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<u>Notice</u>

The SWL-1000D and SWL-1000N complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions;

(1) This device may not cause harmful interference.

- (2) This device must accept any interference received, including
 - interference that may cause undesired operation.

Note : The SWL-1000N and SWL-1000D have been tested and found to comply with the limits for a Class B digital device and a low power transmitter, according to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures;

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an output on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Service

MagicWave is the trademark of SAMSUNG in wireless LAN.

The most recent software and user documentation for all MagicWave products are available on our World Wide Web.

http://www.sem.samsung.co.kr

Service Dept.82-331-210-6805Sales Dept.82-331-210-6386

1. MagicWave Introduction

MagicWave Overview

The MagicWave(SWL-1000X) is a wireless LAN adapter card that provides wireless connections between PC's.

The function of the MagicWave SWL-1000AP (Access Point) is to transfer information from a wired LAN to a wireless LAN and from the wireless LAN back to the wired LAN. When operating, the MagicWave AP is invisible to most users (Normally, unless the user is an administrator, the MagicWave AP can not be seen or accessed by users on the network).

The MagicWave is similar to Ethernet, a most widely used network card, but it can be used on motion when applied to Notebook PC because of the wireless connection.

The MagicWave is designed to operate with IEEE802.11 compliant radio cards, wireless LAN International Standard, and uses a protocol (CSMA/CA) of collision avoidance method for protect a collision on the network, so a high speed communication is possible.

The MagicWave supports DSSS (Direct Sequence Spread Spectrum).

This is a radio technique which scrambles the data prior to transmission and uses a correlation technique on receive to improve the signal to noise ratio and makes a possibility to communicate in the office having a wall, a compartment.

The MagicWave provides network driver software to support most of the commonly used network softwares and diagnostic programs.

Main Characteristic

The MagicWave supports a peer-to-peer communication which makes point-to-point and pointto-multipoint communications possible, which makes the communications between wireless LAN users easy.

A wireless network can be connected to a wired Ethernet through a network interface called an Access Point. Since all the protocols for a wired network are supported through an Access Point, all the services for a wired network are available for a wireless network users.

The MagicWave supports various network softwares. The network driver is supplied to support most network softwares such as MS Windows for Workgroup3.11, Windows95, Windows NT 3.51 / 4.0, etc.

The SWL-1000N for Notebook PC is small and portable as a roaming function is provided for users who need network services while maintaining mobility.

SPECIFICATIONS

♦ System Interface

L-1000N	SWL-1000D
79c930	Am79c930
ICIA	ISA
and Play	Plug and Play
E802.11 (CSMA/CA)	IEEE802.11(CSMA/CA)
io Frequency	Radio Frequency
, E	2-1000N 9c930 ICIA and Play E802.11 (CSMA/CA) o Frequency

♦ Radio Specifications

	SWL-100)0N	SWL-100)0D
Frequency	2412,241	7,2422,2427		
	2432,243	7,2442,2447	The same	e as SWL-1000N
	2452,245	7,2462,2467		
	2472,248	4Mhz		
Output Power	less than	10mW/MHz	less than	10mW/MHz
Transmission rate	2Mbps		2Mbps	
Modulation Methods		DSSS-DQPSK		DSSS-DQPSK
Receive Signal Level		-90dBm		-90dBm
Main Lobe Bandwidth	22Mhz		22Mhz	
FER		less than 8*10E-2		

♦ Transmission Range

	SWL-1000N	SWL-1000D
Outdoor	400m	420m
In the office having a compartment (About 1.5m height)	70m	70m
In the office having a wall (Not made of concrete or metal)	50m	50m
In the office having a wall made of concrete	30m	30m

Physical Specifications

	SWL-1000N	SWL-1000D
Adapter card size	105*53*5mm	180*110*10mm
Antenna size	built-in	85*80*15mm
Weight (net)	38g	145g
Operating temperature	-10 ~ +50 °C	
Power Consumption	1.6W	1.75W

◆ Supplied Software (both SWL-1000N and SWL-1000D)

MS Windows for Workgroup 3.11(NDIS 2) / Windows 95 / Windows 98 /Windows NT3.51/ Windows NT4.0 driver

◆ Operating State Indication Lamp

① Power : SWL-1000D (turns on when the system is powered on) SWL-1000N (turns on with beep sound when the PC initializes the wireless LAN card in the PCMCIA slot on system booting).

- ⁽²⁾ Tx : turns on when transmitting data.
- ③ Rx : turns on when receiving data.

A PCMCIA wireless LAN card automatically starts to operate when inserted into the slot while the system is on because most notebook PC's support hot plugging in the Windows 95 environment. To remove the card while the system is in operation follow the next steps:

- Click on the icon shaped a PCMCIA card on the right bottom menu bar.
- Click on the card removal message when it appears next to the icon.
- ► Remove the card when the permission appears in a small box.

2. Network Installation

The number of computers connected, Ethernet installation, and desired network applications determine the type of network, Ad-Hoc or Infrastructure.

The wireless LAN can easily be installed and used while one must connect cables to install a wired LAN.

Peer- to - Peer Mode

A peer-to-peer mode is suitable for the environment in which connections to wired network are not necessary and can be constructed by only wireless LAN adapter cards.

You can use the network immediately after setting up the operating mode using the supplied network driver.



StructureNet Mode

A wireless LAN can be used to access all the services that are available for a wired LAN through an access point which connects the wireless LAN to a wired network.



Roaming function is also supplied to users who need mobile capabilities in this mode.



Roaming is a service that disconnects the user from an access point allotted to the previous cell and connects to the one allotted to a new cell when the user moves into the cell.

3. Hardware and Software installation

After opening the box, verify that all parts are included and check your computer and network environment.

Packing Contents

- (1) SWL-1000N (PCMCIA Card) or SWL-1000D (ISA Card)
- (2) SWL-1000AP (Each Access Point requires a SWL-1000N adapter card for operation)
- (3) User's Manual
- (4) SWL-1000 Install Diskette (Driver Diskette)
- (5) Power Adapter (SWL-1000AP only)
- (6) SWL-1000AP Utilities Diskette (SWL-1000AP only)
- (7) External Antenna (SWL-1000D only)



PC Configurations

For the SWL-1000D, verify that your computer has an extra IRQ, I/O Address. SWL-1000D is ISA Plug & Play card supporting IRQ 9, 10, 11, 12. Some multimedia PC may not have an extra IRQ.

Required Equipment for Network Connection

- If you want to use Peer-to-Peer Network, you can install with only SWL-1000D, SWL-1000N adapter cards.
- If you want to use StructureNet Network, you must install Access Point (SWL-1000AP) first.

Equipment required to install Access Point is

(1) Access Point (SWL-1000AP)

- (2) PCMCIA wireless LAN adapter card (SWL-1000N)
- (3) Power adapter.

Hardware Installation

Desktop PC Adapter Card (SWL-1000D)

- (1) Turn the PC off, uncover the case, and remove the Dummy Bracket of an empty ISA expansion slot.
- (2) Insert carefully a MagicWave wireless LAN card to the PC slot and insert the screw to mount it in place.
- (3) Then, insert the antenna to the antenna connected from the back of the PC card as shown in the following picture.
- (4) Turn the PC on and confirm that the adapter card is recognized by the PC by checking the LED before you put the cover over the PC.
- Verification procedure through LED

Red LED : power LED, lights when the computer turns on.

Orange LED : blinks when receiving data.

Green LED : blinks when transmitting data.

 A SWL-1000D supports ISA Plug and Play. The card is automatically recognized and installed in Windows 95 environment.

If your system does not support the Plug and Play, you can use the utility for ISA PnP (not included in the package)



Notebook PC Adapter Card (SWL-1000N)

You can insert the card into a Notebook PC while the power is on or off.

• When inserting the card while using your notebook PC

Insert the SWL-1000N adapter card into the PCMCIA slot. A pleasant "cheep" sound indicates the regular operation. A low monotonous tone indicates a failure of the recognition.

• When inserting the card before turning your notebook PC on.

The success or failure of the card recognition is also indicated by the sound as above. If the card is successfully recognized, install the device driver following the instructions on page 14.



Access Point (SWL-1000AP)

A MagicWave Access Point connects a MagicWave wireless LAN to existing wired LAN. An Access Point is equipped with an Ethernet adapter supporting 10base-T, 10base 2 and a MagicWave wireless LAN adapter card.

Installation can be done easily as follows;

- 1. Insert the MagicWave card (SWL-1000N) into the PCMCIA slot of the Access Point (SWL-1000AP)
- 2. Connect the network cable to Ethernet port (10base-T or 10base 2) on the back of the Access Point.
- 3. Connect the power adapter.



Software Installation

Windows 98/95 Setup

1. You can see the following message when you insert MagicWave adapter card on the PC slot. (As previous presentation, in case of SWL-1000N for Notebook PC, you can insert a SWL-1000N card while power is on or off. In case of SWL-1000D for desktop-PC, you turn on the desktop-PC after you insert a SWL-1000D card on the PC slot.) Click "Next" button

Add New Hardware Wiz	ard
	This wizard searches for new drivers for:
	SAMSUNG-WirelessLAN
	A device driver is a software program that makes a hardware device work.
🍣 📚	
	< <u>Back</u> (Next> Cancel

2. Select "Display a list of....." radio button, Click "Next" button



3. Select "Network adapters", Click "Next" button

Add New Hardware Wizard			
	Select the type of device from the list below, then click Next. Modem Monitors Mouse Multi-function adapters Network adapters Other detected devices Other devices PCMCIA socket Ports (CDM & LPT) Printer		
	SCSI controllers		
	< <u>B</u> ack Next > Cancel		

4. Select "(dectected net drivers)" in Manufacturers, and "Existing Ndis2 Driver" in Models Click "Have Disk" button.

Select De	vice	×	<
##	Click the Network ada If you don't know whit disk for this device, cl	apters that matches your hardware, and then click OK. ch model you have, click OK. If you have an installation ick Have Disk.	
Manufact	urers:	Models:	
B (dete	cted net drivers) 🛛 🔺	🕮 Existing Ndis2 Driver	
💷 (Infra	red COM port or dc	Existing ODI Driver	
🛛 💷 3Con	1		
Accti	on		
Adap 🗐	itec 🔽		
		Have Disk	
		OK Cancel	

5. Insert the driver diskette offered with a card. Set "A:\", Click "OK" button



6. Follwing window appears, click "OK" button

Select De	evice X
	Network adapters: The following models are compatible with your hardware. Click the one you want to set up, and then click OK. If your model is not on the list, click Show All Devices. This list shows only what was found on the installation disk.
P SAM	SUNG Wireless LAN Card
Show	v <u>c</u> ompatible devices <u>H</u> ave Disk
C Show	v <u>a</u> ll devices
	OK Cancel

7. Follwing window appears, click "Next" button.

Add New Hardware Wiz	zard
	Windows driver file search for the device:
	SAMSUNG Wireless LAN Card
	Windows is now ready to install the selected driver for this device. Click Back to select a different driver, or click Next to continue.
🛛 🧞 😞 🗌	Location of driver:
	A:\NETSAM~1.INF
	< Back Next > Cancel

8. Following window appears, type "A:\" in Copy files from: Box, then click "OK" button

Copying	Files	×
F	The file 'itcmd.vxd' on Windows 98 CD-ROM cannot be found.	ок 💦
	Insert Windows 98 CD-ROM in the selected drive, and click OK.	Cancel
		<u>S</u> kip File
	Copy files from:	<u>D</u> etails
	A:N	

9. Restart your computer to finish setting up.

System S	Settings Change 🛛 🕅		
To finish setting up your new hardware, you must restart your compute Do you want to restart your computer now?			
	<u>Yes</u> <u>N</u> o		

Network Environment Setup

After hardware and driver installations are finished, network environment setting for Windows 98 is needed. The steps are following.

1. After restarting a computer, Click "Start", "Settings", and "Control Panel".



2. Double-click "Network" icon, then Network window appears, and click "Add" button.



3. When "Select Network Component Type" window appears, Click "Protocol", and click "Add" button.

Client	e see f	Add
Adapter		L
Protocol		Cancel
Service		
The second		

4. When "Select Network Protocol" window appears, Click "Microsoft" and "TCP/IP", and then click "OK" button.

Select Network Protocol	×
Click the Network Pro an installation disk for	otocol that you want to install, then click OK. If you have r this device, click Have Disk.
Manufacturers:	Network Protocols:
 Banyan Digital Equipment (DEC) IBM Microsoft Novell SunSoft 	IPX/SPX-compatible Protocol Microsoft 32-bit DLC Microsoft DLC Microsoft DLC TCP/IP
	<u>H</u> ave Disk
	OK Cancel

5. When you click the Configuration tab and select TCP/IP in the Network window, you might see the TCP/IP Properties window. From here, set up your IP Address and Subnet Mask (If you don't know this, you can find out from your network administrator).

TCP/IP Properties				? ×	
Bindings	Adv	anced	N	etBIOS (
DNS Configuration	Gateway	WINS Config	guration	IP Address	
An IP address can If your network dou your network admi the space below.	An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.				
O <u>O</u> btain an IP	address aut	omatically			
	'address:—				
<u>I</u> P Address:	166	. 79 . 60	.234		
S <u>u</u> bnet Mas	k: 255	. 255 . 255	. 0		
		OK		Cancel	

Subnet Mask : Type the Subnet Mask number obtained from your network administrator. This number combines with the IP address and identification, which your computer belongs to the networks. 6. Click the "Gateway" tab in the TCP/IP Properties window, and then type the IP address of gateway and click "Add" button.

TCP/IP Properties		? ×		
Bindings DNS Configuration	Advanced Gateway WINS Confi	NetBIOS iguration IP Address		
The first gateway in the Installed Gateway list will be the default. The address order in the list will be the order in which these machines are used.				
<u>N</u> ew gateway: 166 . 79 . 6	i 0 . 1			
Installed gateway	*8:	ve		
	01	Cancel		

7. Click the "DNS Configuration" tab, and then type IP Address of DNS server and click "Add" button. Set up 'Host', 'Domain' and 'Domain Server Search Order' one by one, and then click "OK" button.

TCP/IP Properties
Bindings Advanced NetBIOS DNS Configuration Gateway WINS Configuration IP Address
© Disable DNS © <u>E</u> nable DNS
Host: MagicWave Domain: semco.samsung.
DNS Server Search Urder Add
166.79.32.150 <u>B</u> emove
Domain Suffix Search Order
A <u>d</u> d
semco.samsung.co.kr Remove
OK Cancel

8. Click the "Advanced" tab, and then check the "Set this protocol to be the default protocol" and click "OK" button.

TCP/IP Properties		? X	
DNS Configuration Bindings	Gateway WINS Confi Advanced	guration IP Address NetBIOS	
Click the setting yo select its new valu	ou want to change on the ie on the right.	left, and then	
Property:	<u>V</u> alue:		
None	Present		
Set this protocol to be the default protocol.			
	OK	Cancel	

9. Click the "Bindings" tab, and confirm that "Client for Microsoft Networks" and "File and printer sharing for Microsoft Networks" are checked. When you click "OK" button, TCP/IP setting is completed.

TCP/IP Properties		? ×
DNS Configuration Bindings	Gateway WINS Conf Advanced	iguration IP Address NetBIOS
Click the network protocol. To impro components that r	components that will con ve your computer's spee need to use this protocol.	nmunicate using this d, click only the
Client for Micro	osoft Networks	
	0	Cancel

MagicWave Adapter Card Setup

As method of Network environment setting, you can see "SAMSUNG Wireless LAN Card" at the "Network" window in the "Control Panel".

This component means that MagicWave adapter card (SWL-1000N or 1000D) is correctly working. As selecting this component, you can change into the desired value.

Network ?	х
Configuration Identification Access Control	
The following network components are installed:	
📇 Client for Microsoft Networks	
🔜 Microsoft Family Logon	
🕮 Dial-Up Adapter	
Infrared PnP Serial Port	
SAMSUNG Wireless LAN Card	
Fast Infrared Protocol → Infrared PnP Serial Port	
Add R <u>e</u> move P <u>r</u> operties	
Primary Network Logon:	
Client for Microsoft Networks	
Eile and Print Sharing	
Description	
A notwork adapter is a hardware device that physically	
connects your computer to a network.	
OK Cancel	

1. Click the "Properties" and then "SAMSUNG Wireless LAN Card Properties" window appear. Click "Operating Mode" tab and type desired ESS ID.

SAMSUNG Wireless LAN Card	Properties 🛛 🔋 🗙
Driver Type Bindings Advanc	ed Operating Mode
Operating Mode □ ○ Instawave ESS ○ Peer-to-Peer □ ☑ Default Scanning Start In StructureNet mode wireless with wireless stations and LAI compatible Access Point. Compatible Access Point.	Inable Power Saving ID: magicwave Case sensitive ESS ID Auto join Channel: 1 stations communicate A stations through a
	OK Cancel

- BSS (Extended Service Set) : Minimum cell that composed wireless LAN.

- ESS (Extended Service Set) : Interconnection of BBSs to work as one BBS.

- *Instawave* : In this mode wireless stations commuicate directly with each other and through compatible access point

- *StructureNet* : In this mode wireless sations communicate with wireless stations and LAN stations through a compatible Access Point

- Peer-to-Peer : In this mode wireless stations communicate directly with other wireless stations

3. Set up "DTIM period" and "Fragmentation Threshold", "Listen Interval", "RTS Threshold" in advanced tab if you need, and then click "OK" button. Then, you can see "Do you want to restart your computer now?" window. Click "Yes" button and then your computer will restart to set up your adapter card. (Recommend Cold booting, Some Desk top cannot load PNP Bios when warm booted.)

System 9	Settings Change 🛛 🛛 🔀
?	You must restart your computer before the new settings will take effect. Do you want to restart your computer now?
	<u>Yes</u> <u>N</u> o

Windows NT Setup

The Network setting for Windows NT is as follows;

- 1. First, insert the MagicWave Adapter card in the empty slot, you should turn on PC.
- After booting of the PC, click "Start", "Settings" and "Control Panel".

MyComputer	
- B	
A Carlos Antonio Anton	
Neigitambod	
. 😃	
India	
A	
Internet Embers	
\$	
ିସ/ 	
Popers ·	
5 🗋 Documenta 🔸	
T Settinge	
End • Hashbar.	
z 🧶 Helo	
🖁 💯 Bun.	
Dif Sty Down	
Start	4.38 PM

2. When select the "Network" icon a network windows shown as below.

You can change the "Computer Name" and "Workgroup" after click the "Change" button.



3. Select "Adapter" tab, click the "Have Disk.." button as below picture.

	Control Panel	
My Computer	Ele Edit Yew Help	
Network Network Network Network Interv Explore Explore Recyclo Ein	Access billy Intervent Y × Access billy Intervent Y × Options Identification Services Protocols Adapters Display Identification Services Protocols Adapters Endings Options Identification Services Protocols Adapters Y × Options Identification Services Protocols Adapter Y × Options Options Options Options Protocols Adapter Y × Options Options Options Options Options Protocols Protocols	
My Brieloase	Longues nei	
	DK Cancel	
	Cose	
🖪 Start 🗖	j Control Panel	4.43 PM

4. Insert the provided disk "Install Diskette" and specify the path "A:\" in blank field as below picture and click "OK".

	🖻 Central Panel	
My Computer	Ele Edit View Help	
Negritekord Negritekord Inbox Inbox Internet Englater Recycle Bin	Image: Service	
	Configues nel A.S.	
NY Energiase	OK Cancel	
🚮 Start 💁	d Control Panel	4:44 PM

5. If the location of the DRIVER is set normally, you can see the following picture.

Select the card type (ISA or PCMCIA) and click "OK" button.

	Control Penel	
My Computer	Ele Edi View Help	
Network Network Network Network Intos	Accessibility Determination Services Protocols Adapters Display Petros Interest Adapters Display Petros Interest Adapters Display Petros Interest Adapters Display Petros Interest Adapters Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Dis	
Recycle Bri My Briefcase	Penkas Penkas Dot Concel Help OK Cancel	
2-0		
Windows NT Explorer	OK Cancel	
Stort 🗟	Control Panel	10:32 AN

6. Set each parameter (I/O Base, IRQ Level, ESS ID...) to proper value for your computer. Click the "OK" button if the setting is complete.

	Fie Edit View Holp	
My Computer		
匙		
Network Neighborhood	Identification Services Protocols Adapters Bindings Uservices Adapters	
	Display Configure Wireless LAN Card	
Inbos	IO Base Address Interrupt: DK Dc200 3 Cancel	
<u> </u>	Mouze D.2c0 10 10	
Explores	Operating Mode Enable Power Saving Or Instervene ESS ID: within	
Recycle Bin	Soluciave Mode Care Semitive ESS ID Peer-to-Peer Mode Care Semitive ESS ID C Auto Join	
Mu Briefrane	Configurer ne Default Scenning Stationaries	
	Fragmentation Threshold 2346	
	BIS Treshold 736	
Windows NT Explorer		
in the second		-
Marau 7	Configure Wireless LAN	TU23 AN

7. Select the "Bindings" and set up the items that you want.



8. Select "TCP/IP protocol" in the "Protocols" tab, and click the "Properties...".



9. In the "IP Address" tab, sets up each parameter (IP Address, Subnet Mask, Default Gateway) suitable for your environment of the network (Request from your network administrator).

	Control Penel	
Mi Computer	Ele Edi Yow Help	
	Accessibility Hotevert	
Neighborhood	Identification Services	
intos Internal	Metwork Protocols: IP Address DNS WINS Address Routing Display 3" Ne6EUI Protocol 4" Ne6EUI Protocol 4" Ne6EUI Protocol 4" Ne6EUI Protocol 4" Ne6EUI Protocol 5" Ne6EUI Protocol 5" Ne6EUI Protocol 5" Ne6EUI Protocol 5" Ne6EUI Protocol 4" Ne6EIOS 5" Ne6EUI Protocol 5" Ne6EUI P	
Explorer	Program (Marters Marters (Mi Part (SA)	
Rocycle Bin My Briefcrase Ny Briefcrase Windows NT Explored	Add. Be Primers Obscription Transport Control Pictore driverse intercomments P datases Obscription P datases Obscription P datases P datases Obscription P datases <	
	CK Carcol Apply	
🚮 Start 🔙	[Caribal Panel	10:38AN

10. In the "DNS" tab, set up each parameter.

	Control Parel	
My Computer	Ele Edit View Help	
Hethook Neighborhood	Accessibility Motivation Services Microsoft TCP/IP Properties Mic	
internet Explorer	Mulark NeSIOS Hast Name Dgnan Mause TOP/IP Protocol Fair fill Son sameung co. br Printes Add. Ben 166.731.10 Jon right	
Hy Briefcase	Description Description Image: Configures red Add Edk Remoge Description Add Edk Remoge Domain Subtraction Domain Subtraction Domain Subtraction Domain Subtraction	
15tart 💷	Add., Edg., Stephyse OK, Cancel Apply JControl Panel	500PM

11. Select the "WINS Address" and set up each parameter.

ly Computer Ele Edit View	× Hep		
Access billy Reducent, aghino hand Display Proce Fridement Escloret Solution Display Mouses Fridement Solution	Identification Services Retwork Protocols WineBEUI Protocol WiNeBEUI Protocol WiNerk NetBIDS WTCPAP Protocol Add Br	Vindows Internet Name Services (WINS) Adagter: [2] Sansung Windess Windess LAN Card (ISA) Primary WINS Server: 166	
ty Bindicase	Description Transport Control Prot area network protocol driverse interconnecte	Egeble DNS for Windows Resolution	
		OK Cencel Apply	poster

12. After select the "Routing" checking enable use IP Forwarding or not.

Click the "OK" button, and then the setting of the TCP/IP Protocol Properties are completed.

	Control Pa	anel		_ 🗆 ×	I		
My Computer	Ele Edit Ve	ew Help	[112]	-			
Network Network	Accessibility Options	Heinvick Identification Services	Microsoft TCP/IP	Properties	킨지	? ×	
alle te	Display	Network Protocols:	IP Address DNS IP Forwarding nuti-homed syst be collected by	WINS Address P Routing allows p em. The routing in RIP for Internet Pro	Bouting ackets to be forward formation may be sta stood. RIP is a service	ded on a fic, or may ce that can	
internet Explorer	Mouse	a ILCP/IP Protocol	be installed from	the Natwork Cont Inverding	rol Panel service pag)e.	
Recycle Bin	Printers Configures nel	Add . <u>H</u> en - Description Transport Control Froto area metwork protocol t diverse interconnected					
Ny Briefoase							
				OK.	Cancel	Apply .	
🛃 Start 🔛	Control Panel						501 PM

13. Click the "Close" button, appear message that "Do you want to restart your computer now?". If you click the "OK" button the PC is going to restart.



4. Access Point installation Guide and Manual

Access Point Setup

In order to connect SWL-1000AP with the established ethernet to build an infrastructure network, you must modify the CONFIG in the Access Point using a PC and a Null Modem Cable.

Installation can be done easily as follows;

- 1. Link the PC serial port and the AP serial port with Null Modem Cable, and ethernet connection can be made either via the Coax (10Base 2) or RJ45 (10Base T) connector.
- 2. Insert the SWL-1000AP into the PCMCIA slot of the Access Point.
- 3. Plug the power cord into the socket on the back of the AP.
- 4. All the LEDs will on and off, if the "alert" LED remains on it indicates an error condition.
- 5. The sequence is as shown in the following picture, select "Start -> Programs -> Accessories -> Hyper Terminal "



- If there is no "HYPER TERMINAL" in the "Accessories" you must reinstall "Windows Setup" as follows;
 - " Control Panel -> Add/Remove Programs -> Windows Setup -> Communications -> Hyperterminal".

After rebooting the PC, try it again #5 status.

7. Double click the "Hypertrm"

My Computer		
Network		
Neighborhood	🚔 HyperTerminal	
Dinbox	Eile Edit <u>V</u> iew <u>H</u> elp Aa.ht AT&T Mail.ht CompuServe	
Recycle Bin	hticons.dl hypertrm.dl Hypertrm.exe	
Set Up The Microsoft	1 object(s) selected 6.00KB	
Network		
Shortcut to Ponet		
M Chart Russilled Dairt		20 11.02 AV
	Hyper i erminal	🖂 式 🕺 11:02 AM

8. Fill the "Name" item with the wanted Name and click "OK" button

My	New Connection - HyperTerminal		<u>- 🗆 ×</u>
	<u>File E</u> dit <u>V</u> iew <u>C</u> all <u>I</u> ransfer <u>H</u> elp		
	D 🗳 🍘 🥈 🗈 🗃 😭		
Ne	i l		
		Connection Description 2	
		New Connection	
		×	
		Enter a name and choose an icon for the connection:	
B	6	Name:	
		AP	
		<u>lcon:</u>	
s		- 🔍 🚔 🔕 🖳 🛞 📄 -	
		OK Cancel	
S			
	Disconnected Auto detect	Auto detect SCBDU CAPS NUM Capture Brint echo	<u>▼</u>
	start Munitied - Paint	SNew Connection - Hy	📷 🔩 11:06 AM

9. Select the "Direct to Com 1" at the "Connect using" item.

J	
Му	🚱 AP - HyperTerminal
	<u>File Edit View Call Iransfer Help</u>
l Nei	Phone Number
	Enter details for the phone number that you want to diat
R€	
Se N	Phone number:
r	Cognect using: Direct to Com 1
SI	Disconnected Auto detect SCROLL CAPS NUM Capture Print echo
1	Start 🖉 untitled - Paint 🎒 🎒 11:09 AM

10. The "Port Settings" are same as the following picture Bits per second = 9600,

Data bits = 8, Parity = None, Stop bits = 1 and Flow control = None.

	2		
N	4y	AP - HuperTerminal	- D ×
		Port Settings	
	,[
N	ei	Bits per second: 9600 ▼	
		Data bits: 8	
		Parity: None	
1	R€	Stop bits: 1	
	Se	Elow control: None	
	N T	Advanced <u>R</u> estore Defaults	
	0		
	51		
	ĺ	Disconnected Auto detect SCROLL CAPS NUM Capture Print echo	
1	<u>A</u> s	Start 🖉 untitled - Paint 🏐 AP - HyperTerminal	😼 11:11 AM

11. Click the "OK" button, you can see the next initial figure and if the connection is performed.

There is shown "9600-8-N-1" message on the status bar.



Modify CONFIG.TXT

ap - HyperTerminal
OK CMD:config =======Current Config ======= ESSID: test1 AP_name: WLAN_AP channel: 4 Regulatory domain: USA IP_address: 166.79.60.1 gateway: 166.79.60.1 subnet_mask: 255.255.0 RIS_threshold: 2301 short_retry: 15 SIFS_time: default Protocols: all mode: Structurenet Ielnet: On Web: On Security lock: off Standard: On IFIP: On Admission: All Radio NID: 0000F06400376 Management NID: 00F003800265
CMD:
mnecked 0.01:02 Auto detect \$5600 BN-1 [SCPOLL [CAPS] MUM [Cautiae Prink echil

- 1. Password is preset to "default".
- 2. In order to identify the CONFIG, you write in "config" and press the ENTER key.
- 3. For getting help about commander just type "help".
- 4. You can modify the environment using the SET command.

As follows;

CMD: set ESSID magicwave (Group Name)

CMD: set AP_name WLAN_AP (Access Point Name)

CMD: set channel 1 (RF channel)

CMD: set IP_address 123.45.67.8 (origin IP of the AP)

CMD: set gateway 123.45.67.1

CMD: set mode structurenet

CMD: set Telnet on / off (for telnet connection)

CMD: set Web on / off (for http connection)

CMD: set standard on (for interoperability)

5. After all the parameters are change as you want, executes "restart" command .

Null Modem Cable Configuration

9 pin female connector 9 pin female connector							
pin	5	<=====>	pin	5	<	Ground - Ground >	
pin	3	<=====>	pin	2	<	Transmit - Receive >	
pin	7	<=====>	pin	8	<	RTS - CTS >	
pin	6	<=====>	pin	4	<	DSR - DTR >	
pin	2	<=====>	pin	3	<	Receive - Transmit >	
pin	8	<=====>	pin	7	<	CTS - RTS >	
pin	4	<=====>	pin	6	<	DTR - DSR >	
Parameter Descriptions

The available parameters are described below. Some parameters can be ignored but are assigned by default values.

RADIO RELATED

channel: This field specifies the operating channel for the SWL-1000AP.(The SWL-1000AP allows from 1 to 13 but the channels used by adjacent AP should be apart by more than 5 channels)

RTS_threshold : This field determines the size of RTS(Request-To-Send)/CTS(Clear-To-Send) frames and the frames to be used.

```
Default: 2301
```

shot_retry : This field specifies the number of the transmission of RTS/CTS which will be attempted before aborting when the communication between clients is interfered. Note that RTS/CTS are delivered back and forth between the clients to monitor the channel for the possibility of communications.

```
Default : 15
```

long_retry : This field specifies the number of trials of the data transmission when the channel or a client causes the cease of data transmissions.

Default : 15

Standard : This field is used for interoperability between multiple IEEE802.11 venders. Default : off

♦ ACCESS POINT FEATURES

essid : This field is used to name that wireless LAN group when in StructureNet mode. Its value must be the same as that of clients. So if the roaming is to be supported, the value of ESS_ID of all the AP should be the same.

Default : wlan

ap_name : This field is a string up to 9 letters and is used to give the SWL-1000AP an identifier name. This is useful if you have multiple AP on a network for roaming. In this case the essid for all the AP is the same but you can assign a different "ap_name" to each AP.

Default : LocalAP

mode : This field specifies the operating mode of the units. Insert the "Instawave" for <Ad-hoc> and the "StructureNet" for <Infrastructure>.

Default : Instawave

protocol : The normal mode of the AP is to pass all protocols. In this case the value of default of protocol should be "all". If your wireless stations only use TCP/IP protocol you can set the value of protocols to "TCP/IP". In this case non TCP/IP messages are not passed by the AP.

◆ TCP/IP PARAMETERS

IP_address : This field is used to assign a TCP/IP address to the AP and needed when a user manages the AP by TELNET or uses web manager utilities. A user can access a manage program for the AP by putting in the assigned IP address on TELNET or WEB BROWSER.

subnet_mask : This field is used to define the TCP/IP sub-net mask. This field should be set if you plan to use the built in management features of the AP.

Default : 255.255.255.0

gateway : This field is needed to connect to an external network by using the TCP/IP protocol. SWL-1000AP stores all the IP addresses received from TCP/IP ARP (Address Resolution Protocol) message. If the destination is an IP address instead of a local network, the packets are sent to a gateway.

Default : 0.0.0.0 (no gateway)

MANAGEMENT FUNCTIONS

password : This field allows the manager to define the password used by the Command Line Manager before they can enter commands.

Default : "default"

telnet : This field enables or disables the built TELNET management capability. This field will not affect a terminal attached via the serial port, which is always enabled when a terminal is attached. Acceptable values for the field are "on" and "off".

Default : on

web : This field enables or disables the built in web management utility. Acceptable values for the field are "on" and "off".

♦ DIAGNOSTIC METHOD

1. When the "power" LED of the Access Point is not illuminates.

Make sure that the power cord is fully seated in the socket on the rear panel of the unit.

2. When the "alert" LED continuous illuminates or blinks.

- ► Check the states of the radio card (SWL-1000N) installed in the Access Point.
- Make sure the POWER reconnect (OFF/ON again). Operations are not incorrect continuously, please contact your local service center or the retailer where you purchased the units.

5. Management Utilities (Web, Telnet)

Ele Edit View Go	Fguorites Help		
Back - Convert	Stop Retroit Home Search Favorile	🔇 👰 🗖 🔁 É History Charnels Fullscreen Mail P	
Address 🕘 http://166.79.	90.26/default.htm		💌 Livi
Wireless	Access Point		
	Status Depart	SAMSUNG	
AN	Status Report		
	Time : Sun , 9 Jan 2000 05:29:21		225
Configuration	Access Point Name : WLAN_AP	20	
oomigareeon	Wireless network status	Up	20.2
Statistics	Number Associated Wireless Stations	6	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.
	LAN Network status	TP	1000
	and the second second second		

Management Utility (Main Screen = http://166.79.60.26)

In order to view the web management page, start your web browser and click on the "address" or "URL" field, simply enter the IP address of the Access Point.

On most browsers the screen will refresh with the latest information every 10 seconds. With IE4.0 you can stop the auto refresh by clicking on the "Stop" button of the browser.

- **Time :** The current time as set in the SWL-1000AP
- Access Point Name : The "AP_name" parameter of the SWL-1000AP.
- Wireless Network Status : If the radio is operating normally the field will show "Up". If there is a problem with the radio, or no radio installed, the field will show "Down".
- Number Associated Wireless Stations : This shows how many wireless stations are currently connected to the access point.
- LAN Network status : This field will show "TP" when the Twisted Pair (10baseT) connection is operation. Otherwise it will show "Coax".

There are several Hyperlinks on the web page. Theses act just like conventional Hyperlinks and may take the browser to other web pages

1. Wireless/LAN: These sections provide access to the network status screens showing a

summary of the current active wireless and wired LAN devices.

- **2. Configurations**: The configuration section displays the current configuration and allows access to a screen for updating the configuration.
- **3. Statistics**: This section of the web manager provides information and operating statistics for access point and radio functions

Statistics Screen (Statistics Screen =http: 166.79.60.26/stats.htm)

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Back 100	Stop Betresh Home	Search Favoiles Hid	y Channels Fulkcree	n Mai Pink	Edi
Address 🛃 http://1	66.79.60.26/otais.htm				• Lin
Home	Access Point			ALC: NOT	
	Statistics		<u>S</u>	MSUN	G
actio MIB	Statistic last cleared	5un. 8 Jan 2000 02	52:63	150 600	
	Seconds Accumulated	9449		Ser Concerns	
	2017 C	Last 10 Sets	Assimulated	555 A 663	
	Air Transmit Statistics		1	5-51-56413	
	Framer Transmitted	71	59259	0.0000000000000000000000000000000000000	
	Bytes Transmitted	20304	13393509	the second	
	Failed Transmits	0	9	1.03 (A.C.) 2	
	Air Receive Statistics			100000000	
	Frames Received	32	27725		
	Data Frames Road	23	17710		
	Data Bytes Rord	2360	1839068	Sector State	
	MAC Mgmnt Frames Royd	0	248	Cherry Internet	
	Frames Discarded	0	5	a Carlotte	
	LAS Transmit Statistics		19	10000000	
	Frames Transmitted	6	11001	and the second s	
	Bytex Transmitted	414	1415379		
	LAN Receive Statistics			The second se	
	Total Framer Seen	120	172239	0000000	
	Framer Occorded	110	102534	A DECEMBER OF THE OWNER OWNE	
	Flames Accepted	110	and the second second		

The statistics screen shows accumulated traffic information. Two columns are shown: "last 10 seconds" and, "accumulated". Traffic statistics are collected and updated every 10 seconds. The "last 10 seconds" display shows the last 10 second collection period (the may not be precisely the 10 seconds before the screen is refreshed). The screen will automatically update every 10 seconds

The meaning of the fields is given in the following table:

Field Name	Description
Air Transmit Statistics	
Frames Transmitted	The count of frames transmitted on the wireless medium.
	This does not count retry frames - if a frame is sent twice.
Bytes Transmitted	The number of bytes contained in the frames that have been
	transmitted.
Failed Transmits	The number of frames which could not be transmitted.
Air Receive Statistics	
Frames Received	The number of frames of all types received by the Access
	Point from the radio.
Data Frames Received	The number of frames received from the radio which are
	data frames (as opposed to management frames etc).
Data Bytes Received	The number of bytes contained in the data frames received.
MAC Management Frames	The number of frames received such as IEEE802.11 beacons
Received	or association requests.
Frames Discarded	The count of frames which were discarded, because of
	duplicate rejection or because of buffer overflow.
LAN Transmit Statistics	
Frames Transmitted	The number of frames transmitted from the Access Point to
	the Ethernet LAN.
Bytes Transmitted	The number of bytes in the frames transmitted.
LAN Receive Statistics	
Total Frame Seen	The number of frames seen on the LAN
Frames Accepted	The number of frames accepted by the Access Point.
Data Bytes Received	The count of bytes contained in frames accepted by the AP.
Frames Discarded	Frames which were discarded because of a problem. This
	could be bad CRC, or buffer overflow.

Elle Edit Men Go Fa	voites Bab	Q 🗈	G 9		3 8	
Address 🛃 http://166.79.60.20	stop Heltesn Hame s G/canfig.htm	earch rayottes	History Channel	s Funcieen M	ai moi	• Link
Home	Access Poir	nt ion Setti	nas	SAN	ISUN	G
Diagnostics		on occas	ingo			-
		AP_ne Chanr IP_ad Gatew Subne RTS_ Short_ Long_	Tosti ame.WLAN_AP ref: 4 dress: 166, 79, 60, 1 ay, 166, 79, 60, 1 ay, 166, 79, 60, 1 ay, 166, 79, 60, 1 ay, 16, 16, 16, 16, 16, 16, 16, 16, 16, 16	255.0		
	Pass	word:		Edit Configure	tion	
		24		1988		

<u>Configuration Screen</u> (Configuration Screen = http://166.79.60.26/config.htm)

The configuration screen gives a view of the currently loaded configuration.

Type correct password and click "Edit Configuration" button, You can edit configure with Web.

Ele Edit View Bo	Fgvostes ∐elp					Ĩ
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Address 🛃 Http://186.79	.90.25/tables0000.htm					
Home	A Bridg	ccess Po je Table i	int Report		SAMS	UNG
Current Index	Station ID	IP Address	al):80	Charge	AP Serving	Design Made
00000	03806030000	100,78,00,129	Associated	4	This Unit	Active
0000	000010540152	155.79.50.142	Disconnect	4	Natknown	Active
IFVT	000070950104	188.70.80.25	Ageosiabed	4	This Unit	Active
VEX I	00007054010.0	155, 76, 60, 141	Associated	4	This Unit	Aotive
***	000070540105	155, 78, 60, 101	Disconnect	4	Natanown	Active
	000070840584	188.79.80.245	Accordiated	4	This Unit	Active
	000070040366	155.76.00.239	Associated	4	This Unit	Save
	000070540498		Disconnect	4	Netenown	Save
li wireless						
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	- 5				3 22	
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				- 10	2	
	- S	S	·	S	8 -	S ren o
		1.12				
				S 220	8 <u>22</u> 0	2000

Wireless/LAN Screen (Station Screen = http://166.79.60.20/tables0000.htm)

This station screen allows the manager to see which wireless stations are currently active on the Access Point (Wireless) and Wired LAN (LAN). The screen shows up to 18 stations at a time. Therefore, The "NEXT" Hyperlink is causes the screen to be re-displayed showing the next 18 stations in the list and press the "PREV" Hyperlink will be shown allowing the option to go back to the previous 18 stations in the display.

The Hyperlinks labeled as following displayed in this screen :

- 1. "All wireless" stations known by the Access Point including those associated with other Access Points.
- 2. "Local wireless" stations which are associated with this access point.
- 3. "All LAN" stations which have been seen on the Ethernet LAN.

Field Name	Description			
Station ID	This is the NID (Network ID) or the name of the station if			
	set. The name is obtained from the NID name table.			
IP Address	The IP address of the station (if known)			
	"Associated" means that the station is associated with this			
	Access Point.			
	"Disconnected" means that the station is not associated			
	with this AP could however, be associated with another AP.			
	"Detected" means that frames from the station have been			
Status	seen but, that it has not been associated.			
	"Bridged" entries are wired stations that are reached			
	through a different Access Point than the current displayed			
	one.			
	"Is Bridging" are Access Points detected over the air. These			
	other Access Points provide for wireless bridging between			
	two separate LAN segments.			
	"Local AP" means that it is another AP on the same LAN.			
	This entry will be seen where roaming is implemented.			
Channel	The radio channel of the station.			
AP Serving	If the station is associated the words "This Unit" will			
	appear.			
	Otherwise the NID or name of the Access Point to which			
	the station is associated will be shown.			
Power Mode	If the station supports "Power Save Poll" mode of			
	IEEE802.11, this field will indicate that power saving is			
	active with the word "On".			

As for the other screens it is necessary to click "refresh" or "reload" to get updated information.

TELNET Command Manager

The SWL-1000AP provides a "telnet" terminal session to the IP address of the Access Point.

Typing the command "telnet 166.79.60.26" in the DOS windows, and the TELNET utility is launched as below figure.

The IP address is the address of the destination Access Point.

The password is "default".

🚮 Telnet - 166.79.60.26	_ 🗆 ×
<u>Connect</u> <u>E</u> dit <u>T</u> erminal <u>H</u> elp	
Password:******	
OK	
CMD:config	
======Current Config =======	
ESSID: test1	
AP_name: WLAN_AP	
channel: 4	
Regulatory domain: USA	
IP_address: 166.79.60.26	
gateway: 166.79.60.1	
subnet_mask: 255.255.255.0	
RTS_threshold: 2301	
short_retry: 15	
long_retry: 15	
SIFS_time: default	
Protocols: all	
mode: Structurenet	
leinet: Un Web: Un	
Security lock: 0++	
Standard: Un	
Kaulu MIV: 00000 00403/0	
CMD:	

The user may enter commands in the general format:

Command parameter1 parameter2 ...

The available commands for the command line monitor are:

Help	Bridge	Traceon	Traceoff
Trace	Tracelp	Traceclr	Config
Ping	Stats	Time	Settime
Setdate	version	Set	nid
Logout	Restart		

--List of frequently used commands

Help Command

A summary of commands can be obtained by typing the command "help".

♦ Show Command

The "show" command allows inspection of the bridge table in the Access Point. This displays information similar to the "stations" screen of the web interface.

1. "Show G"; list of all known computers which are attached via the LAN port.

2. "Bridge S"; list of all wireless stations.

3. "Show A"; list of all devices via the radio link.

The result of the command is list providing the following information.

- *Net ID* : IEEE network address of the device.
- *State* : Current relationship of device with AP (Associated, Disconnected, Detected, is bridging, bridged, Local AP, Unknown).
- *Channel* : Radio channel.
- *Current AP* : The Access Point with which the unit is associated.
- *IP address* : IP address of the device.

• System Commands

- *Time* Print current data and time of last re-initialization.
- *Settime* Set the system time. Format is "settime HH(hours):MM(minutes):SS(seconds)".

• Setdate Set the system date. Format is "setdate MM(month):DD(date):YY(year)".

- *Config* Displays the current system settings for configuration. Note that if a configuration change has been made which requires a system restart to take effect, both the old and the new values will be shown.
- *Stats* The Stats command prints traffic statistics. Statistics are displayed for the last 10 second interval and cumulative since last cleared.

The cumulative total can be cleared by the command "stats c".

• *Logout* After this command has been issued the user must re-enter the password

before any more commands can be issued.

- *Version* This command prints version information about the Access Point software.
- *Restart* This command causes the SWL-1000AP to perform a reinitialization.
- Ping Command
 - *Ping* The ping command causes the Access Point to issue an ICMP Echo request

(PING) to the specified IP address.

The format of the command is : "ping 123.45.67.89".

Where 123.45.67.89 is the destination IP address.

MagicWave Adapter Card Setup

As method of Network environment setting, you can see "SAMSUNG Wireless LAN Card" at the "Network" window in the "Control Panel".

This component means that MagicWave adapter card (SWL-1000N or 1000D) is correctly working. As selecting this component, you can change into the desired value.

Network	? X
Configuration Identification Access Control	
	10
The following <u>n</u> etwork components are installed:	
Client for Microsoft Networks	_
📇 Microsoft Family Logon	
Dial-Up Adapter	
Infrared PnP Serial Port	
SAMSUNG Wireless LAN Card	
	_ 1
Add Remove Properties	
Primary Network Logon:	
Client for Microsoft Networks	-
	_
<u>File and Print Sharing</u>	
A network adapter is a hardware device that physically	
connects your computer to a network.	
	A
ок с	ancel

1. Click the "Properties" and then "SAMSUNG Wireless LAN Card Properties" window appear. Click "Operating Mode" tab and type desired ESS ID.

Driver Type Bindings Advanced Operating Mode	82.
Operating Mode □ Enable Power Saving ○ Instawave □ Ess ID: magicwave ○ StructureNet □ Case sensitive ESS ID ○ Peer-to-Peer □ Auto join ✓ Default Scanning Start Channel: In StructureNet mode wireless stations communicate with wireless stations and LAN stations through a	
Compatible Access Point.	ıncel

- BSS (Extended Service Set) : Minimum cell that composed wireless LAN.

- ESS (Extended Service Set) : Interconnection of BBSs to work as one BBS.

- *Instawave* : In this mode wireless stations commuicate directly with each other and through compatible access point

- *StructureNet* : In this mode wireless sations communicate with wireless stations and LAN stations through a compatible Access Point

- Peer-to-Peer : In this mode wireless stations communicate directly with other wireless stations

3. Set up "DTIM period" and "Fragmentation Threshold", "Listen Interval", "RTS Threshold" in advanced tab if you need, and then click "OK" button. Then, you can see "Do you want to restart your computer now?" window. Click "Yes" button and then your computer will restart to set up your adapter card. (Recommend Cold booting, Some Desk top cannot load PNP Bios when warm booted.)

System 9	Settings Change 🛛 🔀
?	You must restart your computer before the new settings will take effect. Do you want to restart your computer now?
	<u>Yes</u> <u>N</u> o

Windows NT Setup

The Network setting for Windows NT is as follows;

- 1. First, insert the MagicWave Adapter card in the empty slot, you should turn on PC.
- After booting of the PC, click "Start", "Settings" and "Control Panel".



2. When select the "Network" icon a network windows shown as below.

You can change the "Computer Name" and "Workgroup" after click the "Change" button.



3. Select "Adapter" tab, click the "Have Disk.." button as below picture.

	Control Panel	
My Computer	Ele Edit Yew Help	
Network Network Network Network Interv Explore Explore Recyclo Ein	Access billy Image: Services Protocols Adapters Display Identification Services Protocols Adapter Oick the National Adapter Q Image: Protocols Q Image: Protocols Q Image: Protocols Nouse Display Disk the National Adapter Q Image: Protocols Q Image: Protocols Protocols Display Display Display Display Display Protocols Services Display Display Display Display Display Nouse Display Display Display Display Display Display Display Display Display Nouse Display Display Display Display Display Display Display Protocols Display Display Display Display Display Display Display	
My Brieloase	Longues nei	
	DK Cancel	
	Cose	
🖪 Start 🗖	j Control Panel	4.43 PM

4. Insert the provided disk "Install Diskette" and specify the path "A:\" in blank field as below picture and click "OK".

	🖻 Central Panel	
My Computer	Ele Edit View Help	
Negritekord Negritekord Inbox Inbox Internet Englater Recycle Bin	Image: Service	
	Configues nel A.S.	
NY Energiase	OK Cancel	
🚮 Start 💁	d Control Panel	4:44 PM

5. If the location of the DRIVER is set normally, you can see the following picture.

Select the card type (ISA or PCMCIA) and click "OK" button.

	Control Penel	
My Computer	Ele Edi View Help	
Network Network Network Network Intos	Accessibility Determination Services Protocols Adapters Display Petros Interest Adapters Display Petros Interest Adapters Display Petros Interest Adapters Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Display Di	
Recycle Bri My Briefcase	Penkas Penkas Doffgues ne DK Concel Help OK Cancel	
6		
2-0		
Windows NT Explorer	OK Cancel	
Stort 🗟	Control Panel	10:32 AN

6. Set each parameter (I/O Base, IRQ Level, ESS ID...) to proper value for your computer. Click the "OK" button if the setting is complete.

	Fie Edit View Holp	
My Computer		
匙		
Network Neighborhood	Identification Services Protocols Adapters Bindings Uservices Adapters	
	Display Configure Wireless LAN Card	
Inbos	IO Base Address Interrupt: DK Dc200 3 Cancel	
<u> </u>	Mouze D.2c0 10 10	
Explores	Operating Mode Enable Power Saving Or Instervene ESS ID: within	
Recycle Bin	Soluciave Mode Care Semitive ESS ID Peer-to-Peer Mode Care Semitive ESS ID C Auto Join	
Mu Briefrane	Configurer ne Default Scenning Stationaries	
	Fragmentation Threshold 2346	
	BIS Treshold 736	
Windows NT Explorer		
in the second		-
Marau 7	Configure Wireless LAN	TU23 AN

7. Select the "Bindings" and set up the items that you want.



8. Select "TCP/IP protocol" in the "Protocols" tab, and click the "Properties...".



9. In the "IP Address" tab, sets up each parameter (IP Address, Subnet Mask, Default Gateway) suitable for your environment of the network (Request from your network administrator).

	Control Panel	
Mis Conceptor	Fle Edi View Help	
8	Accessibility	
Neighborhood	Identification Services	
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10. In the "DNS" tab, set up each parameter.

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11. Select the "WINS Address" and set up each parameter.

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12. After select the "Routing" checking enable use IP Forwarding or not.

Click the "OK" button, and then the setting of the TCP/IP Protocol Properties are completed.

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				OK.	Cancel	Apply .	
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13. Click the "Close" button, appear message that "Do you want to restart your computer now?". If you click the "OK" button the PC is going to restart.



4. Access Point installation Guide and Manual

Access Point Setup

In order to connect SWL-1000AP with the established ethernet to build an infrastructure network, you must modify the CONFIG in the Access Point using a PC and a Null Modem Cable.

Installation can be done easily as follows;

- 1. Link the PC serial port and the AP serial port with Null Modem Cable, and ethernet connection can be made either via the Coax (10Base 2) or RJ45 (10Base T) connector.
- 2. Insert the SWL-1000AP into the PCMCIA slot of the Access Point.
- 3. Plug the power cord into the socket on the back of the AP.
- 4. All the LEDs will on and off, if the "alert" LED remains on it indicates an error condition.
- 5. The sequence is as shown in the following picture, select "Start -> Programs -> Accessories -> Hyper Terminal "



- If there is no "HYPER TERMINAL" in the "Accessories" you must reinstall "Windows Setup" as follows;
 - " Control Panel -> Add/Remove Programs -> Windows Setup -> Communications -> Hyperterminal".

After rebooting the PC, try it again #5 status.

7. Double click the "Hypertrm"

My Computer		
Network		
Neighborhood	🚔 HyperTerminal	
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8. Fill the "Name" item with the wanted Name and click "OK" button

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		Connection Description 2	
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9. Select the "Direct to Com 1" at the "Connect using" item.

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Му	🚱 AP - HyperTerminal
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l Nei	Phone Number
	Enter details for the phone number that you want to diat
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r	Cognect using: Direct to Com 1
SI	Disconnected Auto detect SCROLL CAPS NUM Capture Print echo
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10. The "Port Settings" are same as the following picture Bits per second = 9600,

Data bits = 8, Parity = None, Stop bits = 1 and Flow control = None.

		1								
M	۲ ۲	AP - HunerTerminal			? ×					_ 🗆 🗵
	Ē	Port Settings								
Ne		Bits per second:	9600		0					
		Data bits:	8							
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		Advanced		<u>R</u> estore Def	aults					
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11. Click the "OK" button, you can see the next initial figure and if the connection is performed.

There is shown "9600-8-N-1" message on the status bar.



Modify CONFIG.TXT

ap - HyperTerminal
OK CMD:config =======Current Config ======== ESSID: test1 AP_name: WLAN_AP channel: 4 Regulatory domain: USA IP_address: 166.79.60.26 gateway: 166.79.60.1 subnet_mask: 255.255.255.0 RIS_threshold: 2301 short_retry: 15 Iong_retry: 15 SIFS_time: default Protocols: all mode: Structurenet Telnet: On Web: On Security lock: off Standard: On IFIP: On Admission: All Radio NID: 00E00F0640376 Management NID: 00E0078800265
CMD:
zniected 0.01.02 Auto detect \$500 BN-1 [SCPOLL [CAPS] MUM [Cautive Prink ection

- 1. Password is preset to "default".
- 2. In order to identify the CONFIG, you write in "config" and press the ENTER key.
- 3. For getting help about commander just type "help".
- 4. You can modify the environment using the SET command.

As follows;

CMD: set ESSID magicwave (Group Name)

CMD: set AP_name WLAN_AP (Access Point Name)

CMD: set channel 1 (RF channel)

CMD: set IP_address 123.45.67.8 (origin IP of the AP)

CMD: set gateway 123.45.67.1

CMD: set mode structurenet

CMD: set Telnet on / off (for telnet connection)

CMD: set Web on / off (for http connection)

CMD: set standard on (for interoperability)

5. After all the parameters are change as you want, executes "restart" command .

Null Modem Cable Configuration

9 pin female connector 9 pin female connector						
in	5	<=====>	pin	5	<	Ground - Ground >
in	3	<=====>	pin	2	<	Transmit - Receive >
in	7	<=====>	pin	8	<	RTS - CTS >
in	6	<====>	pin	4	<	DSR - DTR >
in	2	<====>	pin	3	<	Receive - Transmit >
in	8	<====>	pin	7	<	CTS - RTS >
in	4	<=====>	pin	6	<	DTR - DSR >
	emo in in in in in	emale in 5 in 3 in 7 in 6 in 2 in 8 in 4	emale connector 9 pin in 5 < in 3 < in 7 < in 6 < in 2 < in 8 < in 4 <	emale connector 9 pin fema in 5 <=====> pin in 3 <=====> pin in 7 <=====> pin in 6 <=====> pin in 2 <=====> pin in 8 <=====> pin in 4 <====> pin	emale connector 9 pin female consistence in 5 in 3 3 $====================================$	emale connector 9 pin female connector in 5 $<$ in 3 $<$ in 7 $<$ in 6 $<$ in 6 $<$ in 2 $<$ in 2 $<$ in 2 $<$ in 2 $<$ in 8 $<$ in 8 $<$ in 4

Parameter Descriptions

The available parameters are described below. Some parameters can be ignored but are assigned by default values.

RADIO RELATED

channel: This field specifies the operating channel for the SWL-1000AP.(The SWL-1000AP allows from 1 to 13 but the channels used by adjacent AP should be apart by more than 5 channels)

RTS_threshold : This field determines the size of RTS(Request-To-Send)/CTS(Clear-To-Send) frames and the frames to be used.

```
Default: 2301
```

shot_retry : This field specifies the number of the transmission of RTS/CTS which will be attempted before aborting when the communication between clients is interfered. Note that RTS/CTS are delivered back and forth between the clients to monitor the channel for the possibility of communications.

```
Default : 15
```

long_retry : This field specifies the number of trials of the data transmission when the channel or a client causes the cease of data transmissions.

Default : 15

Standard : This field is used for interoperability between multiple IEEE802.11 venders. Default : off

♦ ACCESS POINT FEATURES

essid : This field is used to name that wireless LAN group when in StructureNet mode. Its value must be the same as that of clients. So if the roaming is to be supported, the value of ESS_ID of all the AP should be the same.

Default : wlan

ap_name : This field is a string up to 9 letters and is used to give the SWL-1000AP an identifier name. This is useful if you have multiple AP on a network for roaming. In this case the essid for all the AP is the same but you can assign a different "ap_name" to each AP.

Default : LocalAP

mode : This field specifies the operating mode of the units. Insert the "Instawave" for <Ad-hoc> and the "StructureNet" for <Infrastructure>.

Default : Instawave

protocol : The normal mode of the AP is to pass all protocols. In this case the value of default of protocol should be "all". If your wireless stations only use TCP/IP protocol you can set the value of protocols to "TCP/IP". In this case non TCP/IP messages are not passed by the AP.

◆ TCP/IP PARAMETERS

IP_address : This field is used to assign a TCP/IP address to the AP and needed when a user manages the AP by TELNET or uses web manager utilities. A user can access a manage program for the AP by putting in the assigned IP address on TELNET or WEB BROWSER.

subnet_mask : This field is used to define the TCP/IP sub-net mask. This field should be set if you plan to use the built in management features of the AP.

Default : 255.255.255.0

gateway : This field is needed to connect to an external network by using the TCP/IP protocol. SWL-1000AP stores all the IP addresses received from TCP/IP ARP (Address Resolution Protocol) message. If the destination is an IP address instead of a local network, the packets are sent to a gateway.

Default : 0.0.0.0 (no gateway)

MANAGEMENT FUNCTIONS

password : This field allows the manager to define the password used by the Command Line Manager before they can enter commands.

Default : "default"

telnet : This field enables or disables the built TELNET management capability. This field will not affect a terminal attached via the serial port, which is always enabled when a terminal is attached. Acceptable values for the field are "on" and "off".

Default : on

web : This field enables or disables the built in web management utility. Acceptable values for the field are "on" and "off".

♦ DIAGNOSTIC METHOD

3. When the "power" LED of the Access Point is not illuminates.

Make sure that the power cord is fully seated in the socket on the rear panel of the unit.

4. When the "alert" LED continuous illuminates or blinks.

- ► Check the states of the radio card (SWL-1000N) installed in the Access Point.
- Make sure the POWER reconnect (OFF/ON again). Operations are not incorrect continuously, please contact your local service center or the retailer where you purchased the units.

5. Management Utilities (Web, Telnet)

Stop Retrock Home Search Favorited	History Charmels Fullscreen Mail Priv	E BR				
90.26/default.Nm		نا 💌				
Access Point						
Status Report	SAMSUNG					
	ALCANA CONTRACTOR					
Time : Sun ,9 Jan 2000 05:29:21						
Access Point Name ; WLAN_AP						
Wireless network status	Up	1000				
Number Associated Wireless Stations	6	1.14				
LAN Network status	TP	2.585				
LAN Network status	91					
	Stop Hereon Home Beard Favories 50.25/default.htm Access Point Status Report Time : Sun, 9 Jan 2000 05 29 21 Access Point Name : WLAN_AP Wireless network status Number Associated Wireless Stations LAN Network status	Status Report Up Time: Sun, 9 Jan 2000 05:29:21 Access Point Name : WLAN_AP Wireless network status Up Number Associated Wheless Status 5 LAN Network status TP				

Management Utility (Main Screen = http://166.79.60.26)

In order to view the web management page, start your web browser and click on the "address" or "URL" field, simply enter the IP address of the Access Point.

On most browsers the screen will refresh with the latest information every 10 seconds. With IE4.0 you can stop the auto refresh by clicking on the "Stop" button of the browser.

- **Time :** The current time as set in the SWL-1000AP
- Access Point Name : The "AP_name" parameter of the SWL-1000AP.
- Wireless Network Status : If the radio is operating normally the field will show "Up". If there is a problem with the radio, or no radio installed, the field will show "Down".
- Number Associated Wireless Stations : This shows how many wireless stations are currently connected to the access point.
- LAN Network status : This field will show "TP" when the Twisted Pair (10baseT) connection is operation. Otherwise it will show "Coax".

There are several Hyperlinks on the web page. Theses act just like conventional Hyperlinks and may take the browser to other web pages

4. Wireless/LAN: These sections provide access to the network status screens showing a

summary of the current active wireless and wired LAN devices.

- **5. Configurations**: The configuration section displays the current configuration and allows access to a screen for updating the configuration.
- **6. Statistics**: This section of the web manager provides information and operating statistics for access point and radio functions

Statistics Screen (Statistics Screen =http: 166.79.60.26/stats.htm)

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Address 🛃 http://1	66.79.60.26/otats.htm				• Lin	
Home	Access Point					
	Statistics		C	11113014	1	
Radio MIB	Statistic last cleared	Sun. 8 Jan 2000 0	252:53			
	Seconds Accumulated	9449				
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	Air Transmit Statistics					
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	Failet Transmits	0	9			
	Air Receive Statistics			10.00		
	Frames Received	32	27725	10.000		
	Date Frames Road	23	17710			
	Data Bytes Rord	2360	1838068	Second Second		
	MAC Mgmnt Frames Royd	0	248	Children 1973		
	Frames Discarded	0	o 5			
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	Bytex Transmitted	414	1415379			
	LAN Receive Statistics	LAN Receive Statistics				
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	Frames Accepted	110		the second se		

The statistics screen shows accumulated traffic information. Two columns are shown: "last 10 seconds" and, "accumulated". Traffic statistics are collected and updated every 10 seconds. The "last 10 seconds" display shows the last 10 second collection period (the may not be precisely the 10 seconds before the screen is refreshed). The screen will automatically update every 10 seconds

The meaning of the fields is given in the following table:

Field Name	Description		
Air Transmit Statistics			
Frames Transmitted	The count of frames transmitted on the wireless medium.		
	This does not count retry frames - if a frame is sent twice.		
Bytes Transmitted	The number of bytes contained in the frames that have been		
Failed Transmits	The number of frames which could not be transmitted.		
Air Receive Statistics			
Frames Received	The number of frames of all types received by the Access		
	Point from the radio.		
Data Frames Received	The number of frames received from the radio which are		
	data frames (as opposed to management frames etc).		
Data Bytes Received	The number of bytes contained in the data frames received.		
MAC Management Frames	The number of frames received such as IEEE802.11 beacons		
Received	or association requests.		
Frames Discarded	The count of frames which were discarded, because of		
	duplicate rejection or because of buffer overflow.		
LAN Transmit Statistics			
Frames Transmitted	The number of frames transmitted from the Access Point to		
	the Ethernet LAN.		
Bytes Transmitted	The number of bytes in the frames transmitted.		
LAN Receive Statistics			
Total Frame Seen	The number of frames seen on the LAN		
Frames Accepted	The number of frames accepted by the Access Point.		
Data Bytes Received	The count of bytes contained in frames accepted by the AP.		
Frames Discarded	Frames which were discarded because of a problem. This		
	could be bad CRC, or buffer overflow.		

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Address 🛃 http://166.79.60.20	nop Henesn Hone Sea Skonfightm	an ravones matoy	Channels Fulkcleen	Mai mot	E Link
Home	Access Point Configuratio	n Settinas	SA	MSUN	I G
Diagnostics					_
		AP_name WL AP_name WL Channel: 4 IP_addness: 11 Gateway: 186. Subnet_mask. RTS_threshol Short_retry: 15 Long_retry: 15	AN_AP 66. 79. 60. 26 79. 60. 1 255 255 255. 0 d 02301		
	Passwor	d	Edit Confi	guration	
		Alere N			

<u>Configuration Screen</u> (Configuration Screen = http://166.79.60.26/config.htm)

The configuration screen gives a view of the currently loaded configuration.

Type correct password and click "Edit Configuration" button, You can edit configure with Web.

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0000	000010540152	155.79.50.142	Disconnect	4	Natknown	Active
IFVT	000070950104	188.70.80.25	Ageosiabed	4	This Unit	Active
NEX I	00007054010.0	155, 76, 60, 141	Associated	4	This Unit	Aotive
***	000070540105	155, 78, 60, 101	Disconnect	4	Natanown	Active
	000070840584	188.79.80.245	Accordiated	4	This Unit	Active
	000070040366	155.76.00.239	Associated	4	This Unit	Save
	000070540498		Disconnect	4	Netenown	Save
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Wireless/LAN Screen (Station Screen = http://166.79.60.20/tables0000.htm)

This station screen allows the manager to see which wireless stations are currently active on the Access Point (Wireless) and Wired LAN (LAN). The screen shows up to 18 stations at a time. Therefore, The "NEXT" Hyperlink is causes the screen to be re-displayed showing the next 18 stations in the list and press the "PREV" Hyperlink will be shown allowing the option to go back to the previous 18 stations in the display.

The Hyperlinks labeled as following displayed in this screen :

- 4. "All wireless" stations known by the Access Point including those associated with other Access Points.
- 5. "Local wireless" stations which are associated with this access point.
- 6. "All LAN" stations which have been seen on the Ethernet LAN.

Field Name	Description
Station ID	This is the NID (Network ID) or the name of the station if
	set. The name is obtained from the NID name table.
IP Address	The IP address of the station (if known)
	"Associated" means that the station is associated with this
	Access Point.
	"Disconnected" means that the station is not associated
	with this AP could however, be associated with another AP.
	"Detected" means that frames from the station have been
Status	seen but, that it has not been associated.
	"Bridged" entries are wired stations that are reached
	through a different Access Point than the current displayed
	one.
	"Is Bridging" are Access Points detected over the air. These
	other Access Points provide for wireless bridging between
	two separate LAN segments.
	"Local AP" means that it is another AP on the same LAN.
	This entry will be seen where roaming is implemented.
Channel	The radio channel of the station.
AP Serving	If the station is associated the words "This Unit" will
	appear.
	Otherwise the NID or name of the Access Point to which
	the station is associated will be shown.
Power Mode	If the station supports "Power Save Poll" mode of
	IEEE802.11, this field will indicate that power saving is
	active with the word "On".

As for the other screens it is necessary to click "refresh" or "reload" to get updated information.

TELNET Command Manager

The SWL-1000AP provides a "telnet" terminal session to the IP address of the Access Point.

Typing the command "telnet 166.79.60.26" in the DOS windows, and the TELNET utility is launched as below figure.

The IP address is the address of the destination Access Point.

The password is "default".

률 Telnet - 166.79.60.26	_ 🗆 X
<u>Connect</u> <u>E</u> dit <u>I</u> erminal <u>H</u> elp	
Password:******	
OK	
CMD:config	
======Current Config =======	
ESSID: test1	
AP_name: WLAN_AP	
channel: 4	
Regulatory domain: USA	
IP_address: 166.79.60.26	
gateway: 166.79.60.1	
subnet_mask: 255.255.255.0	
RTS_threshold: 2301	
short_retry: 15	
long_retry: 15	
SIFS_time: default	
Protocols: all	
mode: Structurenet	
Telnet: Un Web: Un	
Security lock: off	
Standard: Un	
Kallo NID: 0000F0040370	
Management MIN: 00E003800205 CMD:	

The user may enter commands in the general format:

Command parameter1 parameter2 ...

The available commands for the command line monitor are:

Help	Bridge	Traceon	Traceoff
Trace	Tracelp	Traceclr	Config
Ping	Stats	Time	Settime
Setdate	version	Set	nid
Logout	Restart		
--List of frequently used commands

Help Command

A summary of commands can be obtained by typing the command "help".

♦ Show Command

The "show" command allows inspection of the bridge table in the Access Point. This displays information similar to the "stations" screen of the web interface.

4. "Show G"; list of all known computers which are attached via the LAN port.

5. "Bridge S"; list of all wireless stations.

6. "Show A"; list of all devices via the radio link.

The result of the command is list providing the following information.

- *Net ID* : IEEE network address of the device.
- *State* : Current relationship of device with AP (Associated, Disconnected, Detected, is bridging, bridged, Local AP, Unknown).
- *Channel* : Radio channel.
- *Current AP* : The Access Point with which the unit is associated.
- *IP address* : IP address of the device.

• System Commands

- *Time* Print current data and time of last re-initialization.
- *Settime* Set the system time. Format is "settime HH(hours):MM(minutes):SS(seconds)".

• Setdate Set the system date. Format is "setdate MM(month):DD(date):YY(year)".

- *Config* Displays the current system settings for configuration. Note that if a configuration change has been made which requires a system restart to take effect, both the old and the new values will be shown.
- *Stats* The Stats command prints traffic statistics. Statistics are displayed for the last 10 second interval and cumulative since last cleared.

The cumulative total can be cleared by the command "stats c".

• Logout After this command has been issued the user must re-enter the password

before any more commands can be issued.

- *Version* This command prints version information about the Access Point software.
- *Restart* This command causes the SWL-1000AP to perform a reinitialization.
- Ping Command
 - *Ping* The ping command causes the Access Point to issue an ICMP Echo request

(PING) to the specified IP address.

The format of the command is : "ping 123.45.67.89".

Where 123.45.67.89 is the destination IP address.