AZOTEL S03-01 v212 (2021-07)

S03 - Quick Start Guides
WIB-C / SWIB / WIB4L Quick Start Guide

Azotel Technologies Ltd,
3rd Floor, River House,
Blackpool Park,
Cork,
Republic of Ireland.

Azotel Canada Inc.
325 Vulcan Avenue
NS B1P 5X1
Sydney
Canada

Azotel Poland
PLAC Powstancow
Slaskich 17A/222
53-329
Wroclaw
Poland

Phone (EMEA): +353-21-234-8100
Phone (North America): +1-312-239-0680 / +1-902-539-2665
Phone (Poland): +48-71-710-1530
Phone (UK): +44-20-719-3417
Phone (South Africa): +27-11-083-6900
Fax: +353-21-467-1699
info@azotel.com

Contents

1 INTRODUCTION

The purpose of this document is to provide a quick start guide to help with the configuration of your Azotel WIB-C, SWIB, or VYOS based WIB. If you are unsure under which of the three categories your device belongs, please contact Azotel Support at support@azotel.com
Please refer to the sections below as follows:

- Section 2: Legacy WIB-C hardware.
- Section 3: S-WIB (Dell R210 II rack server) running legacy WIB firmware.
- Section 4: New generation WIB (WIB4L) or S-WIB (Dell R220) running Vyatta based firmware.

2 WIB-C QUICK INSTALLATION [LEGACY PRODUCT]

NOTE: This Section 2 applies to the older WIB hardware. Please refer to SECTION 4 on Page 18 for the more recent WIB-4L hardware and VyOS based software configuration.

2.1 CONNECT THE WIB-C

1) Locate an optimum location for the WIB-C. The best place for the WIB is usually at the collocation centre close to the broadband feed.
2) Connect the included crossover Ethernet network cable to the LAN3 port of the WIB-C (fig. 2.1-1). Connect the other end of the network cable to a laptop or desktop PC.

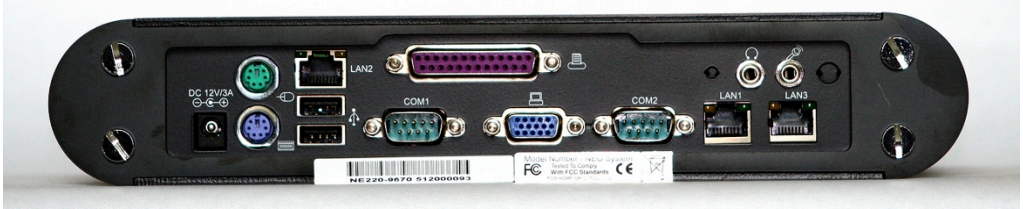

Fig 2.1-1. Azotel WIB-C back panel

3) Connect the power adaptor to the WIB-C's power port. Only use the power adapter supplied with the WIB-C. Use of a different adapter may result in damage to the WIB-C unit.
4) Press the power button on the front panel to power up the WIB-C (fig. 2.1-2).

FIG 2.1-2. AZOTEL WIB-C FRONT PANEL

2.2 SETUP THE WIB-C

1) Set the following IP settings on your laptop's Ethernet interface:

```
IP Address:      10.10.10.9
Subnet Mask:     255.255.255.252
```

Default Gateway: 10.10.10.10

2) Open an Internet browser (e.g. Internet Explorer).
3) Type http://10.10.10.10 into the address bar.
4) An authentication box will appear (fig 2.2-1). To access the WIB-C's interface use the following credentials:

Username: ***admin***
Password: ***2652azo2652***

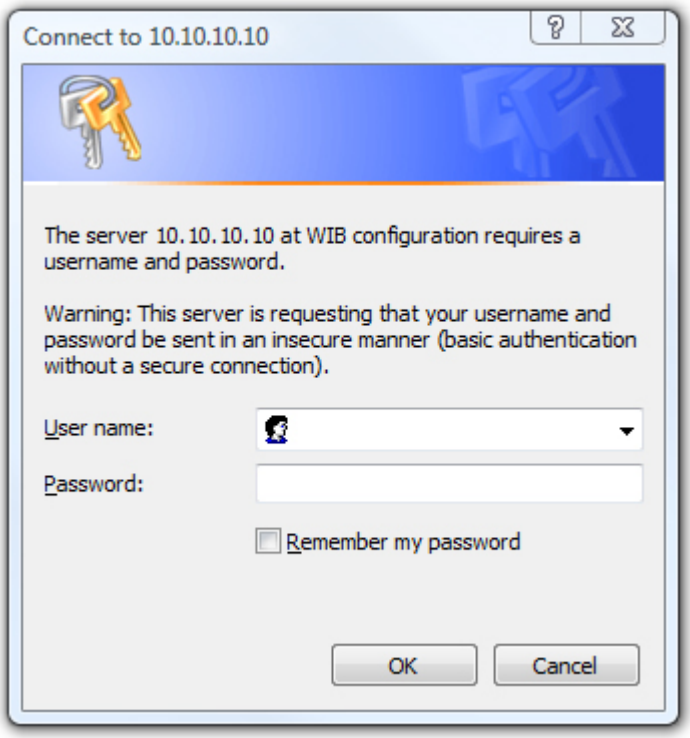

FIG 2.2-1. WIB-C WEB INTERFACE AUTHENTICATION WINDOW (IE)

5) The WIB-C configuration screen should appear (fig 2.2-2). Fill in the ***WIB settings*** with the information provided by Azotel. ***Note: In most cases you will just have to verify this data as some initial setup is done by Azotel before shipping the WIB-C to you.***
6) Select ***PROXY ARP*** under ***WIB settings*** if your upstream ISP requires you to reply to ARP requests for all IPs in the WIB-C's public IP range. If the upstream ISP explicitly routes to the WIB-C, then ***PROXY ARP*** is not required.
7) Next, fill in ***WIB public network settings*** with the broadband feed details for your network (***IP address/Mask length, Default gateway, DNS settings***, etc.). If you have two upstream gateways you can fill in a ***secondary gateway*** and the ***gateway switch time*** – otherwise, leave these fields blank.

8) Enter the following for your ***WIB private network***. Azotel suggests using the following IP scheme.

10.156.<WIB>.1/24 ***Equipment***
10.157.<WIB>.1/24 ***Customers***

You may also add ***WIB additional public networks*** at this time if you plan to provide your customers with additional public IPs that are from a different subnet than the WIB-C.

9) Press the ***Save Settings*** button and then ***Reboot***.

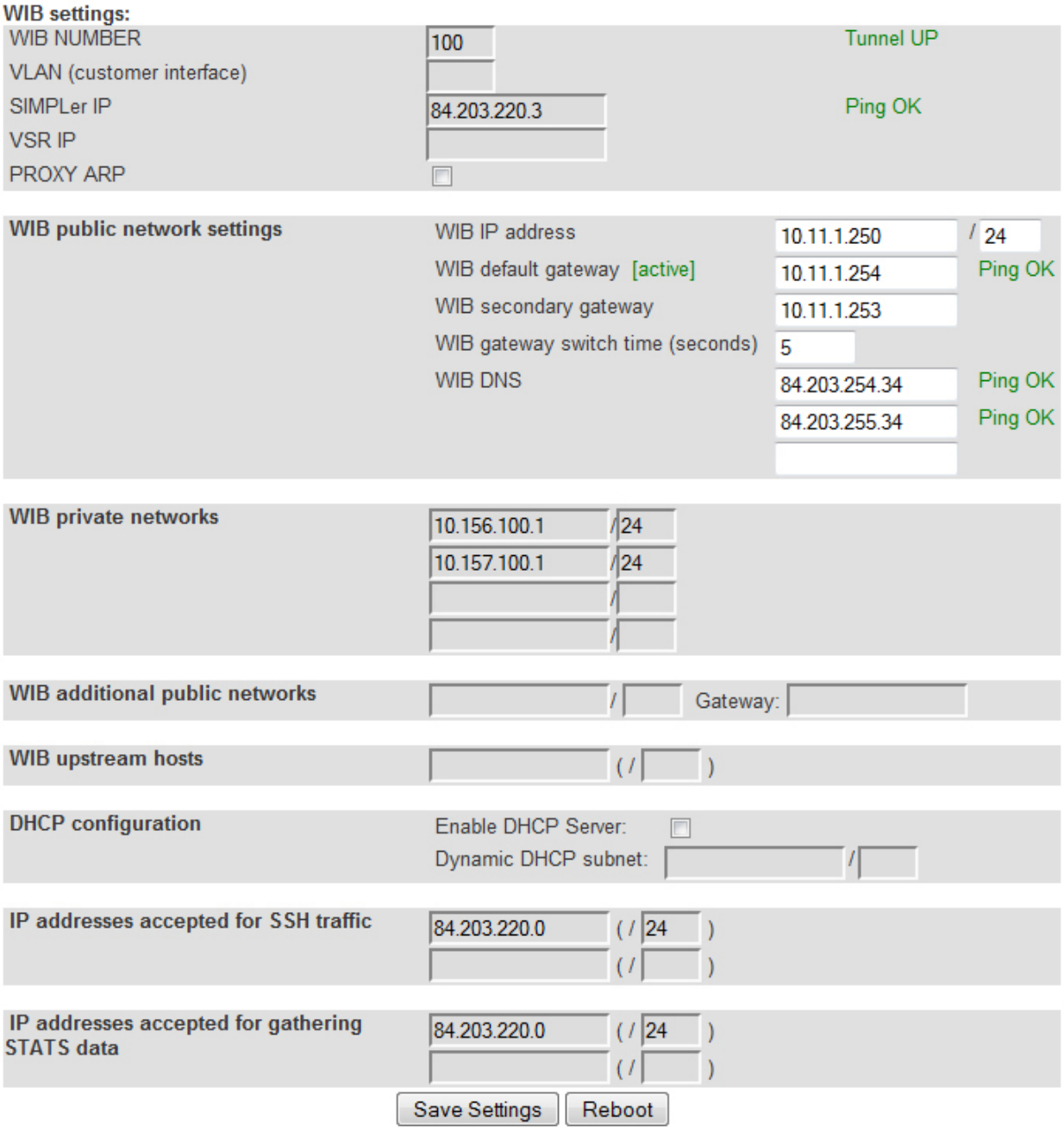

FIG 2.2-2. WIB-C WEB INTERFACE (SETTINGS PAGE)

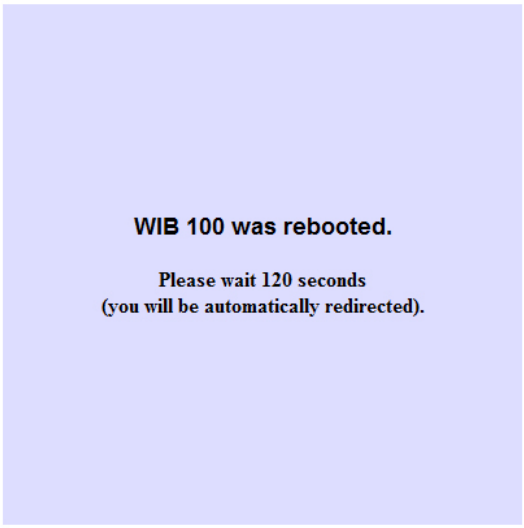

FIG 2.2-3. WIB-C WEB INTERFACE REBOOT CONFIRMATION PAGE

Once the reboot process is complete your WIB-C unit will be fully operational with the new settings. However, keep in mind that if you do need to get back into the WIB-C before deploying it you can still use the steps listed above in section 2.2. The 10.10.10.10 IP can still be used for LAN3 access.

2.3 CONNECT THE WIB-C TO BROADBAND

1) Connect the LAN1 port to your internet feed (leased line, fibre, satellite backhaul, etc.).
2) Connect the LAN2 port to your customer/Canopy network (switch, Canopy network, mesh, etc.).

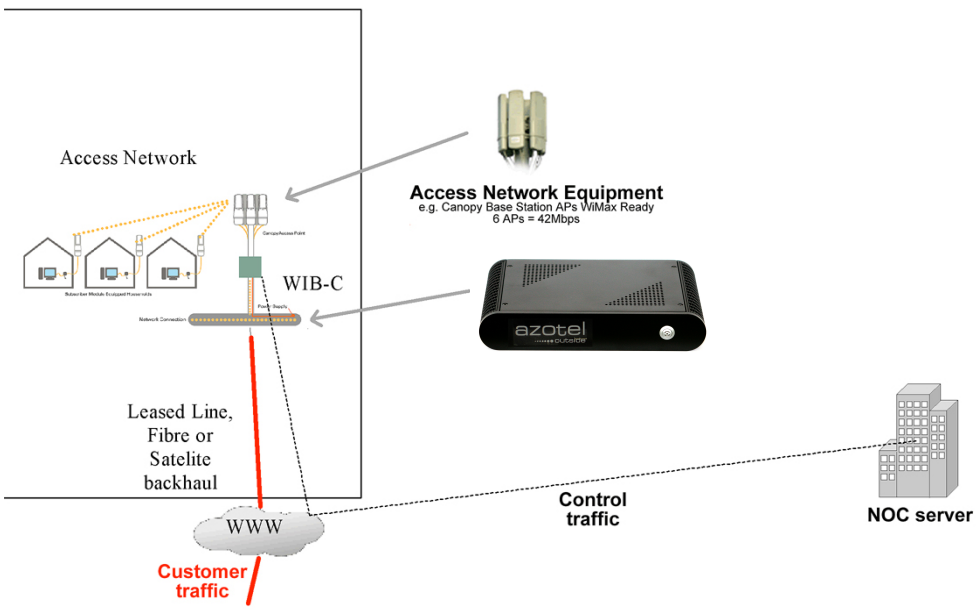

FIG 2.3-1. EXAMPLE WIB-C DEPLOYMENT LAYOUT

3) Disconnect your laptop/PC from the LAN3 port as this port is only used during initial configuration.
4) Connect your laptop to the switch (or an SM) on the customer/Canopy side of the network and enter the following IP settings:

IP Address:	***10.157.100.2***
Subnet Mask:	***255.255.255.0***
Gateway:	***10.157.100.1***
DNS:	***63.216.0.5***

Note: The above IP settings are only valid if your WIB-C Private Networks were setup as in figure 2.3-2. Normally, the third octet of the IPs would be set to match your WIB-C number (WIB 100 for this example). Additionally, you can use your own DNS server if there is one available.

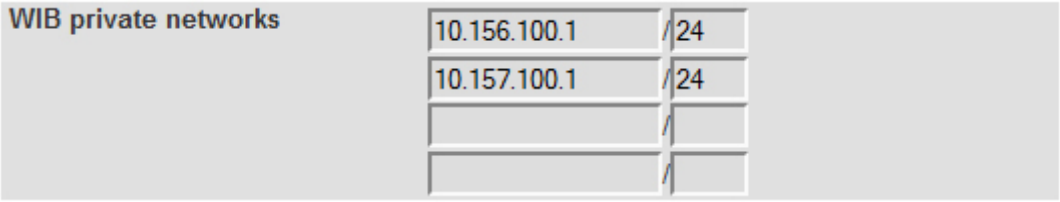

FIG 2.3-2. WIB 100 PRIVATE NETWORK SAMPLE SETTINGS

5) Login to your **SIMPLer** server using the credentials supplied by Azotel.
6) Check the status of the WIB-C on the Network Health Monitor page (fig 2.3-3).

Note: WIB-C's status is probed every 15 minutes. You may need to wait up to 15 minutes before the status will change.

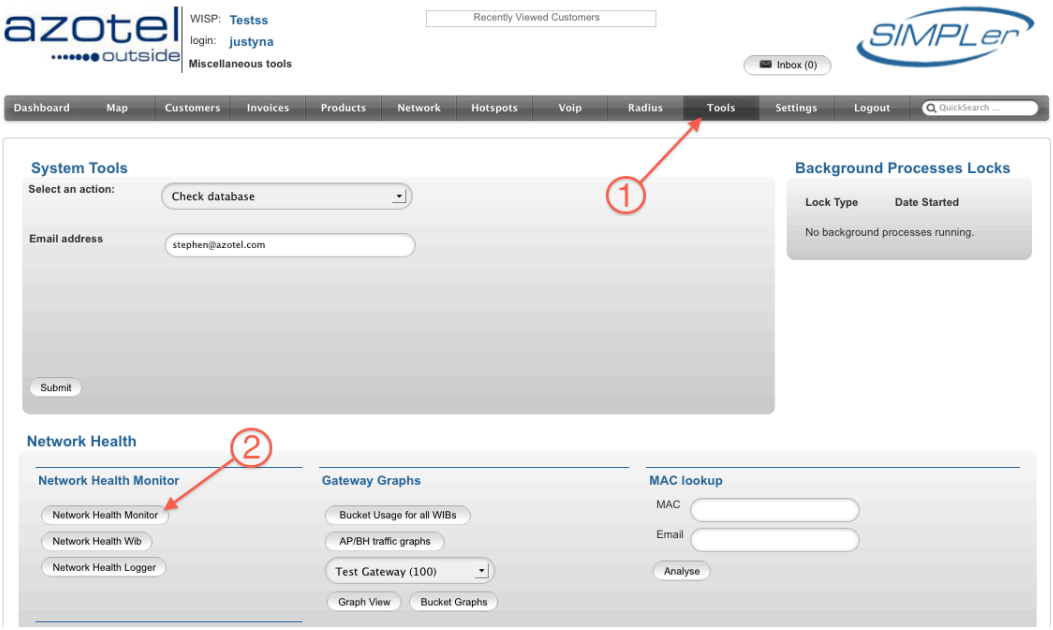

FIG 2.3-3. SIMPLER NETWORK HEALTH MONITOR ACCESS

7) Once SIMPLer shows the WIB as being online, create a test customer account, assign them to the new WIB, to a traffic shaping bucket and add the IP you used in step 4) to the "Customer IP Table". The IP should be marked as "Private" if you are using private IPs, or "Public" otherwise.
8) Go to the Tools menu in SIMPLer and do an "Update WIB Files" to push the updated configuration down to the new WIB. At this point the test customer should be online.

2.4 TROUBLESHOOTING

If, after at least 15 minutes, the status of the WIB-C on the ***Network Health Monitor*** page has not changed to OK, or if customer traffic does not appear to be flowing, some basic troubleshooting may be carried out using the WIB-C web interface.
Connect to the WIB-C web interface as described in section 2.2 to display the WIB-C configuration page. Check the status of the ***Tunnel***, ***SIMPLer IP***, ***WIB-C default gateway***, ***WIB-C secondary gateway*** (if configured) and ***WIB DNS***. These should indicate "Tunnel UP" or "Ping OK". If any, or all, of these are red (fig 2.4-1), it may indicate networks or configuration problems.

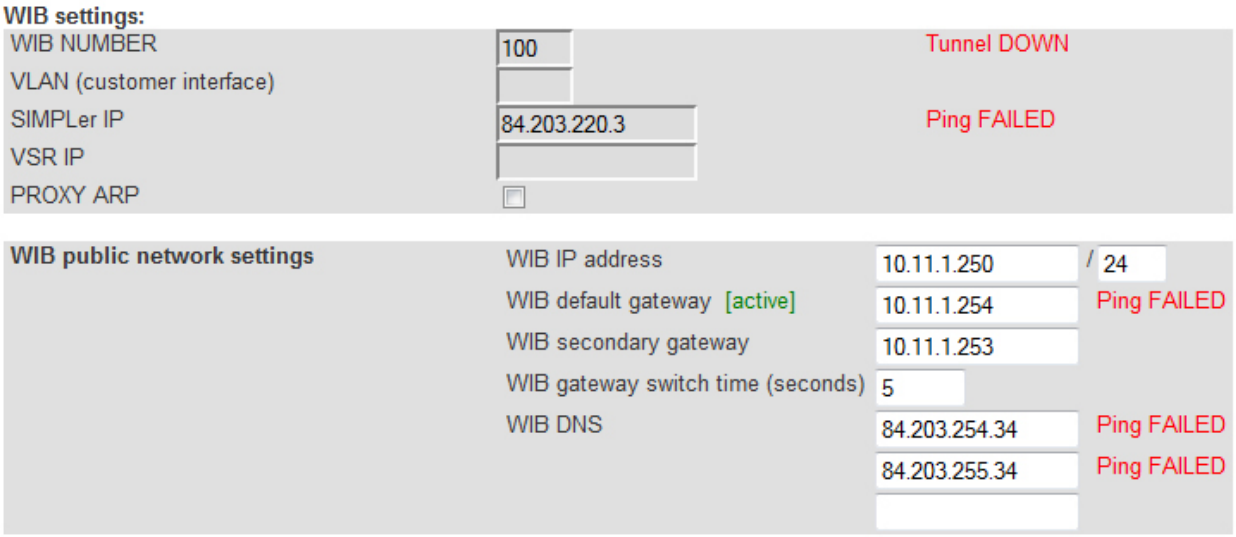

FIG 2.4-1 WIB-C WEB INTERFACE INDICATING NETWORK PROBLEMS

1) Check the values entered into any of the fields indicating "Tunnel DOWN" or "Ping FAILED" to ensure that they are correctly entered. If not, correct the entry, save your changes and reboot.
2) If the WIB default gateway indicates "Ping FAILED", check the cable between the LAN1 port of the WIB-C and your upstream provider. If the cable appears to be connected correctly, try connecting a laptop in place of the WIB-C using the same IP settings as were entered for the ***WIB public network*** settings. If you still cannot ping the gateway address, it may indicate a problem with your ISP's gateway.
3) If the "Tunnel DOWN" message appears, or the ***SIMPLer IP*** indicates "Ping FAILED", please contact Azotel for support.

3 S-WIB QUICK INSTALLATION (NON VYOS)

3.1 CONNECT THE SWIB

1) Locate an optimum location for the SWIB. The best place for the SWIB is usually at the collocation centre close to the broadband feed.

2) Connect the included crossover Ethernet network cable to the LAN2 port of the SWIB (fig. 3.1-1). Connect the other end of the network cable to a laptop or desktop PC. ***The S-WIB only contain two LAN ports. In this case connect the Ethernet network cable to the LAN2 port.***

FIG 3.1-1. AZOTEL SWIB BACK PANEL

3) Connect the power adaptor to the SWIB's power port. Only use the power adapter supplied with the SWIB. Use of a different adapter may result in damage to the SWIB unit.

4) Press the power button on the front panel to power up the SWIB (fig. 3.1-2).

FIG 3.1-2. AZOTEL SWIB FRONT PANEL

3.2 SETUP THE S-WIB

10) Set the following IP settings on your laptop's Ethernet interface:

IP Address: ***10.10.10.9***

Subnet Mask: ***255.255.255.252***
Default Gateway: ***10.10.10.10***

11) Open an Internet browser (e.g. Internet Explorer).
12) Type http://10.10.10.10 into the address bar.
13) An authentication box will appear (fig 3.2-1). To access the SWIB interface use the following credentials:

Username: ***admin***
Password: ***2652azo2652***

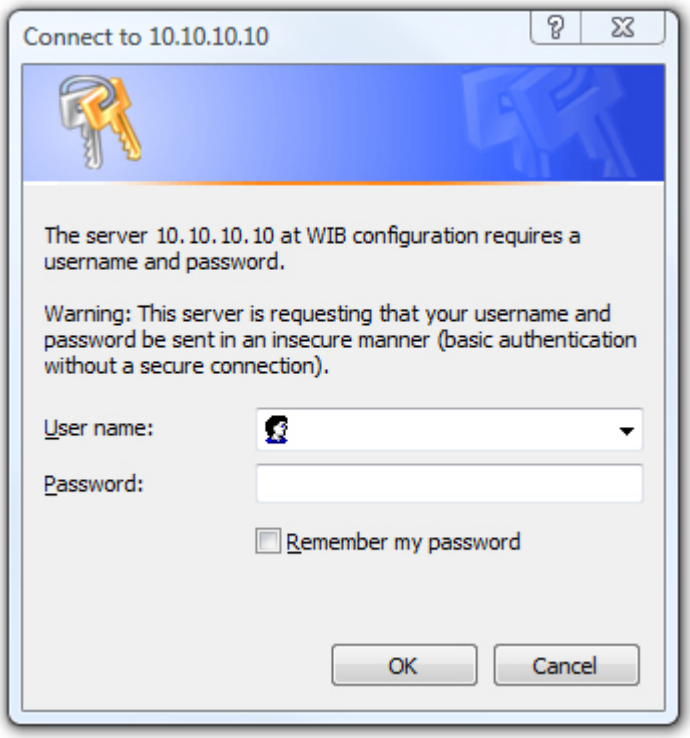

FIG 3.2-1. SWIB WEB INTERFACE AUTHENTICATION WINDOW (IE)

14) The S-WIB configuration screen should appear (fig 2.2-2). Fill in the ***S-WIB settings*** with the information provided by Azotel. ***Note: In most cases you will just have to verify this data as some initial setup is done by Azotel before shipping the SWIB to you.***
15) Select ***PROXY ARP*** under ***WIB settings*** if your upstream ISP requires you to reply to ARP requests for all Ips in the SWIB's public IP range. If the upstream ISP explicitly routes to the SWIB, then ***PROXY ARP*** is not required.
16) Next, fill in ***WIB public network settings*** with the broadband feed details for your network (***IP address/Mask length, Default gateway, DNS settings,*** etc.). If you have two upstream gateways you can fill in a ***secondary gateway*** and the ***gateway switch time*** – otherwise, leave these fields blank.
17) Enter the following for your S***WIB private network***. Azotel suggests using the following IP scheme.

10.156.<WIB>.1/24 ***Equipment***

10.157.<WIB>.1/24 Customers

You may also add S***WIB additional public networks*** at this time if you plan to provide your customers with additional public Ips that are from a different subnet than the WIB-C.

18) Press the ***Save Settings*** button and then ***Reboot***.

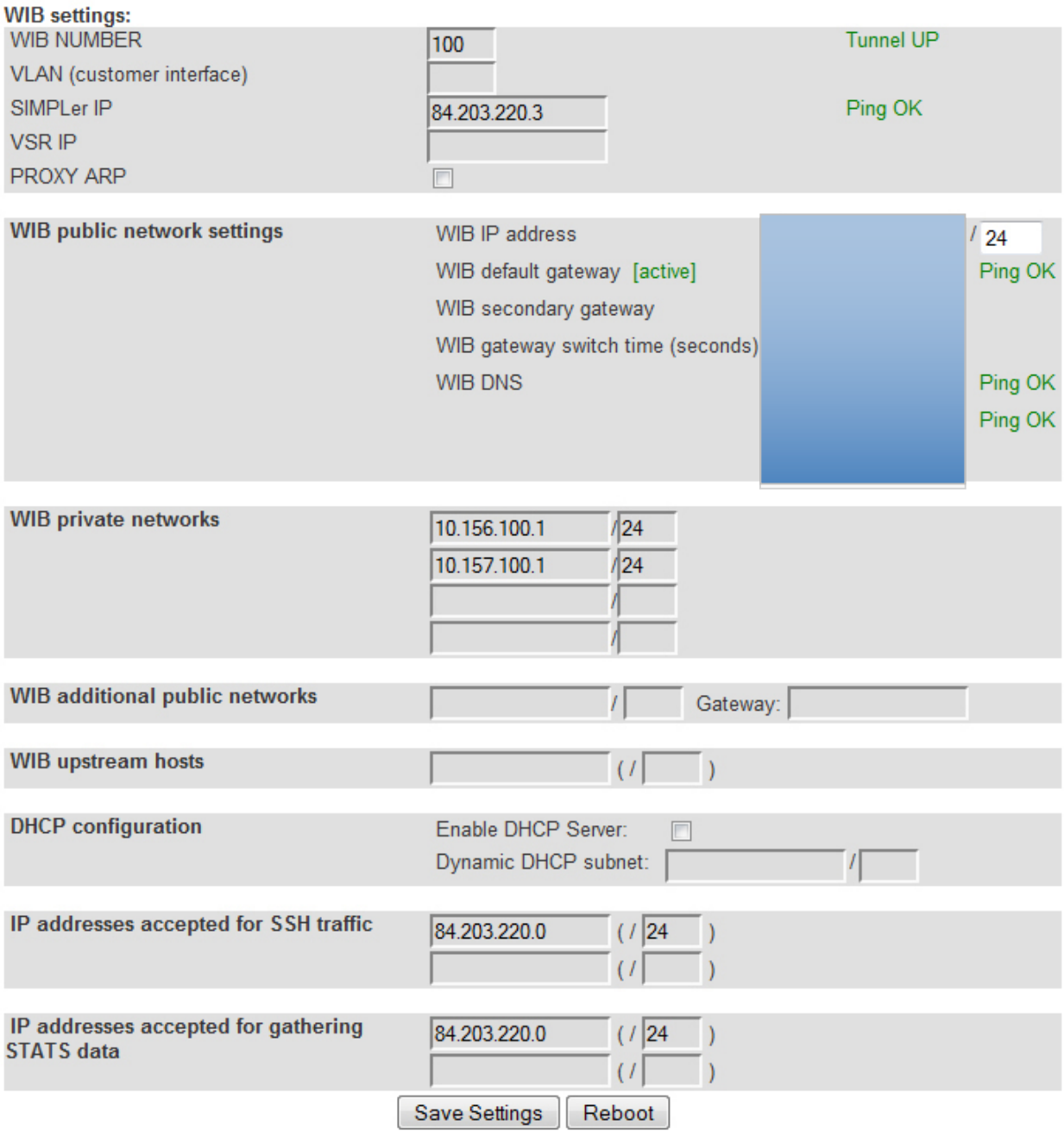

FIG 3.2-2. SWIB WEB INTERFACE (SETTINGS PAGE)

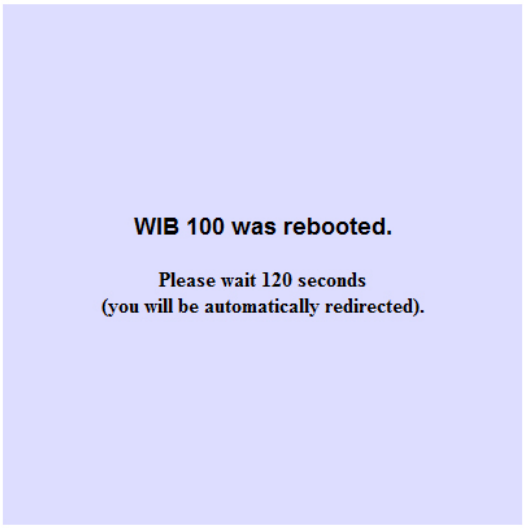

FIG 3.2-3. SWIB WEB INTERFACE REBOOT CONFIRMATION PAGE

Once the reboot process is complete your SWIB-C unit will be fully operational with the new settings. However, keep in mind that if you do need to get back into the WIB-C before deploying it you can still use the steps listed above in section 2.2. The 10.10.10.10 IP can still be used for LAN3 access.

3.3 CONNECT THE SWIB TO BROADBAND

9) Connect the LAN1 port to your internet feed (leased line, fibre, satellite backhaul, etc.).
10) Connect the LAN2 port to your customer/Canopy network (switch, Canopy network, mesh, etc.).

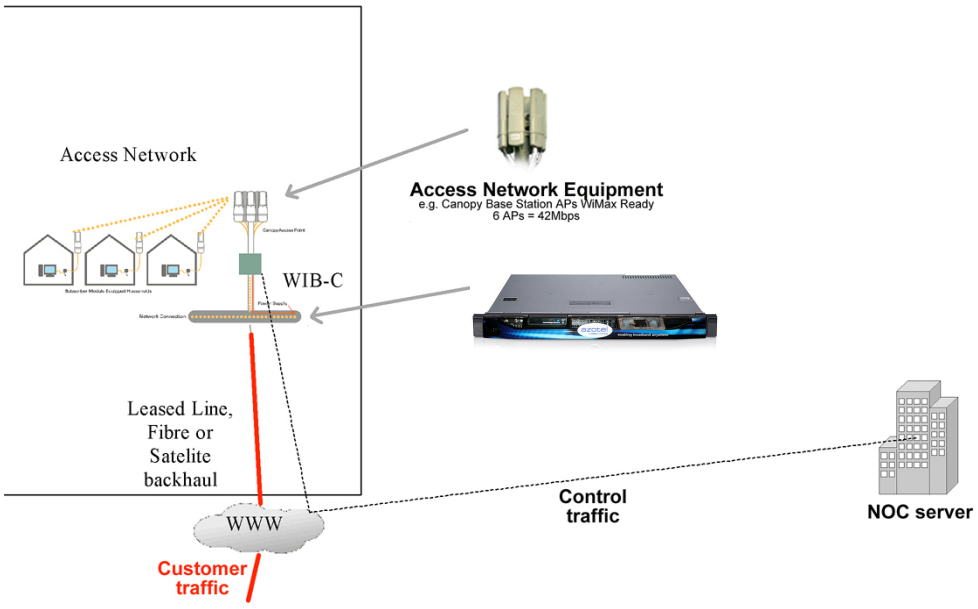

FIG 3.3-1. EXAMPLE SWIB DEPLOYMENT LAYOUT

11) Disconnect your laptop/PC from the LAN2 port as this port is only used during initial configuration.
12) Connect your laptop to the switch (or an SM) on the customer/Canopy side of the network and enter the following IP settings:

IP Address:	***10.157.100.2***
Subnet Mask:	***255.255.255.0***
Gateway:	***10.157.100.1***
DNS:	***63.216.0.5***

Note: The above IP settings are only valid if your SWIB Private Networks were setup as in figure 3.3-2. Normally, the third octet of the Ips would be set to match your SWIB-C number (SWIB 100 for this example). Additionally, you can use your own DNS server if there is one available.

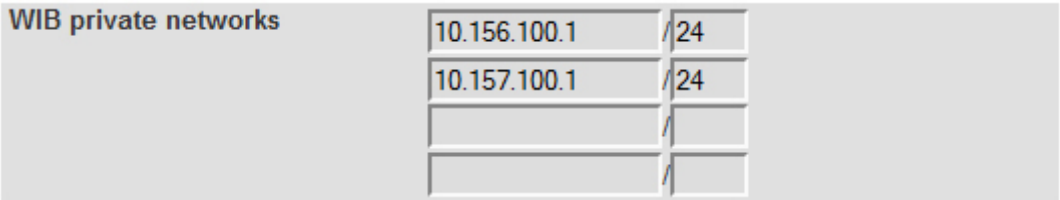

FIG 3.3-2. WIB 100 PRIVATE NETWORK SAMPLE SETTINGS

13) Login to your **SIMPLer** server using the credentials supplied by Azotel.
14) Check the status of the SWIB on the Network Health Monitor page (fig 3.3-3).

Note: SWIB status is probed every 15 minutes. You may need to wait up to 15 minutes before the status will change.

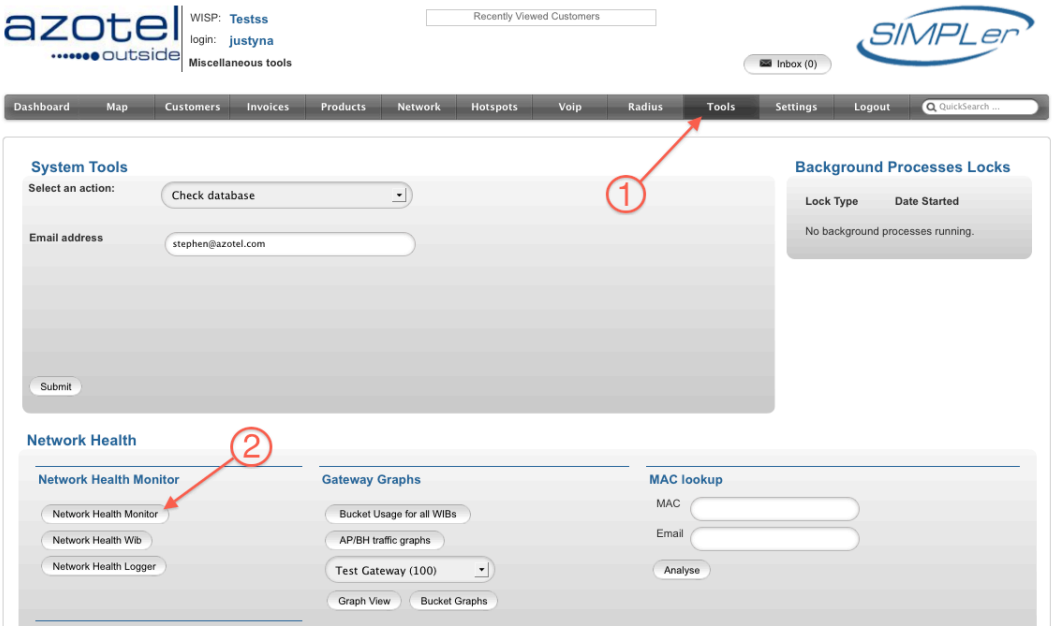

FIG 3.3-3. SIMPLER NETWORK HEALTH MONITOR ACCESS

15) Once SIMPLer shows the SWIB as being online, create a test customer account, assign them to the new SWIB, to a traffic shaping bucket and add the IP you used in step 4) to the "Customer IP Table". The IP should be marked as "Private" if you are using private Ips, or "Public" otherwise.
16) Go to the Tools menu in SIMPLer and do an "Update WIB Files" to push the updated configuration down to the new SWIB. At this point the test customer should be online.

3.4 TROUBLESHOOTING

If, after at least 15 minutes, the status of the SWIB on the ***Network Health Monitor*** page has not changed to OK, or if customer traffic does not appear to be flowing, some basic troubleshooting may be carried out using the SWIB web interface.
Connect to the SWIB web interface as described in section 2.2 to display the SWIB configuration page. Check the status of the ***Tunnel***, ***SIMPLer IP***, ***WIB-C default gateway***, ***WIB-C secondary gateway*** (if configured) and ***WIB DNS***. These should indicate "Tunnel UP" or "Ping OK". If any, or all, of these are red (fig 3.4-1), it may indicate networks or configuration problems.

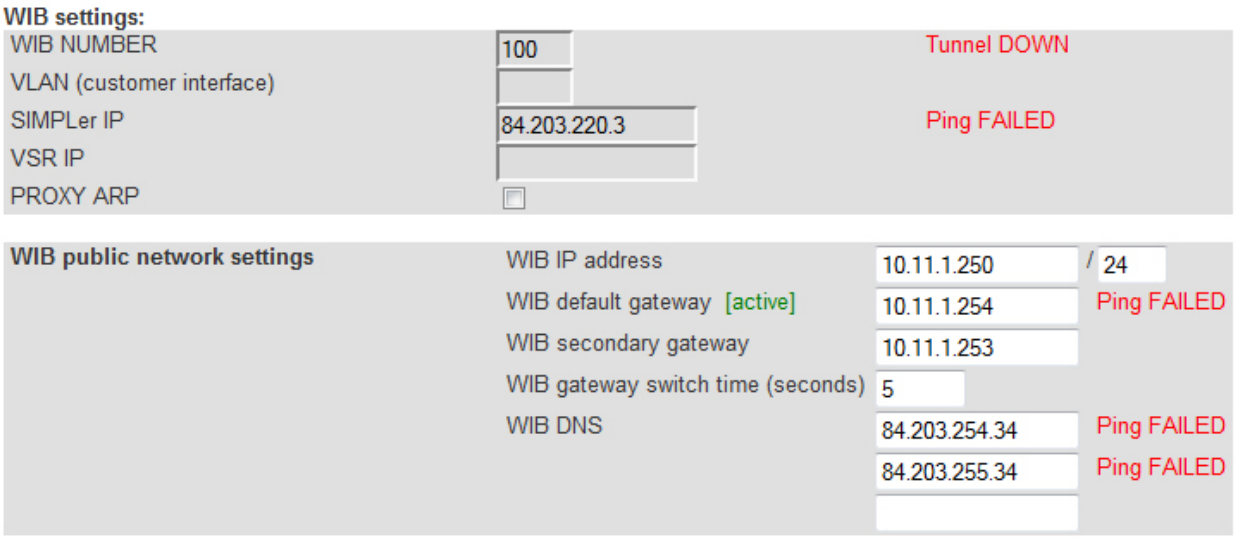

FIG3.4-1 SWIB WEB INTERFACE INDICATING NETWORK PROBLEMS

5) Check the values entered into any of the fields indicating "Tunnel DOWN" or "Ping FAILED" to ensure that they are correctly entered. If not, correct the entry, save your changes and reboot.
6) If the WIB default gateway indicates "Ping FAILED", check the cable between the LAN1 port of the WIB-C and your upstream provider. If the cable appears to be connected correctly, try connecting a laptop in place of the SWIB-C using the same IP settings as were entered for the ***WIB public network*** settings. If you still cannot ping the gateway address, it may indicate a problem with your ISP's gateway.
7) If the "Tunnel DOWN" message appears, or the ***SIMPLer IP*** indicates "Ping FAILED", please contact Azotel for support.

4 WIB4L/S-WIB (WITH VYOS) QUICK INSTALLATION

NOTE: In all cases it is necessary to carry out Network Configuration of the WIB (Router) e.g. setting the router's IP address, adding subnets, setting default gateway etc. – using the VyOS command line interface. This is done either by ssh OR using a physical keyboard and monitor using the guidance provided in this Section 4.

This section will provide the basic steps in getting the router online. Once it is connected Azotel will be able to access it remotely and do any remaining setup that is required.
Basic setup consists of two parts:- 4.1) IP configuration using the Vyatta/VyOS configuration tools and 4.2) carrying out the WIB specific configuration.

4.1 VYOS CONFIGURATION

FIG 4.1-1. AZOTEL WIB4L BACK PANEL

The WIB has been supplied with the following default IP configuration:

- LAN1 (eth0): 172.16.9.241/24
- LAN2 (eth1): 10.156.100.1/24
- LAN3 (eth2): 10.10.10.10/30
- Default gateway: 172.16.9.1
- DNS: 8.8.8.8, 8.8.4.4

Initial configuration can be done either by connecting a keyboard and monitor and logging in directly on the console OR connecting a PC to the LAN3 port with an IP address of 10.10.10.9/30 and using ssh to connect to 10.10.10.10. Whichever way you decide, you will be able to login with the either:

- username: **vyatta** and password **vyatta** OR
- username: **vyos** and password: **vyos**
- username: **vyos** and password: **2652azo2652**

depending on which version of firmware has been loaded on the WIB - support@azotel.com will be able to confirm which version you are using. All commands below are applicable to both Vyatta and VyOS.
Note: If using a PC/ssh to configure the WIB, the PC must be set to 10.10.10.9/30 in order to access the WIB at address 10.10.10.10.

In the example below the router is running Vyatta and ssh is used to connect. The router will be re-configured to use the following:

- LAN1: 10.10.2.2/24
- Default gateway: 10.10.2.1

1) Login to the router, either directly on the console or using ssh (from a Windows PC you can use PuTTY for ssh):

```
root@sheeva:~# ssh vyatta@10.10.10.10
Welcome to Vyatta
vyatta@10.10.10.10's password:
Linux vyatta 3.3.8-1-586-vyatta #1 SMP Wed Mar 13 10:35:45 PDT 2013 i686
Welcome to Vyatta.
This system is open-source software. The exact distribution terms for
each module comprising the full system are described in the individual
files in /usr/share/doc/*/copyright.
Last login: Mon Jan 27 11:15:18 2014 from 10.10.10.9
vyatta@vyatta:~$
```

2) Enter "configure" to switch to configuration mode (the prompt will switch to vyatta# / vyos#):

```
vyatta@vyatta:~$ configure
[edit]
vyatta@vyatta#
```

3) Delete the existing default gateway and IP address for eth0. Note that when entering the commands, the router supports auto-complete, so you can hit TAB to complete commands. Also note that while in configuration mode, entering the command "**show**" will display the current configuration.

```
vyatta@vyatta# delete system gateway-address 172.16.9.1
[edit]
vyatta@vyatta# delete interfaces ethernet eth0 address 172.16.9.241/24
[edit]
```

4) Add the new IP address and default gateway:

```
vyatta@vyatta# set interfaces ethernet eth0 address 10.10.2.2/24
```

If you are using VyOS 1.2.4 or later (i.e. WIBs built after Feb 2020) set gateway with command:
vyatta@vyatta# **`set protocols static route 0.0.0.0/0 next-hop 10.10.2.1`**

If you are using older VyOS or later (i.e. WIBs built before Feb 2020) set gateway with command:
vyatta@vyatta# **set system gateway-address 10.10.2.1**

5) At this point the remaining ethernet interfaces (eth1, eth2, etc) may also be configured using "**delete interfaces ethernet eth1 address....**" and "**set interfaces ethernet eth1 address.....**" commands.

6) "commit" and "save" the changes and "exit" configuration mode:

```
vyatta@vyatta# commit
[edit]
vyatta@vyatta# save
Saving configuration to '/config/config.boot'...
Done
[edit]
vyatta@vyatta# exit
exit
vyatta@vyatta:~$
```

For more information on Vyatta please see http://www.vyatta.org/documentation
For more information on VyOS please see: http://vyos.net/wiki/User_Guide

4.2 WIB CONFIGURATION

1) Set the following IP settings on your laptop and connect it to the LAN3 port on the WIB4L:
   a. **IP Address:** 10.10.10.9
   b. **Subnet Mask:** 255.255.255.252 (/30)
   c. **Default Gateway:** 10.10.10.10

2) Open a browser and go to address http://10.10.10.10
3) An authentication window will appear (Fig 4.2-1). To access the WIB4L interface use the following credentials

   Username: **admin**
   Password: **2652azo2652**

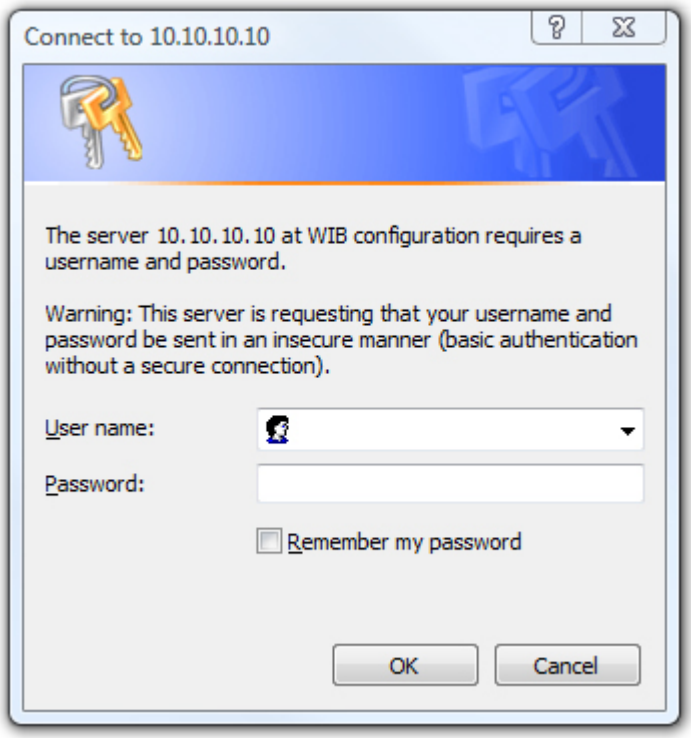

FIG 4.2-1. WIB4L WEB INTERFACE AUTHENTICATION WINDOW (IE)

4) The WIB4L configuration screen should appear (fig 4.2-2). Fill in the WIB settings with the information provided by Azotel. ***Note****: In most cases you will just have to verify this data as some initial setup is done by Azotel before shipping the WIB4L to you.*
5) Select PROXY ARP under WIB settings if your upstream ISP requires you to reply to ARP requests for all IPs in the WIB4L's public IP range. If the upstream ISP explicitly routes to the WIB4L, then PROXY ARP is not required.
6) Fill in the upstream and downstream VLAN/interface details unless you are using the defaults. The following defaults will be used if these fields are not populated: Upstream Physical Interface: LAN1 (eth0); Downstream Physical Interface LAN2, LAN3, etc (eth1, eth2, ...); any configured VLANs will assume to be downstream.
7) Next fill in *WIB public network settings* with the broadband feed details for your network (IP address / mask, default gateway, DNS settings, etc). These values should match the values entered in the Vyatta configuration in section 4.1.
8) The remaining sections need not be filled in unless you are using PROXY-ARP or using the onboard DHCP server. If you are using these, please fill in the fields to match the details entered in the Vyatta configuration in section 4.1.
9) Press the *Save Settings* button and then *Reboot* to apply the settings.

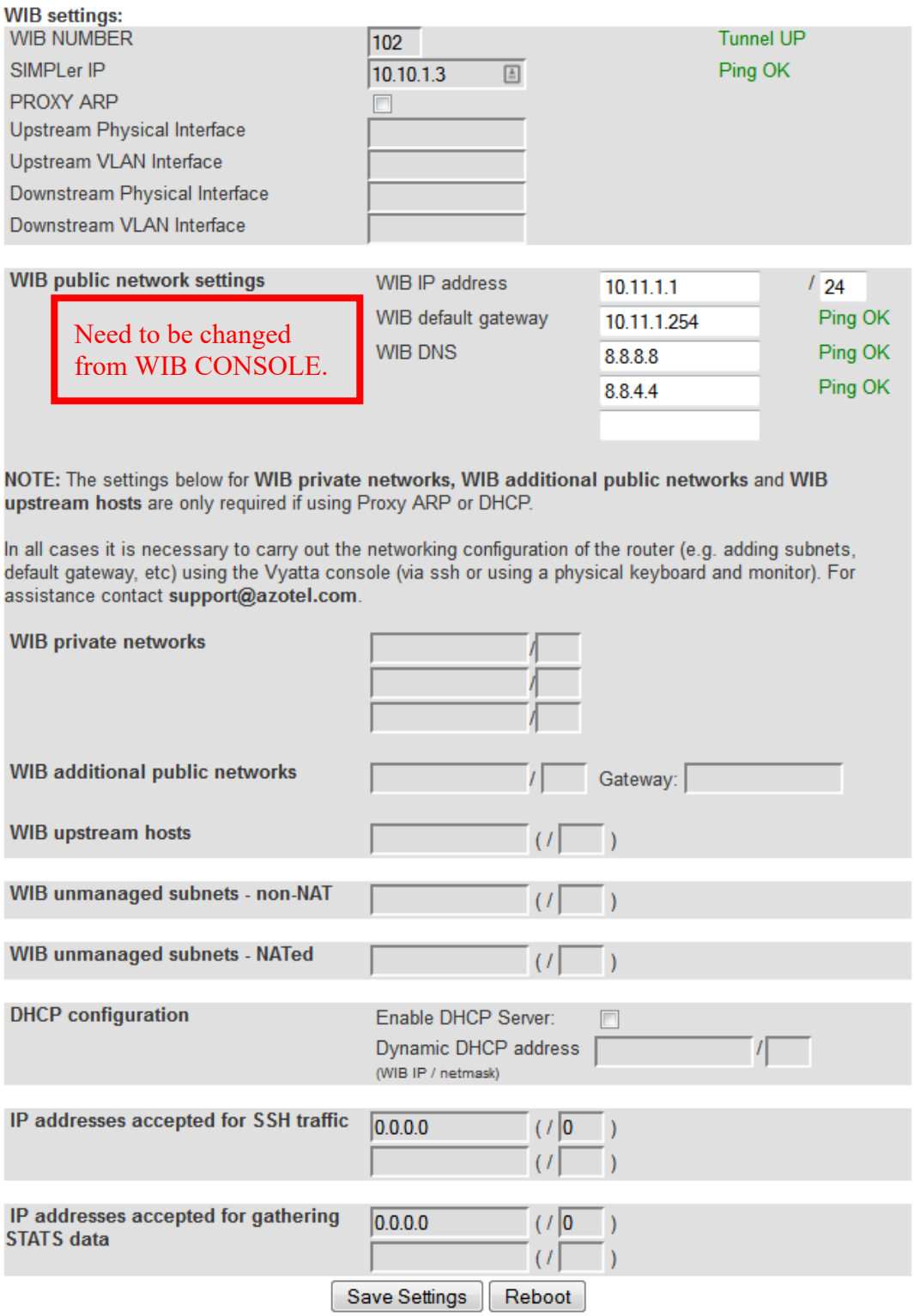

FIG 4.2-2. WIB4L WEB INTERFACE (SETTINGS PAGE)

4.3 CONNECT THE SWIB TO BROADBAND

At this point the router should be online with the new IP address. Connect up LAN1 (eth0) to the upstream router and verify you can ping it, and that you can also ping the outside world:

```
vyatta@vyatta:~$ ping 10.10.2.1
PING 10.10.2.1 (10.10.2.1) 56(84) bytes of data.
64 bytes from 10.10.2.1: icmp_req=1 ttl=64 time=0.259 ms
64 bytes from 10.10.2.1: icmp_req=2 ttl=64 time=0.249 ms

vyatta@vyatta:~$ ping www.google.com
PING www.google.com (74.125.138.104) 56(84) bytes of data.
64 bytes from dn-in-f104.1e100.net (74.125.138.104): icmp_req=1 ttl=49 time=9.21 ms
```

If you cannot ping the upstream router, or outside world, you can check the configuration of the router with the command "show configuration" - this will dump the current running config.

4.4 TROUBLESHOOTING

The DHCP server will only listen on an interface if the “primary” subnet of the interface is listed in the DHCP configuration file. The “primary” subnet is the IP that is listed if you do an “ifconfig”, or the first address shown when you do an “ip addr show” or “show interfaces”.
If the dhcpd process does not start after moving from a legacy WIB to VyOS it could be due to an issue relating to the changed order of subnets.
To resolve this ensure that all subnets are listed in the DHCP configuration file. This will avoid the need to identify the “primary” subnet.

For any other troubleshooting assistance see section 3.4 above.

5 SUPER MICRO WIB

5.1 SUPER MICRO PORT CONFIGURATION

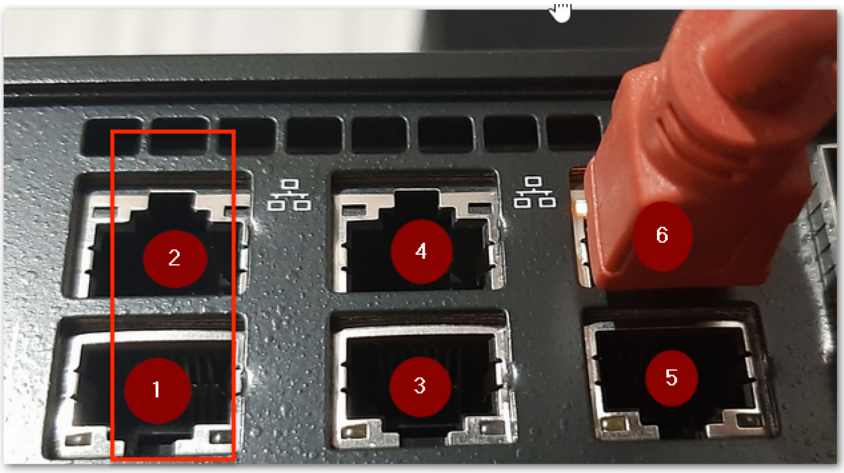

FIG 5.1-1. SUPER MICRO PORT PANEL

- Port 1: Connect to Upstream Feed
- Port 2: Connect to Customer Network

ANNEX A: REFERENCES

A.1 DOCUMENT REFERENCES

A.2 LINK REFERENCES

[L1] http://www.azotel.com/
[L2] http://www.vyatta.org/documentation

ANNEX B: DEFINITIONS AND ABBREVIATIONS

B.1 DEFINITIONS

B.2 ABBREVIATIONS

For the purposes of this document, the following abbreviations apply:

SIMPLer Subscriber Information Management Platform - Azotel's integrated operators' platform

ANNEX C:CHANGE HISTORY

Date	Author	Subject/Comment	Old	New
23/08/07	gawl	Original	N/A	001
24/08/07	sjs	Reviewed	001	002
26/06/08	sjs	Updated per current implementation	002	003
30/07/08	sjs	Updated to change IP addresses/password and LAN2 usage	003	004
21/01/09	sjs	Updated for secondary gateway support	004	005
18/08/09	julius	Updated WISPer to SIMPLer	005	006
23/10/09	ar	Updated grammar/formatting and modified some steps for clarity	006	007
11/11/09	oharej	Split out Tutorials section	007	008
12/11/09	ar	Set images to be in-line	008	009
20/06/11	oharej	Formatting	009	100
29/06/11	sjs	Additions for S-WIB	100	101
24/11/11	justyna	*Updated screenshots*	101	102
17/06/13	paul	Changed doc's title, copyright and correct year, doc num on all pages	102	200
24/7/13	stephen	Added steps 7 and 8 in sec. 2.3 and 15 and 16 to sec. 3.3	200	201
21/01/14	emma	Reviewed Doc – corrected line in section 3.3	201	202
10/02/14	emma	Updated Doc – added VYATTA	202	203
07/04/14	Sjs	Additional Vyatta configuration details	203	204
04/03/15	Sjs	Update Vyatta configuration to also list VyOS	204	205
18/06/15	oharej	Added Text to highlight VyOS network config is to be done via the command line.	205	206
13/02/16	oharej	Updated Passwords.	206	207
06/04/16	sjs	Updated default VyOS password	207	208
26/10/16	oharej	Format Changes.	208	209
16/07/18	oharej	Minor Doc Updates.	209	210
22/01/20	hlombard	Added 4.4 Troubleshooting	210	211
26/02/20	oharej	VyOS 1.2.4 support	210	211
19/07/21	oharej	Added Super Micro port details	211	212