WLAN11BG-UG01-20050810

Wireless Access Point

IEEE802.11b/g

User Guide

Intersoft, Inc.

Technical Support : itsoft@itsoft.co.kr
TEL : +82-2-782-6890
FAX : +82-2-782-6893
http://www.itsoft.co.kr/

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant 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 outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

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“Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.”

About this Manual

This manual is explaining Wireless Access Point's Installation

Contents

1. Introduction

1.1 Wireless Access Point

Wireless Access Point supports 802.11 wireless connectivity through the use of an 802.11a-compliant 5 GHz and 802.11b/g compliant 2.4 GHz radio technology. Wireless Access Point provides a 54 Mbps data transfer rate on the IEEE 802.11a, IEEE 802.11g standard radio network and provides an 11Mbps data transfer rate on the IEEE 802.11b standard radio network. Wireless LAN security is a primary concern. Wireless Access Point secures the enterprise network with a scalable and manageable system. Based on the IEEE 802.1x standard for port-based network access, Wireless Access Point takes advantage of the Extensible Authentication Protocol (EAP) framework for user-based authentication. Also Wireless Access Point provide RADIUS Authentication and Accounting for enterprise company and ISP (Internet Service Provider).

1.2 Features

- IEEE 802.11b/g one band.
- Up to 54Mbps Data Rates
- IEEE 802.1x Authentication & Accounting
- WDS (Wireless Distribution System)
- Dynamic WEP key
- WEB Redirection for Non-Authenticated User
- Nat for public IP Address sharing
- Sntp for time setup

1.3 Specification

Items		Specifications
Wireless Lan Standards		802.11b, 802.11g
Frequency	802.11b/g	2.4 ~ 2.4835GHz
Radio Technology	802.11b/g	DSSS/ OFDM
Data Rates	802.11b	Up to 11Mbps
	802.11g	Up to 54Mbps
Transmit Power	802.11b	17dBm
	802.11g	54Mbps Mode : 14dBm All Mode except 54Mbps : 17dBm
Bandwidth	802.11b	26MHz Below
	802.11g	20MHz Below
Spectrum mask	802.11b	First Sidelobe : -30dBr
	802.11g	fc±11MHz : -20dBr Below fc±20MHz : -28dBr Below fc±30MHz : -40dBr Below
Receive Sensitivity	802.11b	11Mbps Mode : -84dBm Below(±3dBm)
	802.11g	54Mbps Mode : -68dBm Below 6Mbps Mode : -89dBm Below
Supported Channels	802.11b/g	11 Channels
Antenna	Direction	Omni Directional
	Connector	SMA female
	Input Impendence	50 Ω
	Gain	2dBi
Ethernet		10/100Mbps * 2 Port
Console		Serial Console(RJ-45 Type)

2. Installation

2.1 Caution before establishment

- Do surroundings cleanly after establish before establish product and should keep as there is no dust.
- Avoid laying product or tool for establishment, cable etc.. on lane.
- Take care a big impact of product.
- Put power switch by OFF and does so that remove all Linked cable on power cable and port before establish product.
- When connect power to product, avoid putting metallic personal ornaments such as ring or a watch, necklace. If this personal ornaments is linked on tread of product, piece part will be damaged.
- Keep always surrounding of product clean.
- Establish in place that is kept changelessly
  - Temperature: 0 ~ 50 ℃
  - humidity: 5 ~ 95 %
- Power which is supplied in establishment place should be stable. Establish power adjuster in case spark or noise is much power is supplied.
- When connect power lest overload should take to circuit, be careful.

LED Operation

Operation	PWR	LAN	WAN	WLAN	SYS
Normal Operation	Steady Light	Steady Light	Steady Light	Steady Light	Steady Light
LAN Interface not Connecting		No Light			
WAN Interface not Connection			No Light		
Wireless Lan Interface No Operation				No Light	
Hardware Error					No Light

2.2 Placement of Wireless Components(AP, Wireless Station)

The following placement recommendations will help you achieve the best wireless range, coverage, security, and connection speed from your wireless devices:

○ Place the AP near the center of your intended wireless network area. This will minimize the possibility of eavesdropping by neighboring wireless networks.

○ Place wireless components in direct line of sight to one another, if possible.

○ Place wireless components on desks or shelves when possible (instead of on the floor) to avoid obstacles and achieve better reception on the upper stories of buildings.

○ Avoid placing wireless components in a way such that large, solid objects block the direct path between them. Building components, such as fireplaces, concrete or masonry walls and floors, metal framing, UV window film, and metallic paint will reduce radio signal strength.

○ Avoid placing wireless components next to large metal objects such as computer cases, monitors, and appliances. Metal objects reduce signal strength.

○ Avoid placing wireless components close to electromagnetic devices, especially those with frequencies in the 2.4-gigahertz (GHz) range. Devices such as cordless phones, microwave ovens, radios, and televisions can interfere with wireless transmission.

○ If you notice poor connection speed on an adapter, try moving your wireless components closer together. Connection speeds will be slower if your wireless components are very far apart from each other on the network.

○ Be aware that wireless signal range, speed, and strength can be affected by interference from neighboring wireless networks and devices.

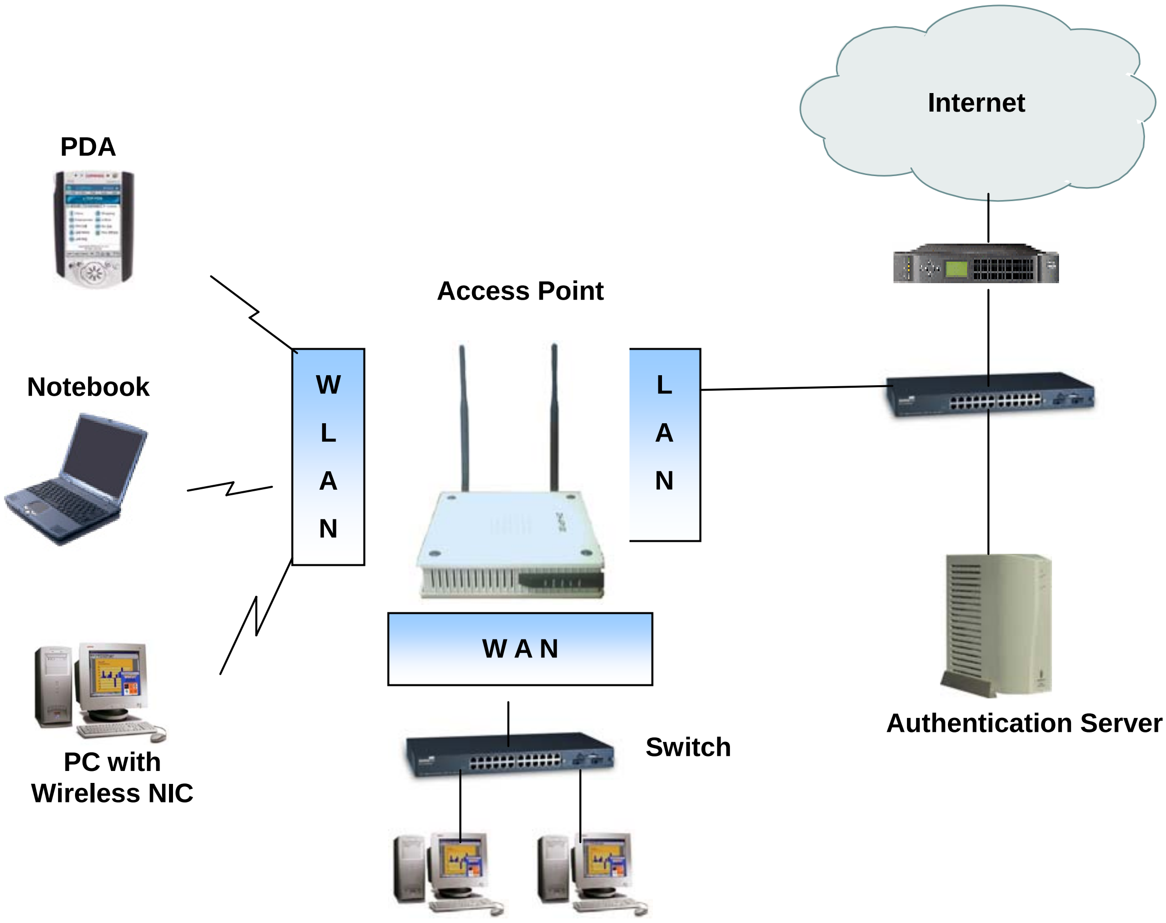
2.3 Installation order

1) Connect Antenna at ANT(Antenna Connector)
2) Power adapter connection at DC IN (DC Adapter Input)
3) Turn on PWR(Power) Switch
4) Configure AP

2.6 Wireless Network Layout

1) Normal Operation Mode

This is operation that AP only mode. Wireless LAN port at AP is connecting with Wireless Devices(PDA, Notebook, PC with Wireless NIC). Lan port is connecting with Internet Network. WAN port will be used for connecting Routed Network.

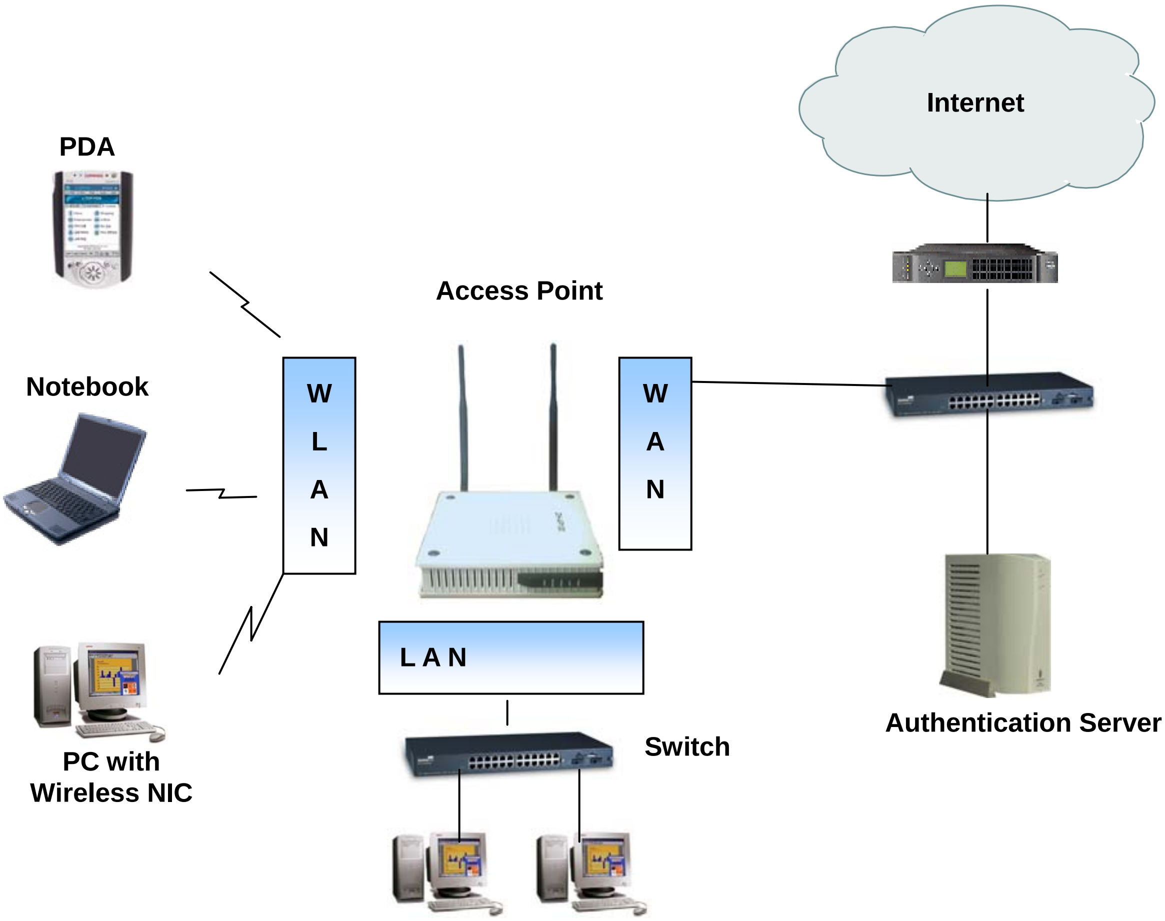


2) NAT Operation Mode

This is operation that AP and NAT mode. Wireless LAN port is connecting with Wireless Devices(PDA, Notebook, PC with Wireless NIC). Lan port is connecting with LAN ethernet Network. Wireless LAN port and Lan port is working of private network. WAN port is connecting with Internet Network.

The NAT feature share public IP Address up to 250 PCs and protect your network of PCs so user on the public, Internet side cannot "see" your PCs. The NAT protect your network by inspecting every packet coming in through the internet port before delivery to the appropriate PC on your network.

Remember that AP's ports connect to two sides at NAT mode. The LAN ports(LAN port, Wireless port) connect to the LAN(your network), and WAN port connects to the Internet.



2.4 Ethernet port Cable

Ethernet is the most commonly used wired network protocol, with data transfer rates of 10 Mbps, 100 Mbps, or higher. The base station's auto-negotiation feature automatically determines the rate of your network connections and uses the fastest speed available.

There are two types of Ethernet cable, "straight-through" and "crossover". You can use either type when you connect devices to the AP. For other Ethernet connections that you establish on your network, a specific type of Ethernet cable might be required.

1) Ethernet Connection Type.

Connect / Port	with Personal Computer	with Switch/Hub/xDSL Modem
LAN port	straight-through cable	crossover cable
WAN Port	crossover cable	straight-through cable

2) Ethernet Connection at Normal AP Mode.

Connect / Port	with Personal Computer	with Switch/Hub/xDSL Modem
LAN port	not connected	crossover cable
WAN Port	not connected	not connected

3) Ethernet Connection at NAT Mode.

Connect / Port	with Personal Computer	with Switch/Hub/xDSL Modem
LAN port	straight-through cable	not connected
WAN Port	not connected	straight-through cable

3. Configuration

The Access Point is configured by CLI (Common Line Interface), Web.

3.1 ID, Password for Management

For AP Configuration, enter a management ID and Password.

Default Management ID & Password is below.

ID : admin

Password : admin

3.2 CLI Configuration

1) Use Console Cable offered with Product.
2) Connect console cable Console port and PC's serial port
3) Configure serial port of PC's terminal program.

Baud Rate	57600
Data Bit	8
Parity	None
Stop Bit	1
Flow Control	None

4) Turn On Power and confirm following message using serial console program of PC

```
POST...ok!
                        BIOS for e-linux
Copyright 1999-2002   Intersoft, Seoul, Korea.
CPU : ARM940T S3C2510-a0 (C:166MHz, B:133MHz)
RAM : 16MB
ROM : 4MB @0x81000000 AMD compatible
Ver : v1.3.0, Mar 31 2004
Press any key to stop autoboot in 1 seconds.
Starting kernel...
AP login:
```

3.3 Command of CLI

CLI can use when do Console and Telnet connection. Command that support is as following.

- Help or ?
  Show CLI Command.

```
AP# help
stat       setup      ping       uptime     reboot     exit
```

- stat
  Show AP's status commands.

- stat sysinfo
  Show status of current system version

```
AP# stat sysinfo
===================== + =====================
Version                    | ver 1.0
===================== + =====================
```

- stat log

  Show status of Log

```
AP# stat log
Jan  1 00:00:29 login[10]: root login  on `ttyS0'
AP#
```

- setup

  Enter Setup Menu

```
AP# setup
------------------------------------------------------------
 MAIN
------------------------------------------------------------
    1. WIRED
    2. Wireless
    3. DNS
    4. DHCP
    5. RADIUS
    6. WEB Redirection
    7. SNTP
    8. SYSTEM
------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
```

Input number for setup item. And additional configuration key is

M : Go to Main menu.
P : Go to Previous menu.
S : Save configuration.
Q : Quit setup menu.

- ping

  ping of input IP Address

```
AP# ping 219.251.93.193
Pinging 219.251.93.193 with 32 bytes of data:
Reply from 219.251.93.193: bytes=32 time=30ms TTL=64
Reply from 219.251.93.193: bytes=32 time=20ms TTL=64
```

- uptime

  Show uptime

- reboot

  reboot AP

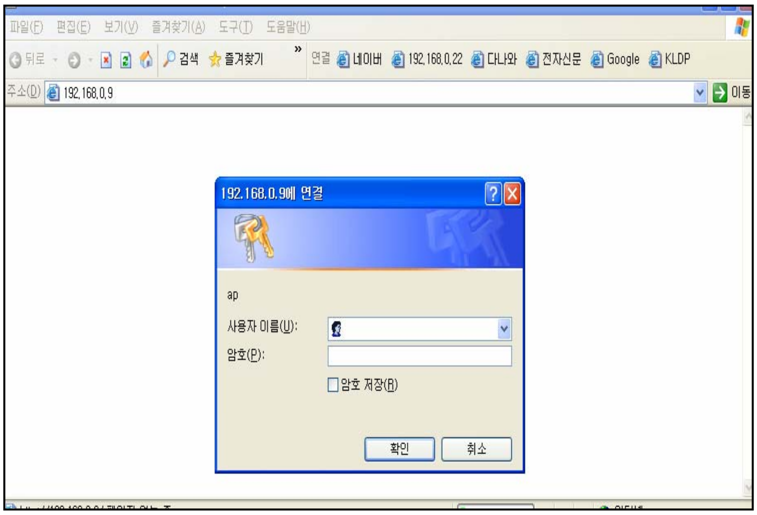
- exit

  exit CLI menu

3.4 WEB Configuration

1) Connect Ethernet LAN Cable at LAN port of AP and Serial port of PC.
2) Connect WEB Interface using this IP Address.

   IP Address : 192.168.0.9



주소(D) 192.168.0.9

192.168.0.9에 연결

ap

사용자 이름(U):

암호(P):

□ 암호 저장(R)

3.5 AP Configuration

- Wired Interface : Setup of WAN, LAN Connection.

  Configure at Normal AP Mode and NAT Mode.

Mode Configure	Normal AP Mode	NAT Mode
LAN Connect Type	static or dhcp	must static
WAN Connect Type	static ,dhcp	static , dhcp or ppp
NAT Activate	Disable	enable

- LAN Connect Type

Connection Type Setup of LAN Ports. If Operation Mode is Bridged, You must setup LAN Ports. WAN Ports is not setup. Default value is static

DHCP : Assigned IP address by a DHCP server.

Static : A Static IP Address is a fixed IP Address that you assigned manually.

Note

LAN Connect Type at Nat Mode must be static

- LAN IP Address

When LAN Connect Type is static, configure a fixed IP Address of LAN Port

- LAN Subnet Mask

When LAN Connect Type is static, configure a fixed Subnet Mask of LAN Port

- LAN Default Gateway

When LAN Connect Type is static, configure a fixed Default Gateway of LAN Port.

- LAN Dhcp Hostname

When LAN Connect Type is dhcp, configure a Hostname of DHCP Server.

Is unrelated even if do not establish.

- WAN Connect Type

Configure connection type of WAN Port. When Operation Mode is Bridged, do not apply. Applied in routed mode only. Default value is static.

DHCP : Assigned IP address by a DHCP server.

Static : A Static IP Address is a fixed IP Address that you assigned manually.

PPP : When connecting to the Internet through a PPPoE connection, PPPoE connections are only available with DSL Internet connections.

Note

WAN Connect Type at Normal Mode is not used.

- WAN IP Address

When WAN Connect Type is static, configure a fixed IP Address of WAN Port

- WAN Subnet Mask

When WAN Connect Type is static, configure a fixed Subnet Mask of WAN Port

- WAN Default Gateway

When WAN Connect Type is static, configure a fixed Default Gateway of WAN Port.

- WAN Dhcp Hostname

When WAN Connect Type is dhcp, configure a Hostname of DHCP Server.

Is unrelated even if do not establish.

- WAN PPP User Name

Configure User ID at WAN Connect Type “ppp”

- WAN PPP Password

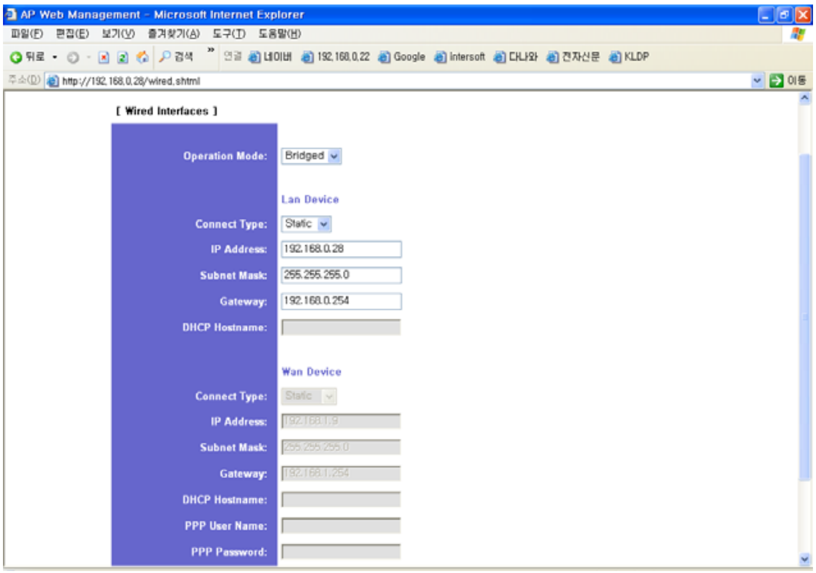
Setup User Password at WAN Connect Type “ppp”.

- WAN PPP Servicename

Setup Service name at WAN Connect Type “ppp”.

Is unrelated even if do not establish

```
----------------------------------------------------------------
 WIRED
----------------------------------------------------------------
    1 LAN Connect Type               : STATIC
    2 LAN IP Address                : 192.168.0.28
    3 LAN Subnet Mask                : 255.255.255.0
    4 LAN Default Gateway           : 192.168.0.254
    5 LAN DHCP Hostname              :
    6 WAN Connect Type               : STATIC
    7 WAN IP Address                : 192.168.1.9
    8 WAN Subnet Mask                : 255.255.255.0
    9WAN Default Gateway            : 192.168.1.254
    10WAN DHCP Hostname               :
    11WAN PPP User Name              :
    12WAN PPP Password               :
----------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
----------------------------------------------------------------
SETUP#
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google Intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/wired.shtml 이동

[Wired Interfaces]

Operation Mode: Bridged

Lan Device

Connect Type: Static

IP Address: 192.168.0.28

Subnet Mask: 255.255.255.0

Gateway: 192.168.0.254

DHCP Hostname:

Wan Device

Connect Type: Static

IP Address: 192.168.1.9

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.254

DHCP Hostname:

PPP User Name:

PPP Password:

- Wireless Basic : This configure the wireless basic setting.

  - SSID

  The SSID is unique identifier that client devices use to associate with AP.
  This SSID can be any alphanumeric entry from one to 32 characters long.
  This field is setting of SSID. Default value is ap.

  - Frequency Rate

  IEEE 802.11a Standard use 5GHz frequency, IEEE 802.11b/g Standard use 2.4Ghz frequency. Default value is 2.4Ghz.

  - WDS

  Use WDS (Wireless Distribute System). Default value is Disable.

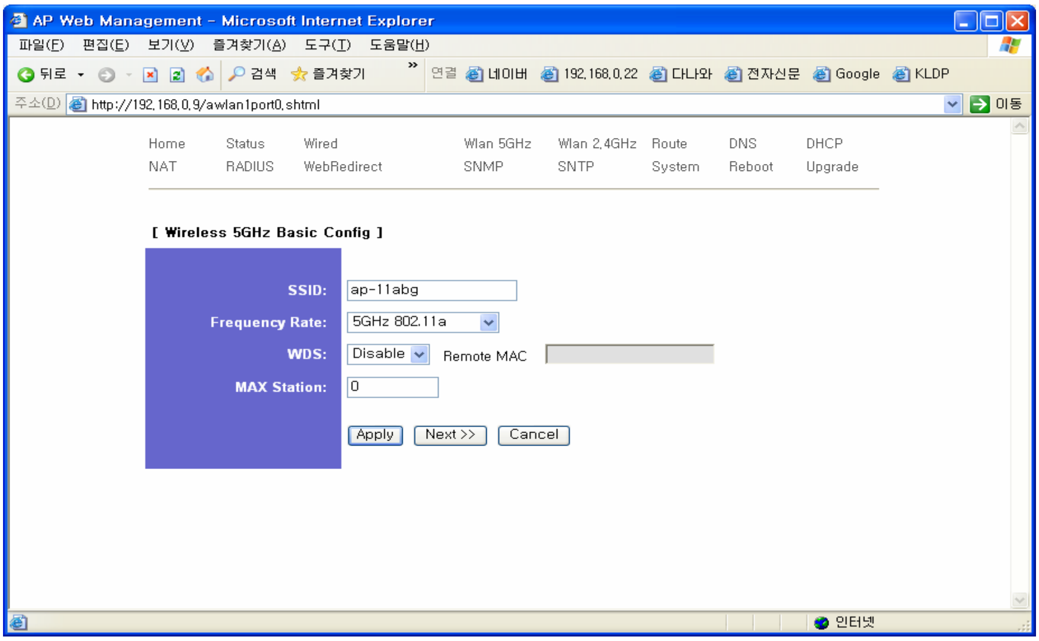
  - Remote MAC

  When WDS is Enable, Input other AP's mac address for connecting WDS AP

  - MAX Station

  Configure a maximum association number of Wireless Station. Default value is 0.
  When Configuration is 0, Maximum connection number is 253.

```
-------------------------------------------------------------
 Basic
-------------------------------------------------------------
    1. SSID                          : ap
    2 Frequency Rate/Channel        : 2.4GHz/2437MHz
    3 WDS                           : Disable
    4 Remote MAC                    :
    5 MAX Station                   : 0
-------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
-------------------------------------------------------------
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 즐겨찾기 연결 네이버 192.168.0.22 다나와 전자신문 Google KLDP
주소(D) http://192.168.0.9/awlan1port0.shtml 이동
Home Status Wired Wlan 5GHz Wlan 2.4GHz Route DNS DHCP
NAT RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
Next >>
Cancel
인터넷

[Wireless 5GHz Basic Config]

SSID: ap-11abg

Frequency Rate: 5GHz 802.11a

WDS: Disable Remote MAC

MAX Station: 0

- Wireless RF: This configures the wireless RF setting.

  - Channel

  The Channel for IEEE 802.11a and IEEE 802.11b/g. Default value is 2437MHz.

  - Hide SSID

  AP's SSID avoids being searched in wireless LAN station.

  Default value is Disable.

  - Beacon Interval

  Configure of AP Beacon Interval. Default value is 100.

  A range of value is 20 – 1000.

  - RTS Threshold

  Configure of AP RTS Threshold. Default value is 2346.

  A range of value is 0 – 2346.

  - Frag Threshold

  Configure of AP Frag Threshold. Default value is 2346.

  A range of value is 0 – 2346, and even value is allowed.

- Dtim Interval

Configure AP's Dtim Interval. Default value is 1.

A range of value is 0 – 16384.

- TX Power

Configure Tx Power. Default value is Level 1.

- Data Rates

Configure Data Rates. Default value is 54Mbsp.

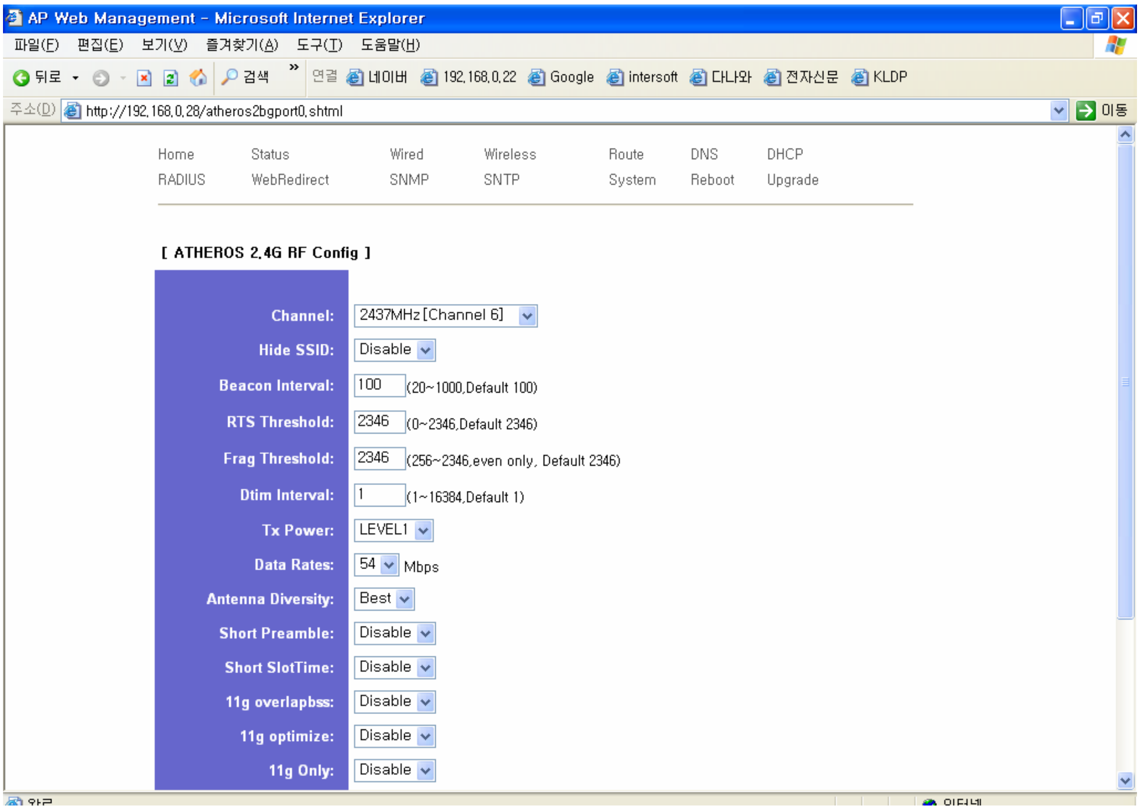
- Antenna Diversity

Configure Antenna Diversity. Default value is Best.

- Short Preamble

Configure Short Preamble Type. Default value is Disable.

```
------------------------------------------------------------
 RF
------------------------------------------------------------
    1. Hide SSID                    : Disable
    2. Beacon Interval              : 100
    3. RTS Threshold                : 2346
    4. Frag Threshold               : 2346
    5. Dtim Interval                : 1
    6. Tx Power                     : LEVEL1
    7. Data Rates                   : 54MBps
------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
------------------------------------------------------------
```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뒤로
검색
연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/atheros2bgport0.shtml
이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
완료
인터넷

[ATHEROS 2.4G RF Config]

Channel:	2437MHz [Channel 6]
Hide SSID:	Disable
Beacon Interval:	100 (20~1000,Default 100)
RTS Threshold:	2346 (0~2346,Default 2346)
Frag Threshold:	2346 (256~2346,even only, Default 2346)
Dtim Interval:	1 (1~16384,Default 1)
Tx Power:	LEVEL1
Data Rates:	54 Mbps
Antenna Diversity:	Best
Short Preamble:	Disable
Short SlotTime:	Disable
11g overlapbss:	Disable
11g optimize:	Disable
11g Only:	Disable

- Wireless Security: This configures the wireless Security setting.

– Authentication Algorithm

Configure Authentication Algorithm. Default value is OpenSystem.

OpenSystem : Configure Authentication Algorithm by OpenSystem.

SharedKey : Configure Authentication Algorithm by SharedKey

Auto : Configure Authentication Algorithm by Auto.
Support OpenSystem and Sharedkey at the same time.

– Cipher

Configure AP's WEP key use availability. Default value is None.

None : Do not use WEP Key.

WEP : Use WEP Key.

– Key Length

Configure AP's WEP Key Length. Default value is 64Bit.

64Bit : Configure WEP Key by 64Bit.

128Bit : Configure WEP Key by 128Bit.

– Default Key ID

Configure WEP Default Key ID. Default value is 1.

– Default Key 0,1,2,3

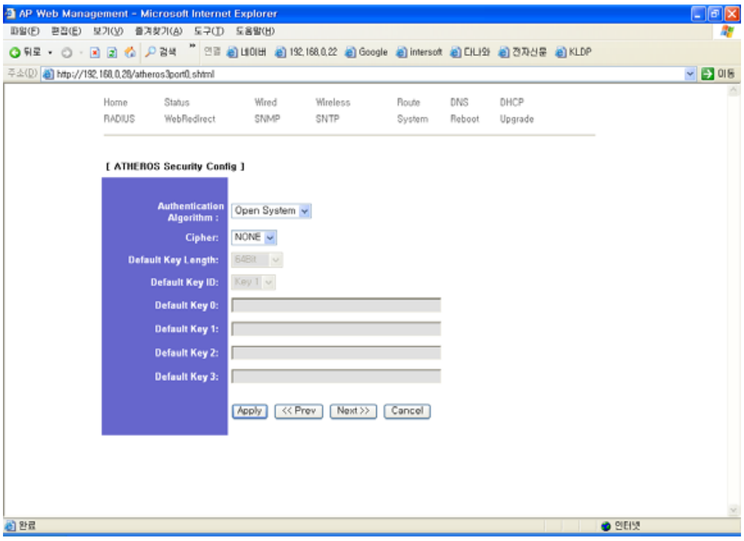
Configure WEP Default Key value.

Key configuration style is as following.

ex) 64Bit – 01:02:03:04:05

128Bit – 01:02:03:04:05:06:07:08:09:10:20:30:40:50:60:70:80:90:10:20:30

```
-------------------------------------------------------------
 Security
-------------------------------------------------------------
    1. Authentication Algorithm   : OpenSystem
    2. Cipher                      : None
    3. Key Length                  : 64Bit
    4. Default Key ID             : 1
    5. Default Key0               :
    6. Default Key1               :
    7. Default Key2               :
    8. Default Key3               :
-------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
-------------------------------------------------------------
```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주소(D) http://192.168.0.28/atheros3port0.shtml 이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
<< Prev
Next >>
Cancel
완료
인터넷

[ATHEROS Security Config]

Authentication Algorithm : Open System

Cipher: NONE

Default Key Length: 64Bit

Default Key ID: Key 1

Default Key 0:

Default Key 1:

Default Key 2:

Default Key 3:

- Wireless 802.1x: configure wireless 802.1x.

  - 802.1x Activate

    Configure 802.1x enable. Default value is Disable.

  - MAC Authentication

    Configure MAC Authentication. Default value is Disable.

  - Quiet Period

    Configure Quiet Period. Default value is 60 seconds.

  - Maximum Reauthentication

    Setup of Maximum Reauthentication. Default value is 2.

  - Tx Period

    Setup of Tx Period. Default value is 30 seconds.

  - Supplicant Timeout

    Setup of Supplicant Timeout. Default value is 30 seconds.

  - Server Timeout

    Setup of Server Timeout. Default value is 30 seconds

    The value is maximum waiting time at communicating of Authentication Server.

  - Maximum Request

    Setup of Maximum Request. Default value is 2.

    The value is Maximum retry number at failing communication of Authentication Server.

  - Reauthentication

    Setup of Reauthentication. Default value is Disable.

  - Reauthentication Period

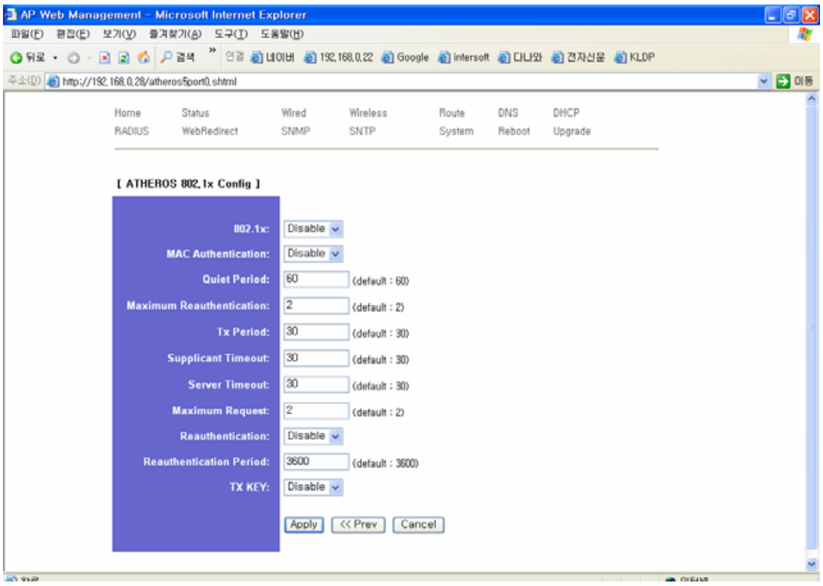
    Configure Reauthentication Period. Default value is 3600 seconds.

- TX KEY

  Setup of TX KEY. Default value is **Disable.**

  When TX Key is Enable, Use Dynamic WEP Key with wireless station.

```
------------------------------------------------------------
 802.1x
------------------------------------------------------------
    1. 802.1x Activate               : Disable
    2. MAC Authentication             : Disable
    3. Quiet Period                  : 60
    4. Maximum Reauthentication   : 2
    5. Tx Period                     : 30
    6. Supplicant Timeout            : 30
    7. Server Timeout                : 30
    8. Maximum Request               : 2
    9. Reauthentication              : Disable
    10.Reauthentication Period      : 3600
    11.TX KEY                         : Disable
------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
------------------------------------------------------------
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/atheros5port0.shtml 이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade

[ATHEROS 802.1x Config]

802.1x:	Disable	
MAC Authentication:	Disable	
Quiet Period:	60	(default : 60)
Maximum Reauthentication:	2	(default : 2)
Tx Period:	30	(default : 30)
Supplicant Timeout:	30	(default : 30)
Server Timeout:	30	(default : 30)
Maximum Request:	2	(default : 2)
Reauthentication:	Disable	
Reauthentication Period:	3600	(default : 3600)
TX KEY:	Disable	

* Value at Dynamic WEP Key use

To use Dynamic WEP Key, following value should be set.
Because Dynamic WEP Key is method that use after authentication is succeeded, must establish correctly authentication server's address, port, Secret Key.

Wireless Security	Authentication Algorithm	Auto
	Cipher	WEP
	Key Length	64Bit
	Default Key ID	1
	Default Key 0,1,2,3	10:20:30:40:50
Wireless 802.1x	802.1x Activate	Enable
	Tx Period	Enable
RADIUS	Authentication Server IP	Auth Server IP
	Authentication Server Port	Auth Server Port
	Authentication Shared Secret	Auth Server Secret Key

- RADIUS: configure an authentication and accounting server.
  Because Dynamic WEP Key is method that use after authentication is succeeded, must establish correctly authentication server's address, port, Secret Key.

Note

For the Authentication is operating, 802.1x Activate must be Enable.

- Authentication Server IP

Configure Authentication Server IP Address.

- Authentication Server Port

Configure RADIUS Authentication Port of Authentication Server. Default value is 1812.

- Authentication Server Secret

Configure RADIUS Secret Key of Authentication Server. Default value is secret.

- Accounting Server IP

  Configure Accounting Server's IP Address.

- Accounting Server Port

  Configure RADIUS Accounting Port of Accounting Server. Default value is 1813.

- Accounting Server Secret

  Configure RADIUS Secret Key of Accounting Server. Default value is secret.

- Accounting Server Timeout

  It is Connection Waiting Time at authentication. Default value is 10.

- Accounting Max Request

  Configure Accounting Retry count. Default value is 1.

- Accounting Session Timeout

  Configure availability of Session Timeout value. Default value is By Server.

  Session Timeout sets available time of authentication user. If became Session Timeout, end authentication.

  Disable : Disable Session Timeout.

  By Server : Get Session Timeout value from Authentication server when authentication successful.

  60 – 65535 : Configure Session Timeout value.

- Accounting Idle Timeout

  For IEEE 802 media other than IEEE 802.11, there is no concept of an idle timeout because the media are always on. As a result, the Idle Timeout is relevant only for IEEE 802.11. It is possible for an IEEE 802.11 device to wander out of range of AP. In this case, the Idle Timeout indicates the maximum time that a wireless station may remain idle. Default value is By Server.

  Disable : Disable Idle Timeout.

  By Server : Get Idle Timeout value from Authentication server when authentication successful

  60 – 65535 : Configure Idle Timeout value.

- Accounting Interim Interval

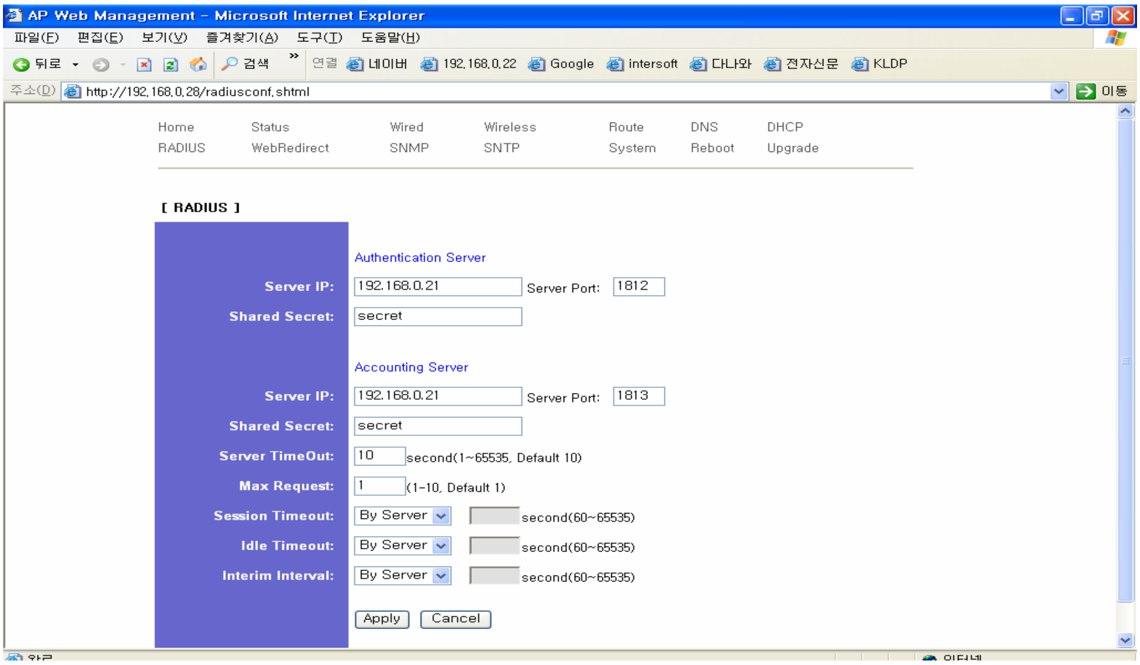
  Set periodic time that send Accounting packet. Default value is By Server.

  Disable : Disable Interim Interval

  By Server : Get Interim Interval value from Authentication server when authentication successful.

  60 – 65535 : Configure Interim Interval value.

```
----------------------------------------------------------
 Authentication Server
----------------------------------------------------------
    1. Auth Server IP               : 192.168.0.21
    2. Auth Server Port             : 1812
    3. Auth Server Secret           : secret
----------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
----------------------------------------------------------
----------------------------------------------------------
 Accounting Server
----------------------------------------------------------
    1. Acct Server IP                : 192.168.0.21
    2. Acct Server Port              : 1813
    3. Acct Server Secret            : secret
    4. Acct Server Timeout          : 10
    5. Max Request                   : 1
    6. Session Timeout               : by server
    7. Idle Timeout                  : by server
    8. Interim Interval             : by server
----------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
----------------------------------------------------------
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/radiusconf.shtml
이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
Cancel

[RADIUS]

Authentication Server

Server IP:	192.168.0.21 Server Port: 1812
Shared Secret:	secret

Accounting Server

Server IP:	192.168.0.21 Server Port: 1813
Shared Secret:	secret
Server TimeOut:	10 second(1~65535, Default 10)
Max Request:	1 (1~10, Default 1)
Session Timeout:	By Server second(60~65535)
Idle Timeout:	By Server second(60~65535)
Interim Interval:	By Server second(60~65535)

- WEB Redirection

  Set connection web page at first web page connection of non-authentication user and authentication user.

Note

For the WEB Redirection is operating, 802.1x Activate must be Enable.

– Non-Auth Activate

Configure non-Authentication user's WEB Redirection function use availability.

Default value is Disable.

– Non-Auth URL

Configure non-Authentication user's connection web page.

ex) http://www.google.com

– Auth Activate

Configure Authentication user's WEB Redirection function use availability.

Default value is Disable.

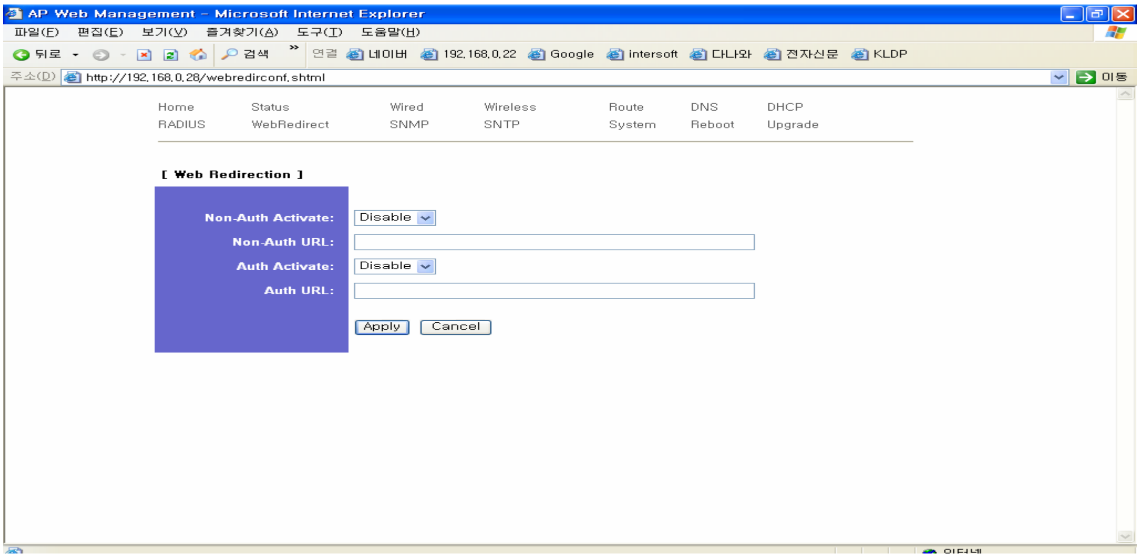
– Auth URL

Configure Authentication user's connection web page.

ex) http://www.google.com

.

```
--------------------------------------------------------------
 WEB Redirection
--------------------------------------------------------------
     1. Non-Auth Activate              : Disable
     2. Non-Auth URL                    :
     3. Auth Activate                  : Disable
     4. Auth URL                        :
--------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
--------------------------------------------------------------
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/webredirconf.shtml 이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
Cancel
인터넷

[Web Redirection]

Non-Auth Activate: Disable

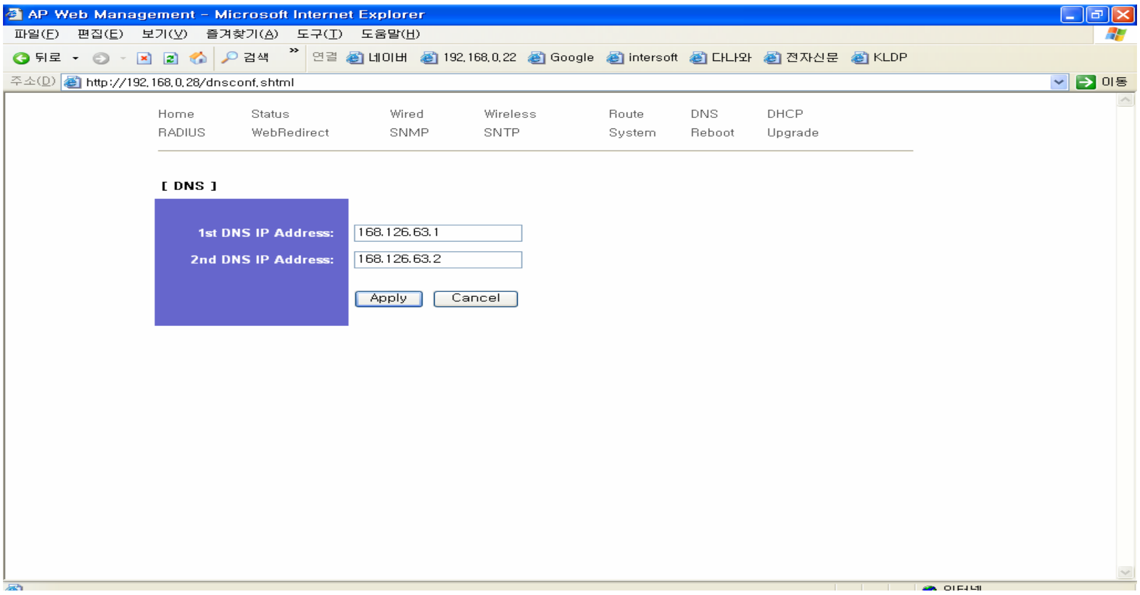
Non-Auth URL:

Auth Activate: Disable

Auth URL:

- DNS

Configure IP Address of DNS Server


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/dnsconf.shtml 이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply Cancel
인터넷

[DNS]

1st DNS IP Address: 168.126.63.1

2nd DNS IP Address: 168.126.63.2

- DHCP : configure DHCP Server Function

– Activate

Configure DHCP Server function use availability. Default value is Disable.

– Start IP Address

Enter a value for the DHCP server to start with when issuing IP Addresses. Default value is 192.168.0.50.

– End IP Address

Enter a value for the DHCP server to end with when issuing IP Addresses. Default value is 192.168.0.100.

– Subnet Mask

Configure allocating IP's Subnet mask. Default value is 255.255.255.0.

– Default Lease Time

The Default Lease Time is the amount of time a network user will be allowed connection to the Router with their current dynamic IP address. Enter the amount of time, in minutes, that the user will be “leased” this dynamic IP address. Default value is 65536.

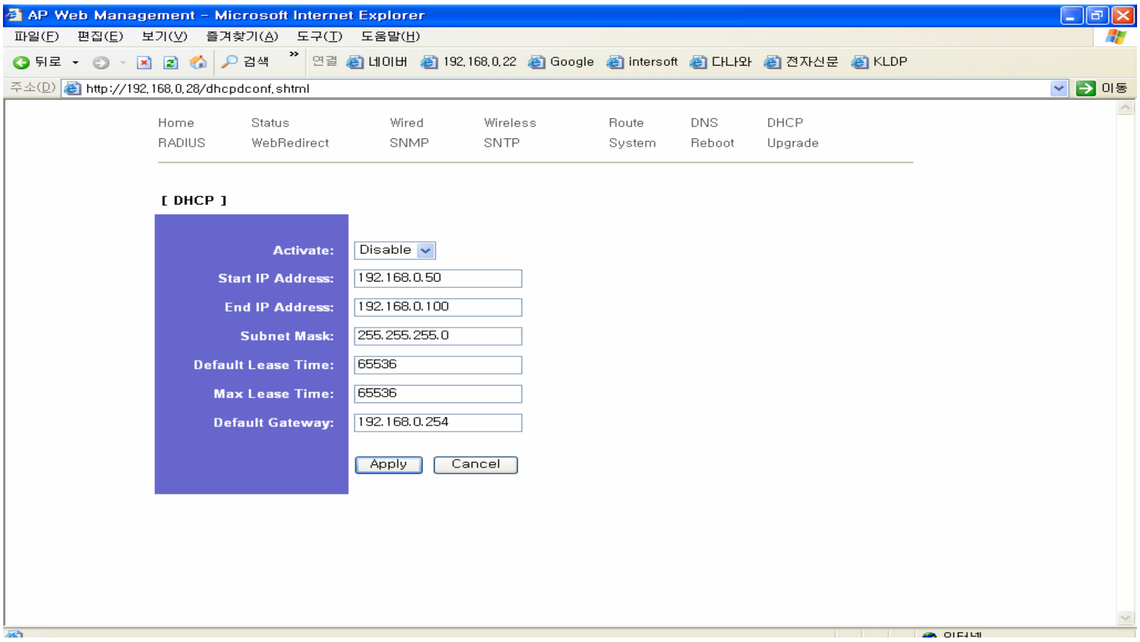
- Max Lease Time

The Default Lease Time is the amount of time a network user will be allowed connection to the Router with their current dynamic IP address. Enter the amount of time, in minutes, that the user will be “leased” this dynamic IP address. Default value is 65536.

- Default Gateway

Configure allocating IP's Default Gateway. Default value is 192.168.0.254.

```
----------------------------------------------------------------
 DHCP
----------------------------------------------------------------
    1. Activate                    : Disable
    2. Start IP Address            : 192.168.0.50
    3. End IP Address              : 192.168.0.100
    4. Subnet Mask                 : 255.255.255.0
    5. Default Lease Time          : 65536
    6. Max Lease Time              : 65536
    7. Default Gateway             : 192.168.0.254
----------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
----------------------------------------------------------------
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/dhcpdconf.shtml
이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
Cancel
인터넷

[DHCP]

Activate:	Disable
Start IP Address:	192.168.0.50
End IP Address:	192.168.0.100
Subnet Mask:	255.255.255.0
Default Lease Time:	65536
Max Lease Time:	65536
Default Gateway:	192.168.0.254

- SNTP : Configure SNTP Client Function

  SNTP is function that receives time from Time Server and sets AP's time.

- Activate

  Configure SNTP Client function use availability. Default value is **Disable**.

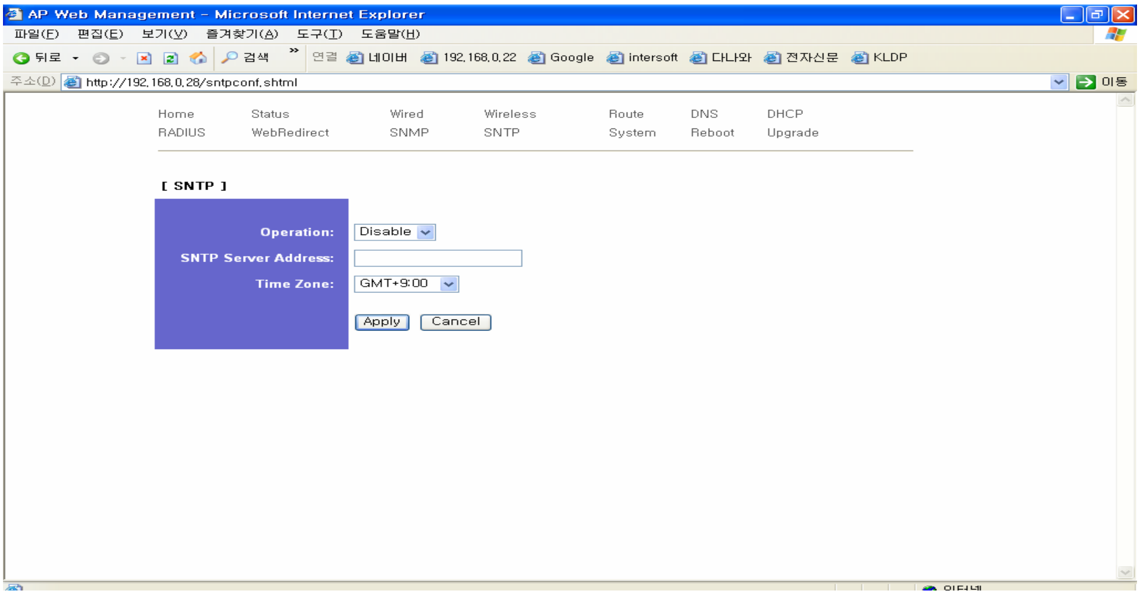
- Server Address

  Configure SNTP Server Address URL or IP address.

- Time Zone

  Configure SNTP Time Zone value.

```
------------------------------------------------------------
 SNTP
------------------------------------------------------------
    1. Activate                    : Disable
    2. Server Address               :
    3. Time Zone                     : 21
------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
```



AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/sntpconf.shtml 이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
Cancel
인터넷

[SNTP]

Operation: Disable
SNTP Server Address:
Time Zone: GMT+9:00

- System : Set AP’s etc function.

– AP Name

Configure AP’s Name. Default value is ap.

– HTTP Port

Configure WEB Server's Port number. Default value is 80.

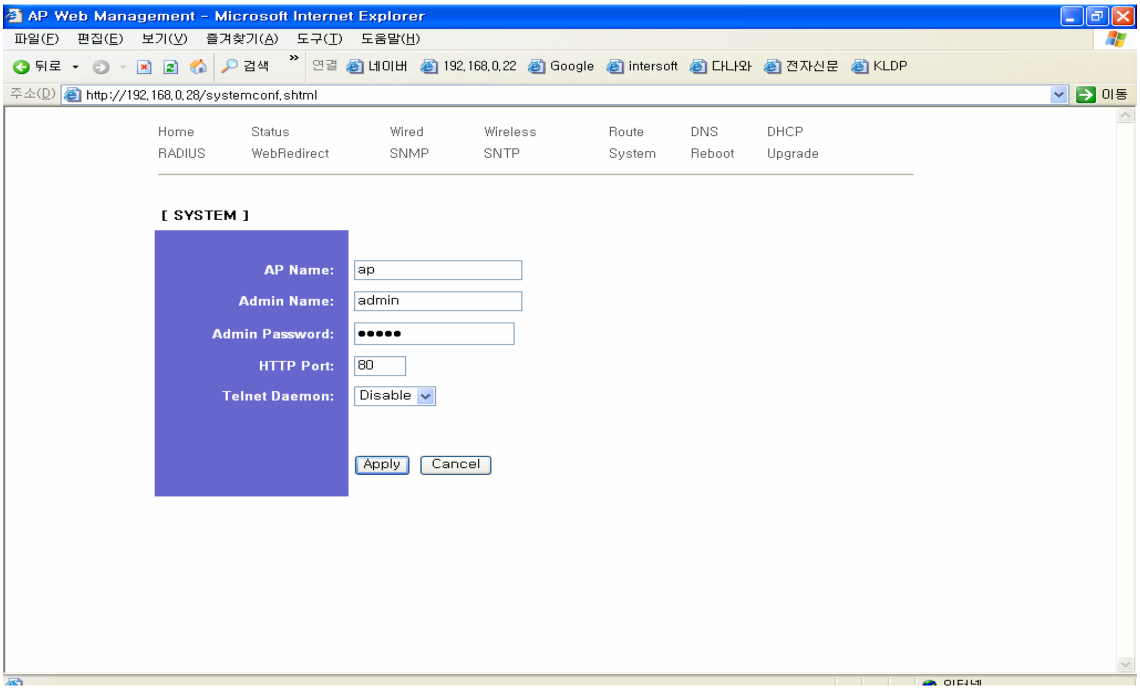
– Admin Name

Configure Administration ID of CLI, WEB Server. Default value is admin.

– Admin Password

Configure Administration Password of CLI, WEB Server. Default value is admin.

```
-----------------------------------------------------------------
 SYSTEM
-----------------------------------------------------------------
     1. AP Name                        : ap
     2. HTTP Port                      : 80
     3. Admin Name                     : admin
     4. Admin Password                 : admin
-----------------------------------------------------------------
 M:Main, P:Previous, S:Save, Q:Quit
-----------------------------------------------------------------
```


AP Web Management - Microsoft Internet Explorer
파일(F) 편집(E) 보기(V) 즐겨찾기(A) 도구(T) 도움말(H)
뒤로 검색 연결 네이버 192.168.0.22 Google intersoft 다나와 전자신문 KLDP
주소(D) http://192.168.0.28/systemconf.shtml 이동
Home Status Wired Wireless Route DNS DHCP
RADIUS WebRedirect SNMP SNTP System Reboot Upgrade
Apply
Cancel
인터넷

[SYSTEM]

AP Name: ap

Admin Name: admin

Admin Password: ●●●●●

HTTP Port: 80

Telnet Daemon: Disable

- NAT : Set AP's NAT function.

NAT is used at NAT mode. Wireless LAN port is connecting with Wireless Devices(PDA, Notebook, PC with Wireless NIC). Lan port is connecting with LAN ethernet Network. Wireless LAN port and Lan port is working of private network. WAN port is connecting with Internet Network

Connect / Port	with Personal Computer	with Switch/Hub/xDSL Modem
LAN port	straight-through cable	not connected
WAN Port	not connected	straight-through cable

- Activate

Configure NAT function Activate. Default value is disable

3.6 Default Configuration Value

- Wired Interface

Item	Value
LAN Connect Type	Static
LAN IP Address	192.168.0.9
LAN Subnet Mask	255.255.255.0
LAN Default Gateway	192.168.0.254
LAN IP Address	192.168.1.9
LAN Subnet Mask	255.255.255.0
LAN Default Gateway	192.168.1.254

- Wireless Basic/RF

Item	Value
SSID	ap
Frequency Rate	2.4GHz(802.11g)
Country	USA
Channel	6
WDS	Disable
MAX Station	0
Hide SSID	Disable
Beacon Interval	100
RTS Threshold	2346
Frag Threshold	2346
Dtim Interval	1
TX Power	LEVEL 1
Data Rates	54Mbps
Antenna Diversity	Best
Short Preamble	Disable

- Wireless Security

Item	Value
Authentication Algorithm	Open System
Cipher	None
Default Key Length	64Bit
Default Key ID	1
Default Key 0, 1, 2, 3	Valueless
Antenna Diversity	Best
Short Preamble	Disable

- Wireless Access Control

Item	Value
Activate	Disable
Allowed MAC List	Valueless
Dined MAC LIst	Valueless

- Wireless 802.1x

Item	Value
802.1x	Disable
MAC Authentication	Disable
Quiet Period	60
Maximum Reauthentication	2
TX Period	30
Supplicant Timeout	30
Server Timeout	30
Maximum Request	2
Reauthentication	Disable
Reauthentication Period	3600
TX KEY	Disable

- DNS

Item	Value
1st DNS IP Address	168.126.63.1
2nd DNS IP Address	168.126.63.2

- DHCP Server

Item	Value
Activate	Disable
Start IP Address	192.168.0.50
End IP Address	192.168.0.100
Subnet Mask	255.255.255.0
Default Lease Time	65535
Max Lease Time	65535
Default Gateway	192.168.0.254

- RADIUS

Item	Value
Authentication Server IP	192.168.0.21
Authentication Server Port	1812
Authentication Shared Secret	secret
Accounting Server IP	192.168.0.21
Accounting Server Port	1813
Accounting Shared Secret	secret
Server Timeout	10
Max Request	1
Session Timeout	By Server
Idle Timeout	By Server
Interim Interval	By Server

- WEB Redirection

Item	Value
Non Auth Activate	Disable
Non Auth URL	Valueless
Non Auth Activate	Disable
Non Auth URL	Valueless

- SNTP

Item	Value
Operation	Disable
SNTP Server Address	Valueless
Time Zone	GMT+9:00

- NAT

Item	Value
Activate	Disable

- SYSTEM

Item	Value
AP Name	ap
Admin Name	admin
Admin Password	admin
HTTP Port	80
Telnet Daemon	Disable

4. Troubleshooting

This chapter will help you solve the most common installation and setup problems that you may have with your Wireless Networking components.

1. When do not become Wired Line connection

1) Make sure whether Wired LED is On (lighting a green) state. Confirm Ethernet Cable whether was linked rightly to product back side department's Wired Port if LED is not On

2) Make sure whether connected correct Cable

Connect / Port	with Personal Computer	with Switch/Hub/xDSL Modem
LAN port	straight-through cable	crossover cable
WAN Port	crossover cable	straight-through cable

3) Make sure whether Wired IP Address that is established to product was established rightly in Network environment. The IP Addess that is established to product must correct IP Addess because was established by fixing Default IP Addess value

4) Execute ping command by PC or Gateway at CLI, confirm communication availability

2. In case of AP is not searched

1) Make sure whether confirm SSID value that was established to AP and established into same SSID

2) Make sure whether configured Hide SSID by Enable in AP setting.
No see at Hide SSID is enabled. Configure Hide SSID function by Disable or connect specifying SSID value

3. When AP is searched, but cannot establish link connection.

1) Confirms that WEP Key was established. When configured WEP Key, establish link connection with WEP Key through establishment program of wireless LAN card, Or, cancel AP's WEP Key configure

4. Link was established to AP but I am not communicated with AP

1) Confirms that 802.1x Authentication function becomes Enable. When 802.1x Authentication function becomes Enable, not communicated if authentication is not succeeded

2) make sure whether it is network which IP Address value of wireless LAN station is same with AP's IP Address value if is not communicated

5. I am not authenticated

1) Make sure whether 802.1 x authentication functions becomes Enabling

2) When authenticate, must satisfy all following condition with RADIUS server

① RADIUS server must have executed

② Communication must become right between RADIUS server and AP
First, make sure whether IP Address value was set to AP. When AP does not have IP address, cannot authenticate. Make sure whether is communicated each other through ping command

③ RADIUS server's IP Address value should be set rightly in RADIUS setting

④ Secret key value should be same with RADIUS server

⑤ AP's IP address should be registered to RADIUS server

⑥ User ID and Password should be enrolled rightly to RADIUS server

3) Make sure whether established user ID and Password rightly at certification

6. I am not authenticated again after authentication fails once

Confirm **Quiet Period** value in AP's 802.1x function. To prevent hacking, when fails certification, attempt authentication again after Quiet Period. Default value is 60 seconds.

7. Communicating distance with AP is so short.

Use extent of wireless LAN is 400m outdoors, it is 100m indoors. Range is shoted more by wall, door at indoors

8. When there is on far distance, transmission speed is fallen

When range of wireless LAN is far, try to be communicated rightly through speed decline automatically. This is state that is acting rightly

9. I am not connected by administration WEB page.

1) Make sure whether AP and communication become right

2) Make sure whether administration WEB server's Port Number was changed

When Port number is not 80, connection is available by following method

Ex) When AP's IP address is 192.168.0.9 and WEB Port number is 8088, input as following to Web browser

http://192.168.0.9:8088

10. Connected console cable but any message is not showing in terminal program

1) Make sure whether used right console cable. Connect cable that is offered with product or manufactures through cable manufacture method as following

RJ-45	DB-9
pin 2	pin 2
pin 3	pin 3
pin 5	pin 5

2) Make sure whether console port of PC was linked rightly with console port of product

3) Make sure whether serial port establishment of terminal program became right