate of it.

Encode the Public IP address of the *Corporate Network* where your *SA Network* is placed.

Establish outgoing VPN connection configuration			
VPN activation rule			
The VPN activation rule is normally defined in <u>Networking Config</u> (duplicated here for simplicity)			
Establish VPN connection		During Internet connections	
Remote VPN WAN address or name: Defined manually 💌			
Primary server	corporate.dyn-o-saur.com	Remote IP address or name	
Secondary server		Leave empty if no secondary server	
Connect to: ENDIAN VPN Server 💌			
This configuration is compatible with the Endian VPN Server. See <u>www.endian.com</u>			
Username:	ewon45		
Password:	•••••		
CA (Certificate Authority) CERTIFICATE:	BEGIN CERTIFICATE MIIDWjCCAkKGAwIBAGIBADANBGkqhkiG9wOBAQQFADAsMQswCQYDVQQGEwJJ MAOGA1UEChMDZWZ3MQ8wDQYDVQQDEwZ1ZncgQOEwHhcNMDgxMDIwMTI1MDA2 MjQwODMxMDMyNDQ2WjAsMQswCQYDVQQGEwJJVDEMMAoGA1UEChMDZWZ3MQ8w VQQDEwZ1ZncgQOEwggEiMAOGCSqGSIb3DQEBAQUAA4IBDwAwggEKAoIBAQDh V		

You can also use the eWON wizard to setup these parameters.



What ask to the Corporate IT

In addition of the IP addresses, you must ask to the IT guys:

• to forward the incoming UDP/1194 traffic to the Endian Router

Then, eWONs and Users from Internet could establish a VPN connection with the *Supervisor Network*.



As this is the Corporate Router securing the *Corporate LAN*, there is no security problem with this topology. The IT staff manages alone all the security of his network.



By default, you will not be able to go on Internet from the SA Network. Thus, if you need to go on Internet, you must ask to the IT Staff to allow it.

Common setup of the Corporate Firewall is to allow *Corporate LAN* to go on the DMZ but to disable the DMZ to go on the *Corporate LAN*

In contrast to the *Topology 2a: SA in separate network,* the Endian4ewon doesn't act as Firewall, then Users from the Corporate LAN have a direct access to all devices on the DMZ Network.



Conclusions



Your SA Network holds only the main Server and is the DMZ behind the Corporate Firewall.

The *ewon45* is connected to Internet and is linked to the *SA Network* by the address of the Corporate Network, generally a fixed IP address like http://www.mycompany.com using the port UDP 1194. Its VPN interface receives the address 192.168.120.21.

- 1. From the SA Network, ewon45 is reachable at 192.168.120.21 exactly like if it was on the same network.
- 2. From the SA Network, devices connected on the ewon45 LAN are directly reachable because the SA Router routes all 10.0.45.x requests to the ewon45 VPN client.
- 3. From the SA Network, the Corporate Network is unreachable.
- 4. From the *ewon45*, the *SA Network* is reachable.
- 5. From the *Corporate Network*, the *SA Network* is reachable But *Corporate Firewall* could block all traffic from *Corporate Net* to *SA Net*



The Supervisor Server must have the VPN Server as Gateway to allow communications with VPN Clients! Other computers placed on the DMZ may have the Corporate Firewall as Gateway (normal configuration).



Revisions		
Revision Level	Date	Description
1.0	23/04/08	First release.

- i Microsoft, Internet Explorer, Windows and Windows XP are either registered trademarks or trademarks of Microsoft Corporation
- ii Firefox is a trademark of the Mozilla Foundation

Document build number: 28

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