

Layer2 SWITCH USER GUIDE

EL-G24E4G, EL-G24E4G-POE, EL-G16E2G-POE 공용



- **01** | **소 개** 1

머리말 / 포트 구성 / 광 포트 연결 / 외관 구성

- **02** | **기본 설정** 8

*콘솔 · Telnet · SSH · WEB 접속 / 계정 / 장비 이름
IP 주소 / D-GW / 포트 설정 / POE / LLDP / 광모듈*

- **03** | **VLAN 설정** 20

VLAN 구성도 / VLAN 생성 / 포트별 설정

- **04** | **RSTP 설정** 24

RSTP 구성도 / Priority 설정 / Path Cost 설정

- **05** | **Link Aggregation 설정** 27

Link Aggregation 구성도 / LAG 설정

- **06** | **시스템 관리** 29

*설정 파일 다운로드 · 업로드 / SNMP / Syslog
시스템 시간 / 접근통제*

가. 머리말

본 사용자 설명서는 (주)엘림광통신 Layer2 스위치 제품에 공통 적용되는 범용 매뉴얼입니다.

본 사용자 설명서의 내용은 스위치 기종에 따라 약간 차이가 있을 수 있으며, 제품의 기능 변경, 설정 변경 등으로 인하여 사전 통지 없이 변경될 수 있습니다.

본 사용자 설명서는 장비 초기 설치와 운영을 고려해 주요 기능의 사용법을 설명합니다. 사용자 운영 특성에 맞는 기술지원이 필요한 경우 본사 CS팀의 기술지원을 받으시기 바랍니다.

본 설명서의 내용은 당사의 사전 서면 동의 없이 어떠한 경우라도 일부 또는 전체를 도용하거나 배포할 수 없습니다.

(주)엘림광통신 네트워크 스위치 제품을 이용해 주셔서 감사합니다.



EL-G16E2G-POE



EL-G24E4G



EL-G24E4G-POE



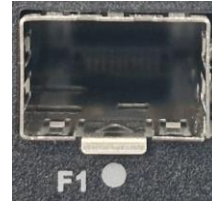
1. 소개



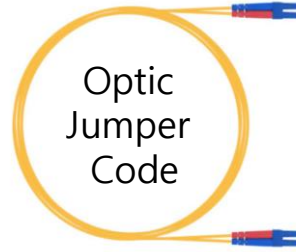
다. 포트 구성



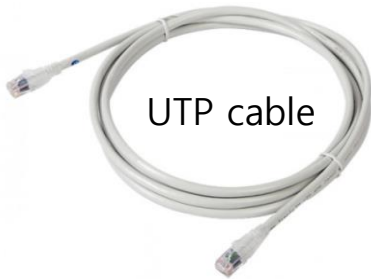
SFP



광 포트



Optic Jumper Code



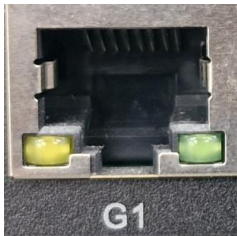
UTP cable



RS232 cable



관리 콘솔



UTP 포트



Console 포트

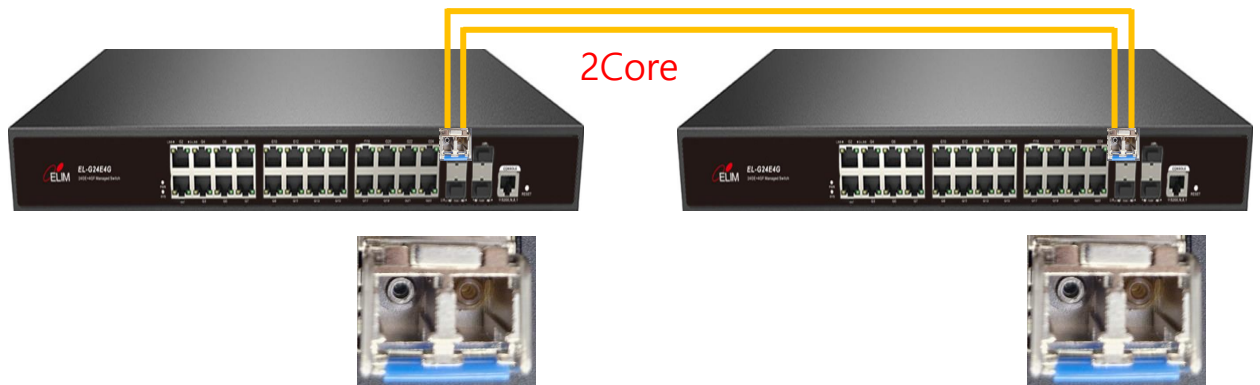
1. 소개



라. 광 포트 연결

* SFP : Small Form-factor Pluggable

Dual SFP

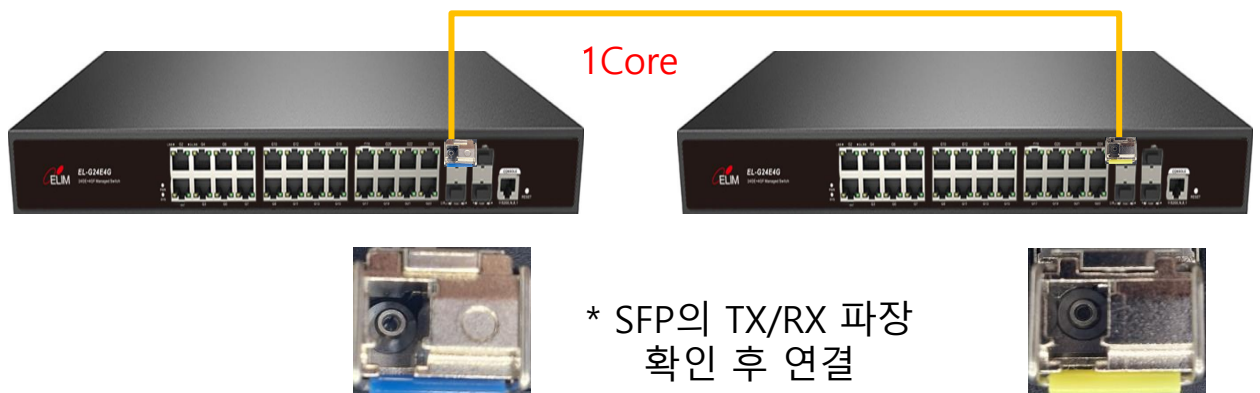


Bi-Directional SFP



TX 1310nm/RX 1550nm

TX 1550nm/RX 1310nm



* SFP의 TX/RX 파장
확인 후 연결

1. 소개



마. 외관 구성

구분	외형	색상	설명
PWR		Green	- 점등 : 전원 On - 소등 : 전원 OFF
SYS		Green	- 점멸 : 시스템 정상 - 소등 : 시스템 오류
UTP 포트 (None POE)		Link	Yellow - 점등 : 링크 연결 - 소등 : 링크 미연결
		Speed (SPD)	Green / Yellow - Green 점등: 1G 속도 - Yellow 점등: 10/100M속도 - 소등 : 링크 미연결
UTP 포트 (POE)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>포트</p> </div> <div style="text-align: center;"> <p>전면 패널</p> </div> </div>	POE	Yellow - 점등 : POE 전원 공급 - 소등 : POE 미연결
		Link	Green - 점등 : 링크 연결 - 소등 : 링크 미연결
광 포트		Green	- 점등 : 광 링크만 연결 - 점멸 : 데이터 송/수신 - 소등 : 광 링크 미연결
RESET		-	- 5초이상 누르면 공장 초기화 됨 - 설정값 백업 후 사용

2. 기본 설정

가. 콘솔 접속

콘솔 접속 프로그램(예 : Putty, Tera Term 등)을 이용해 시리얼 접속합니다.



시리얼 포트 설정	초기 설정값
<ul style="list-style-type: none">- 속도 : 115200- 데이터 : 8bit- 패리티 : none- 스탑비트 : 1bit- 흐름제어 : none	<ul style="list-style-type: none">- Username : admin- Password : admin

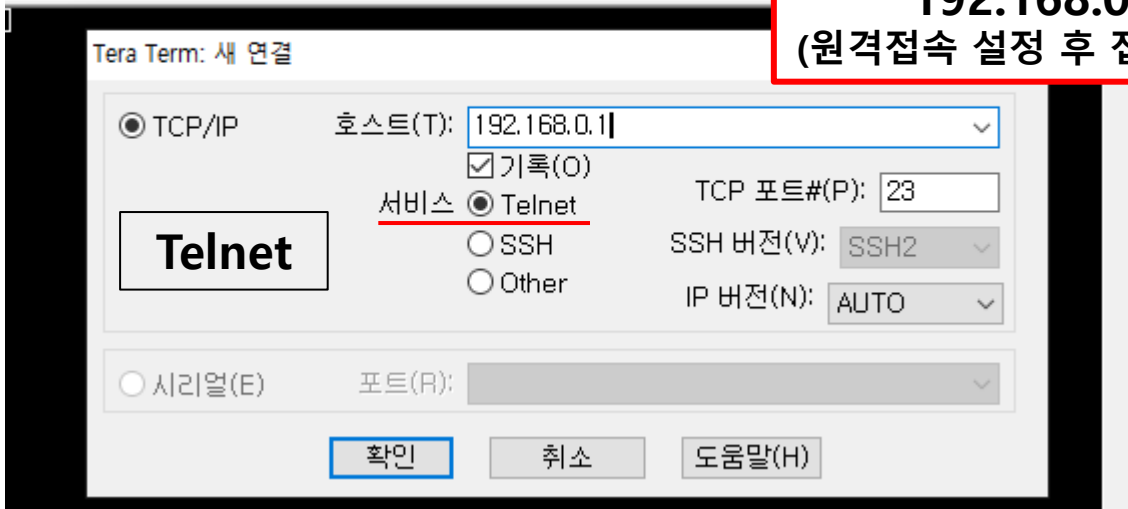
2. 기본 설정

나. Telnet / SSH 원격 접속

원격 접속 프로그램(예 : Putty, Tera Term 등)을 이용해 원격 접속합니다.

Tera Term - [끊어짐] VT

메뉴(F) 수정(E) 설정(S) 제어(O) 창(W) 도움말(H)



Tera Term: 새 연결

TCP/IP 호스트(T): 192.168.0.1

기록(O)

서비스 Telnet TCP 포트#(P): 23

SSH SSH 버전(V): SSH2

Other IP 버전(N): AUTO

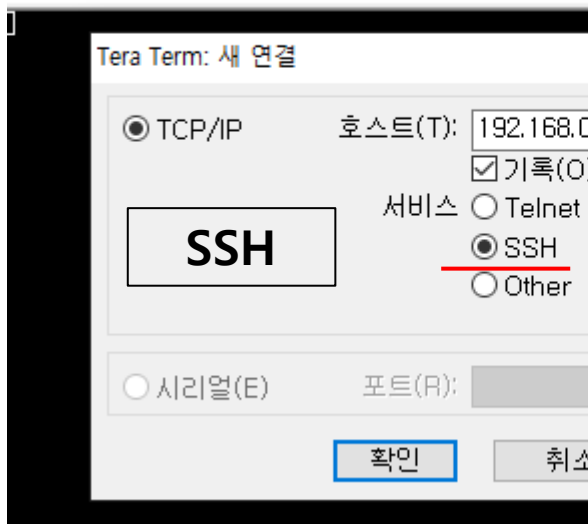
시리얼(E) 포트(R):

Telnet

장비 출고 시 IP 주소
192.168.0.1
(원격접속 설정 후 접속 가능)

Tera Term - [끊어짐] VT

메뉴(F) 수정(E) 설정(S) 제어(O) 창(W) 도움말(H)



Tera Term: 새 연결

TCP/IP 호스트(T): 192.168.0.1

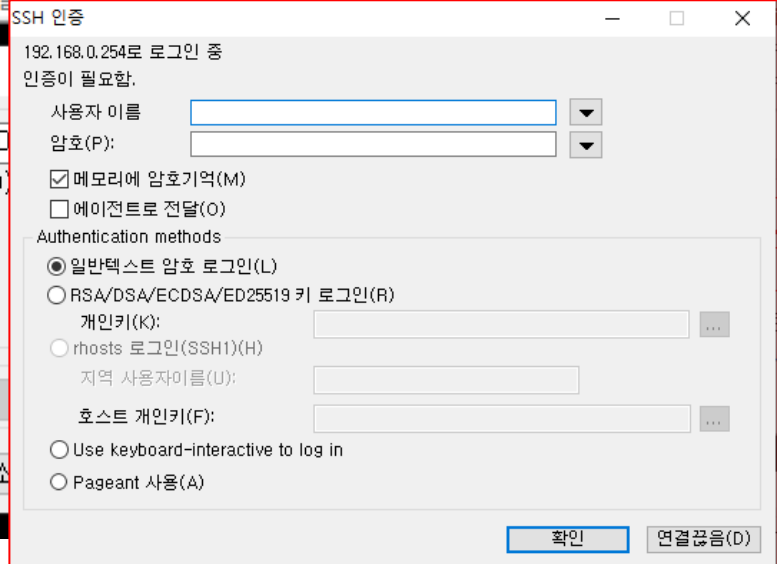
기록(O)

서비스 Telnet SSH

Other

시리얼(E) 포트(R):

SSH



SSH 인증

192.168.0.254로 로그인 중
인증이 필요함.

사용자 이름: []

암호(P): []

메모리에 암호기억(M)

에이전트로 전달(O)

Authentication methods

일반텍스트 암호 로그인(L)

RSA/DSA/ECDSA/ED25519 키 로그인(R)

개인키(K): []

rhosts 로그인(SSH1)(H)

지역 사용자이름(U): []

호스트 개인키(F): []

Use keyboard-interactive to log in

Pageant 사용(A)

장비 출고 시 IP 주소

- 192.168.0.1/24

초기 설정값

- Username : admin

- Password : admin

2. 기본 설정



다. WEB 접속

EL-G24E4G-POE

192.168.0.1/home.html?ver=1721891451405

**장비 출고 시 IP 주소
192.168.0.1**

Status >> System Information

System Information				Edit
Model	EL-G24E4G-POE			
System Name	Switch			
System Location	Default			
System Contact	Default			
Serial Number				
MAC Address	80:1C:91:0C:0E:A1			
IPv4 Address	192.168.200.21			
IPv6 Address	fe80::821c:91ff:fe0c:ea1/64			
System OID	1.3.6.1.4.1.27282.1.1			
System Uptime	0 day, 2 hr, 35 min and 47 sec			
Current Time	2023-01-01 10:35:23 UTC+8			
Loader Version	1.0.0.0			
Loader Date	Mar 02 2023 - 19:35:25			
Firmware Version	1.0.0.5			
Firmware Date	Dec 11 2023 - 16:15:03			
Telnet	Disabled			
SSH	Disabled			
HTTP	Enabled			
HTTPS	Disabled			
SNMP	Disabled			

장비 출고 시 IP 주소

- 192.168.0.1/24

초기 설정값

- Username : admin
- Password : admin

2. 기본 설정



라. WEB 접속 화면 구성

- ▶ Status
- ▶ Network
- ▶ Port
- ▶ POE Setting
- ▶ VLAN
- ▶ MAC Address Table
- ▶ Spanning Tree
- ▶ ERPS
- ▶ Discovery
- ▶ DHCP
- ▶ Multicast
- ▶ Routing
- ▶ Security
- ▶ ACL
- ▶ QoS
- ▶ Diagnostics
- ▶ Management

Status >> System Information

색상 마킹 : 링크 연결

포트 상태

System Information		Edit
Model	EL-G24E4G-POE	
System Name	Switch	▶ 장비 이름
System Location	Default	
System Contact	Default	
Serial Number		
MAC Address	80:1C:91:0C:0E:A1	
IPv4 Address	192.168.200.21	▶ 장비 IP주소
IPv6 Address	fe80::821c:91ff:fe0c:ea1/64	
System OID	1.3.6.1.4.1.27282.1.1	
System Uptime	0 day, 2 hr, 42 min and 56 sec	
Current Time	2023-01-01 10:42:33 UTC+8	
Loader Version	1.0.0.0	
Loader Date	Mar 02 2023 - 19:35:25	
Firmware Version	1.0.0.5	
Firmware Date	Dec 11 2023 - 16:15:03	
Telnet	Disabled	
SSH	Disabled	원격 접속 설정 상태
HTTP	Enabled	
HTTPS	Disabled	
SNMP	Disabled	

Time

CPU/Memory 사용률

Time

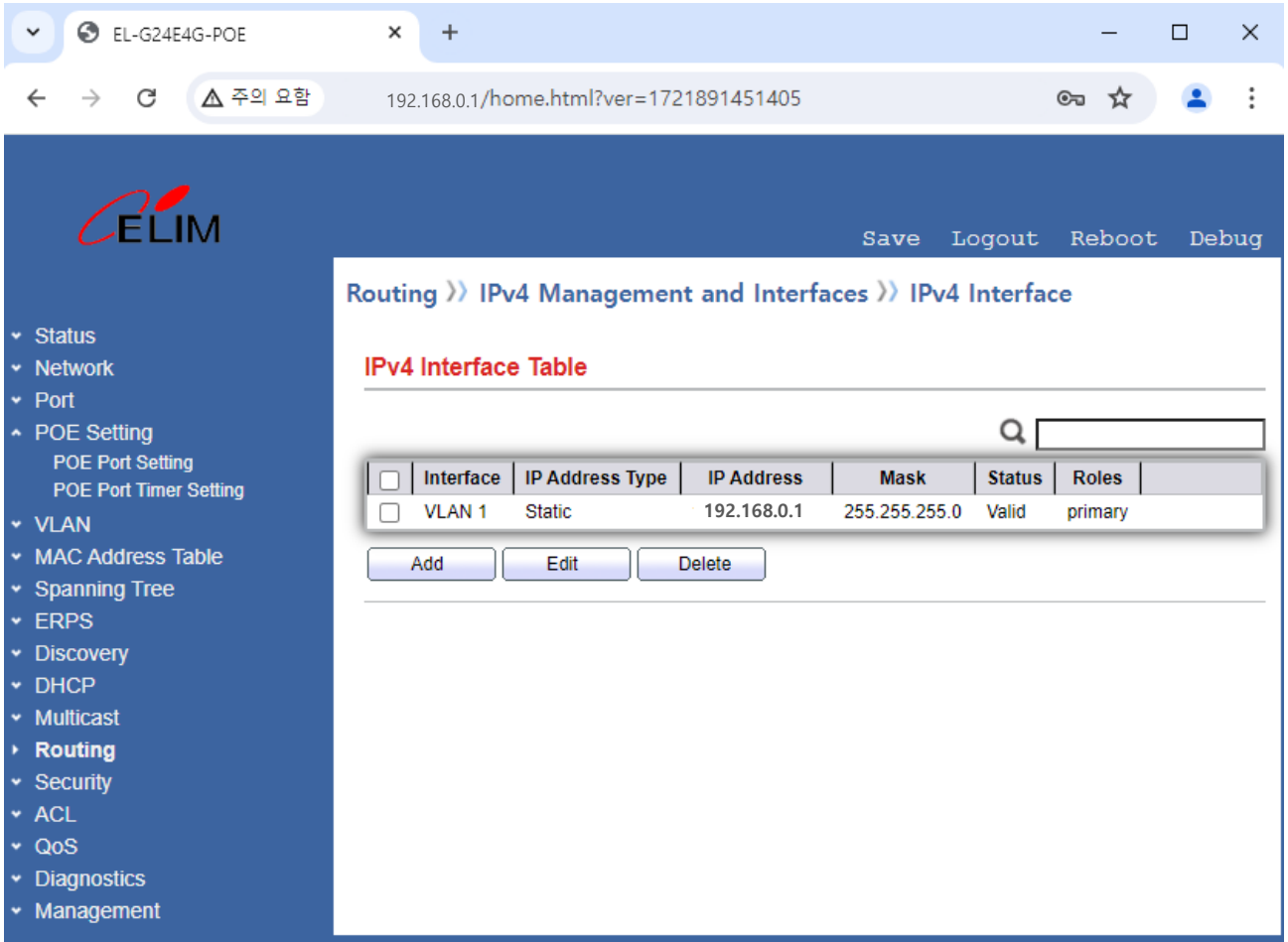
WEB 메뉴

WEB 메뉴 구성

▶ Status	: 시스템 상태	▶ DHCP	: 자동 주소 설정
▶ Network	: 네트워크 설정	▶ Multicast	: 멀티캐스트 설정
▶ Port	: 포트 설정	▶ Routing	: 라우팅 설정
▶ PoE Setting	: POE 설정	▶ Security	: 보안 설정
▶ MAC Address Table	: MAC 주소	▶ ACL	: ACL 설정
▶ Spanning Tree	: STP 설정	▶ Diagnostics	: 진단
▶ ERPS	: ERPS 설정	▶ Management	: 관리
▶ Discovery	: LLDP 설정		

2. 기본 설정

마. WEB 기본 설정법



Routing >> IPv4 Management and Interfaces >> IPv4 Interface

IPv4 Interface Table

<input type="checkbox"/>	Interface	IP Address Type	IP Address	Mask	Status	Roles	
<input type="checkbox"/>	VLAN 1	Static	192.168.0.1	255.255.255.0	Valid	primary	

Buttons: Add, Edit, Delete

기본 설정 방법

- **추가** : 해당 항목 ADD → Apply

Add



Apply

- **삭제** : 항목 체크 Delete → Apply



Delete



Apply

- **변경** : 항목 체크 Edit → Apply



Edit



Apply

- **적용 취소** : Close

Close

2. 기본 설정

바. 원격 접속 설정

WEB 메뉴

▷ Security

^ Management Access

· Management Service

- ▼ Status
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
 - RADIUS
 - TACACS+
- ▼ AAA
- ^ Management Access
 - Management Service
 - Management ACL
 - Management ACE
- ▼ Authentication Manager
- Port Security
- Protected Port
- Storm Control
- ▼ DoS
- ▼ Dynamic ARP Inspection
- ▼ DHCP Snooping
- ▼ IP Source Guard
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management

Security >> Management Access >> Management Service

Management Service		
Telnet	<input type="checkbox"/>	Enable
SSH	<input type="checkbox"/>	Enable
HTTP	<input checked="" type="checkbox"/>	Enable
HTTPS	<input type="checkbox"/>	Enable
SNMP	<input type="checkbox"/>	Enable

Session Timeout		
Console	<input type="text" value="10"/>	Min (0 - 65535, default 10)
Telnet	<input type="text" value="10"/>	Min (0 - 65535, default 10)
SSH	<input type="text" value="10"/>	Min (0 - 65535, default 10)
HTTP	<input type="text" value="10"/>	Min (0 - 65535, default 10)
HTTPS	<input type="text" value="10"/>	Min (0 - 65535, default 10)

Password Retry Count		
Console	<input type="text" value="3"/>	(0 - 120, default 3)
Telnet	<input type="text" value="3"/>	(0 - 120, default 3)
SSH	<input type="text" value="3"/>	(0 - 120, default 3)

Silent Time		
Console	<input type="text" value="0"/>	Sec (0 - 65535, default 0)
Telnet	<input type="text" value="0"/>	Sec (0 - 65535, default 0)
SSH	<input type="text" value="0"/>	Sec (0 - 65535, default 0)

Apply

설정 방법

Management Service		
Telnet	<input checked="" type="checkbox"/>	Enable
SSH	<input checked="" type="checkbox"/>	Enable
HTTP	<input checked="" type="checkbox"/>	Enable
HTTPS	<input type="checkbox"/>	Enable
SNMP	<input checked="" type="checkbox"/>	Enable

**Telnet, SSH, SNMP 원격 접속 허용 설정
(Default 접속 차단)**

Apply

2. 기본 설정

사. 장비 이름 설정

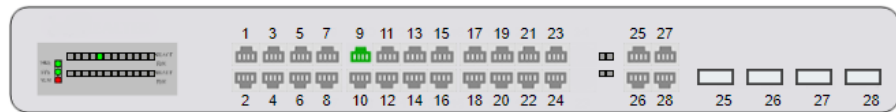
WEB 메뉴

▷ Status

· System Information

- ▼ Status
 - System Information
 - Logging Message
- ▼ Port
 - Link Aggregation
 - MAC Address Table
- ▼ Network
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management

Status >> System Information



System Information Edit

Model	EL-G24E4G-POE
System Name	switch
System Location	Default
System Contact	Default
Serial Number	

MAC Address	80:1C:91:0C:0E:A1
IPv4 Address	192.168.200.21
IPv6 Address	fe80::821c:91ff:fe0c:ea1/64
System OID	1.3.6.1.4.1.27282.1.1
System Uptime	1 day, 4 hr, 14 min and 6 sec
Current Time	2023-01-02 12:13:43 UTC+8

Loader Version	1.0.0.0
Loader Date	Mar 02 2023 - 19:35:25
Firmware Version	1.0.0.5
Firmware Date	Dec 11 2023 - 16:15:03

Telnet	Enabled
SSH	Disabled
HTTP	Enabled
HTTPS	Disabled
SNMP	Disabled

설정 방법

Edit System Information

System Name 설정

System Name	<input type="text" value="CCTV#1"/>
System Location	<input type="text" value="Default"/>
System Contact	<input type="text" value="Default"/>

Apply

Close

2. 기본 설정

아. 계정 설정

WEB 메뉴

- ▶ Management
 - User Account

- ▶ Status
 - System Information
 - Logging Message
- ▼ Port
 - Link Aggregation
 - MAC Address Table
- ▶ Network
 - DNS
 - Hosts
 - System Time
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management
 - User Account

Management >> User Account

User Account

Showing All entries

<input type="checkbox"/>	Username	Privilege
<input type="checkbox"/>	admin	Admin

<input type="checkbox"/>	Username	Privilege
<input checked="" type="checkbox"/>	admin	Admin

설정 방법

Add User Account

관리자 추가

Username	<input type="text" value="root"/>
Password	<input type="text" value="root@1"/>
Confirm Password	<input type="text" value="root@1"/>
Privilege	<input checked="" type="radio"/> Admin <input type="radio"/> User

Edit User Account

관리자 비밀번호 변경

Username	<input type="text" value="admin"/>
Password	<input type="text" value="root@1"/>
Confirm Password	<input type="text" value="root@1"/>
Privilege	<input checked="" type="radio"/> Admin <input type="radio"/> User

* 비밀번호는 Default로 암호화되어 저장됨

2. 기본 설정

자. IP 주소 변경

WEB 메뉴

▷ Routing

- IPv4 Management and Interfaces
- IPv4 Interface

- ▶ Status
 - System Information
 - Logging Message
- ▶ Port
 - Link Aggregation
 - MAC Address Table
- ▶ Network
- ▶ Port
- ▶ POE Setting
- ▶ VLAN
- ▶ MAC Address Table
- ▶ Spanning Tree
- ▶ ERPS
- ▶ Discovery
- ▶ DHCP
- ▶ Multicast
- ▶ **Routing**
 - IPv4 Management and Interfaces
 - IPv4 Interface
 - IPv4 Routes
 - ARP
 - ▶ IPv6 Management and Interfaces

Routing >> IPv4 Management and Interfaces >> IPv4 Interface

IPv4 Interface Table

<input type="checkbox"/>	Interface	IP Address Type	IP Address	Mask	Status	Roles
<input type="checkbox"/>	VLAN 1	Static	192.168.0.1	255.255.255.0	Valid	primary

<input type="checkbox"/>	Interface	IP Address Type	IP Address	Mask	Status	Roles
<input checked="" type="checkbox"/>	VLAN 1	Static	192.168.0.1	255.255.255.0	Valid	primary

설정 방법

Edit IPv4 Interface

Interface	VLAN 1	IP 주소 변경
Address Type	<input type="radio"/> Dynamic <input checked="" type="radio"/> Static	
IP Address	<input type="text" value="192.168.0.10"/>	
Mask	<input checked="" type="radio"/> Network Mask <input type="text" value="255.255.255.0"/>	
	<input type="radio"/> Prefix Length <input type="text" value=""/> (8 - 30)	
Roles	<input checked="" type="radio"/> primary <input type="radio"/> sub	

2. 기본 설정

차. Default Gateway 주소 설정

WEB 메뉴

▷ Routing

- IPv4 Management and Interfaces
- IPv4 Routers

- ^ Status
 - System Information
 - Logging Message
- ^ Port
 - Link Aggregation
 - MAC Address Table
- ^ Network
- ^ Port
- ^ POE Setting
- ^ VLAN
- ^ MAC Address Table
- ^ Spanning Tree
- ^ ERPS
- ^ Discovery
- ^ DHCP
- ^ Multicast
- ^ **Routing**
 - IPv4 Management and Interfaces
 - IPv4 Interface
 - IPv4 Routes
 - ARP
 - IPv6 Management and Interfaces

Routing >> IPv4 Management and Interfaces >> IPv4 Routes

IPv4 Routing Table

<input type="checkbox"/>	Destination IP Prefix	Prefix Length	Route Type	Next Hop Router IP Address	Metric	Administrative Distance	Outgoing Interface
<input type="checkbox"/>	192.168.0.0	24	Directly Connected				VLAN 1*

Interface VLAN1에 설정된 기본 Network (Directly Connect)

설정 방법

Add IPv4 Static Route Default Gateway 주소 설정

* IP 주소와 서브넷 마스크에 상관 없이 Gateway로 전송 설정

IP Address	<input type="text" value="0.0.0.0"/>
Mask	<input checked="" type="radio"/> Network Mask <input type="text" value="0.0.0.0"/>
	<input type="radio"/> Prefix Length <input type="text" value=""/> (0 - 32)
Next Hop Router IP Address	<input type="text" value="192.168.0.254"/>
Metric	<input type="text" value="1"/> (1 - 255, default 1)

<input type="checkbox"/>	Destination IP Prefix	Prefix Length	Route Type	Next Hop Router IP Address	Metric	Administrative Distance	Outgoing Interface
<input type="checkbox"/>	0.0.0.0	0	Default	192.168.0.254	1	1	inactive
<input type="checkbox"/>	192.168.0.0	24	Directly Connected				VLAN 1*

2. 기본 설정

카. 포트 속도 및 전송 방식 설정

WEB 메뉴

▷ Port

· Port Setting

- ▶ Status
 - System Information
 - Logging Message
- ▶ Port
 - Link Aggregation
 - MAC Address Table
- ▶ Network
- ▶ Port
 - Port Setting
 - Error Disabled
- ▶ Link Aggregation
 - EEE
 - Jumbo Frame
 - Port Security
 - Protected Port
 - Storm Control
- ▶ POE Setting
- ▶ VLAN
- ▶ MAC Address Table
- ▶ Spanning Tree
- ▶ ERPS
- ▶ Discovery
- ▶ DHCP
- ▶ Multicast
- ▶ Routing
- ▶ Security
- ▶ ACL
- ▶ QoS
- ▶ Diagnostics
- ▶ Management

Port >> Port Setting

Port Setting Table

Entry	Port	Type	Description	State	Link Status	Speed	Duplex	Flow Control
<input type="checkbox"/>	1	GE1	1000M Copper	Enabled	Up	Auto (1000M)	Auto (Full)	Disabled (Off)
<input type="checkbox"/>	2	GE2	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	3	GE3	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	4	GE4	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	5	GE5	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	6	GE6	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	7	GE7	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	8	GE8	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	9	GE9	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	10	GE10	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	11	GE11	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	12	GE12	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	13	GE13	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	14	GE14	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	15	GE15	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	16	GE16	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	17	GE17	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	18	GE18	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	19	GE19	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	20	GE20	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	21	GE21	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	22	GE22	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	23	GE23	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	24	GE24	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	25	GE25	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	26	GE26	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	27	GE27	1000M Copper	Enabled	Down	Auto	Auto	Disabled
<input type="checkbox"/>	28	GE28	1000M Copper	Enabled	Down	Auto	Auto	Disabled

포트 Enable/Disable 상태

State	Link Status	Speed	Duplex
Enabled	Up	Auto (1000M)	Auto (Full)
Enabled	Down	Auto	Auto

Link 상태 속도 및 Duplex 상태

Edit Port Setting

Port: GE1

Description:

State: Enable

Speed: Auto 10M 100M Auto - 100M 1000M Auto - 1000M

Duplex: Auto Full Half

Flow Control: Auto Enable Disable

포트 명칭, 설명, 주석 설정

포트 Enable

* Auto : 자동 협상 기능
* 수동 설정은 필요시 사용

Edit

Apply Close

2. 기본 설정

타. POE 설정

* PoE : Power Over Ethernet

WEB 메뉴

▷ POE Setting

• POE Port Setting

- ^ Status
 - System Information
 - Logging Message
- ^ Port
 - Link Aggregation
 - MAC Address Table
- ^ Network
 - Port
 - POE Setting
 - POE Port Setting
 - POE Port Timer Setting
- ^ VLAN
- ^ MAC Address Table
- ^ Spanning Tree
- ^ ERPS
- ^ Discovery
- ^ DHCP
- ^ Multicast
- ^ Routing
- ^ Security
- ^ ACL
- ^ QoS
- ^ Diagnostics
- ^ Management

POE Setting >> POE Port Setting

System info

System Power(W)	7.436
System Temperature(C)	62
Refresh Rate	<input type="radio"/> None <input type="radio"/> 5 sec <input checked="" type="radio"/> 10 sec <input type="radio"/> 30 sec

Port Setting Table

<input type="checkbox"/>	Entry	Port	PortEnable	Status	Type	Level	Actual Power(W)	Voltage(V)	Current(mA)
<input type="checkbox"/>	1	GE1	Enabled	On	AT	4	5.98	52	115
<input type="checkbox"/>	2	GE2	Enabled	On	N/A	0	1.456	52	28
<input type="checkbox"/>	3	GE3	Enabled	Off	N/A	0	0	0	0
<input type="checkbox"/>	4	GE4							
<input type="checkbox"/>	5	GE5							
<input type="checkbox"/>	6	GE6							
<input type="checkbox"/>	7	GE7							
<input type="checkbox"/>	8	GE8							
<input type="checkbox"/>	9	GE9							
<input type="checkbox"/>	10	GE10							
<input type="checkbox"/>	11	GE11							
<input type="checkbox"/>	12	GE12							

포트 POE 설정 상태

PortEnable	Status	Type	Level	Actual Power(W)	Voltage(V)	Current(mA)
Enabled	On	AT	4	6.864	52	132

POE 동작 상태 PD 공급 전력/전압/전류

설정 방법

Edit Port Setting

Port	GE1
PortEnable	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

포트별 POE 사용 설정

Apply

Close

POE 표준

표준	Level	PSE MAX	PD 평균
PoE(af)	3	15.4	12.95
PoE+(at)	4	30	25.5
PoE++(bt)	6	60	51
PoE++(bt)	8	90	73

2. 기본 설정

파. LLDP 활용

* LLDP : Link Layer Discovery Protocol

WEB 메뉴

- Discovery
 - LLDP
 - Neighbors



- Status
- Network
- Port
- POE Setting
- VLAN
- MAC Address Table
- Spanning Tree
- ERPS
- Discovery
 - LLDP
 - Property
 - Port Setting
 - MED Network Policy
 - MED Port Setting
 - Packet View
 - Local Information
 - Neighbor
 - Statistics

Discovery >> LLDP >> Neighbor

Neighbor Table

Showing All entries

Showing 1 to 2 of 2 entries

<input type="checkbox"/>	Local Port	Chassis ID Subtype	Chassis ID	Port ID Subtype	Port ID	System Name	Time to Live
<input type="checkbox"/>	GE1	MAC address	B0:1C:91:0C:53:D1	Local	8	EL-PG8E2G-BP	109
<input type="checkbox"/>	GE23	MAC address	F8:BC:12:73:4E:9B	MAC address	F8:BC:12:73:4E:9B		3016

Clear Refresh Detail

직접 연결된 인접 Switch의 정보 확인 가능

<input type="checkbox"/>	Local Port	Chassis ID Subtype	Chassis ID	Port ID Subtype	Port ID	System Name	Time to Live
<input type="checkbox"/>	GE1	MAC address	B0:1C:91:0C:53:D1	Local	8	EL-PG8E2G-BP	109

Local Switch 정보

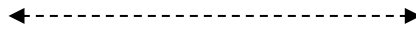
인접 Switch 정보

Local Switch



Local Interface
GE1

LLDP



Port ID
GE 8



인접 Switch

System Name : EL-Pg8E2G-BP
MAC 주소 : B0:1C:91:0C:53:D1

2. 기본 설정

하. SFP 장착 상태 확인

WEB 메뉴

▽ Diagnostics

• Fiber Module

- ▼ Status
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
 - Logging
 - Property
 - Remote Server
 - Mirroring
 - Ping
 - Traceroute
 - Copper Test
 - Fiber Module
- ▼ UDLD
- ▼ Management

Diagnostics >> Fiber Module

Fiber Module Table

Port	Temperature (C)	Voltage (V)	Current (mA)	Output Power (mW)	Input Power (mW)	OE Present	Loss of Signal
○ GE26	35.60	3.34	23.13	0.35	0.14	Insert	Normal

Refresh

Detail

Fiber Module Status

Port	GE26
OE Present	Insert
Loss of Signal	Normal
Transceiver Type	SFP/SFP+
Connector Type	LC
Ethernet Compliance Code	Unknown
Transmission Media	Unknown
Wavelength	1550 (nm)
Bitrate	1300 Mbps
Vendor OUI	00-00-45
Vendor Name	ELIM
Vendor PN	ELP5D5-11-25
Vendor Revision	V04
Vendor SN	EL2005146044
Date Code	12848-12341-125
Temperature (C)	35.55
Voltage (V)	3.34
Current (mA)	23.16
Output Power (mW)	0.35
Input Power (mW)	0.14

Refresh

Close

SFP 상세 정보

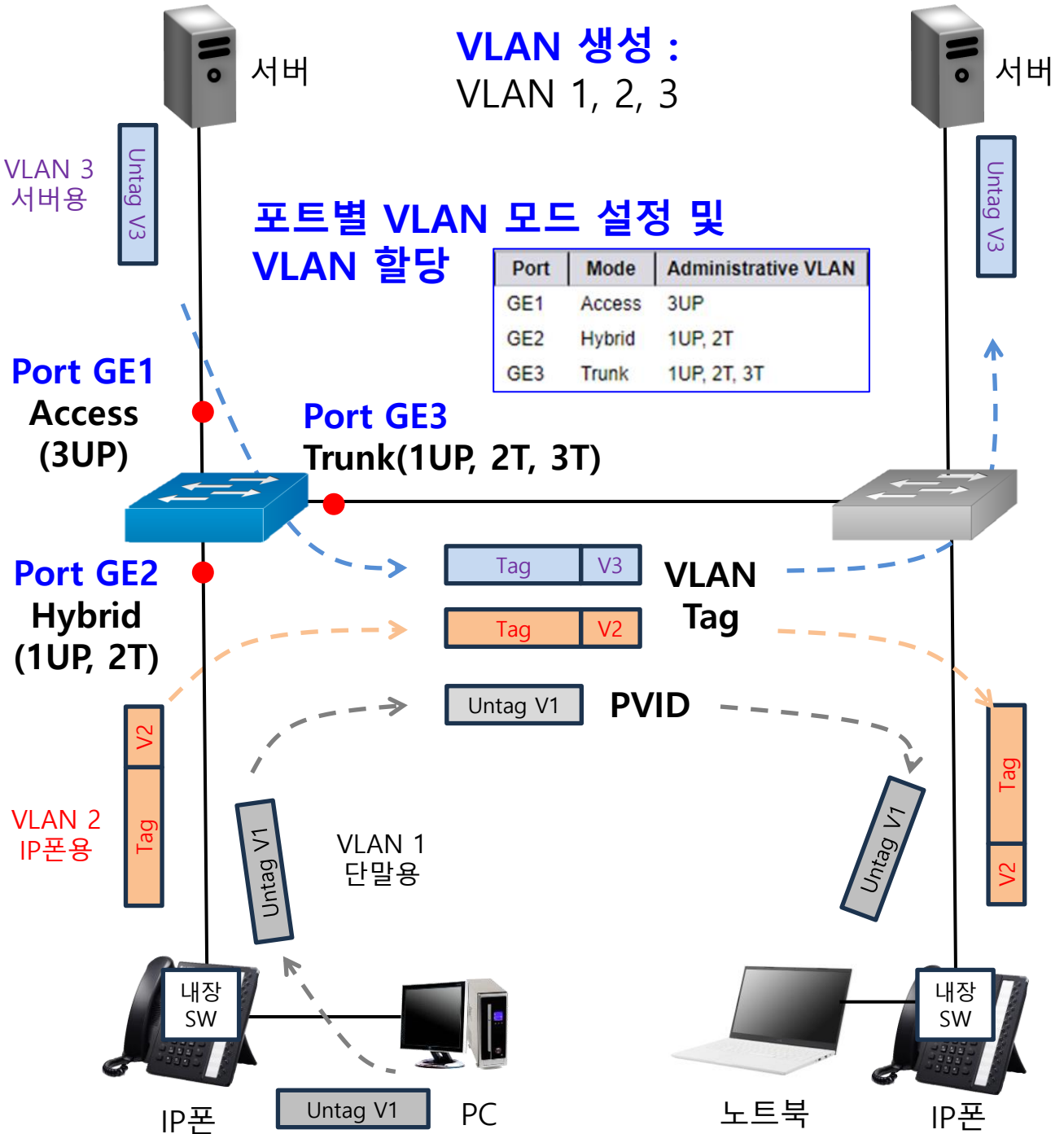


* SFP 진단 기능인 DDM(Digital Diagnostics Monitoring) 이용 SFP 장착 상태 출력

3. VLAN 설정

가. VLAN 구성도(예시)

* VLAN : Virtual LAN, 가상 랜



3. VLAN 설정

나. VLAN 설정 - VLAN 생성

WEB 메뉴

- ▶ VLAN
 - VLAN
 - Create VLAN

- ▼ Status
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ **VLAN**
 - VLAN
 - Create VLAN**
 - VLAN Configuration
 - Membership
 - Port Setting
 - ▼ Voice VLAN
 - ▼ Protocol VLAN
 - ▼ MAC VLAN
 - ▼ Surveillance VLAN
 - ▼ GVRP
 - ▼ MAC Address Table
 - ▼ Spanning Tree
 - ▼ ERPS
 - ▼ Discovery
 - ▼ DHCP
 - ▼ Multicast
 - ▼ Routing

VLAN >> VLAN >> Create VLAN

Apply

Default VLAN 1이 기본 생성되어 전포트에 적용됨

VLAN Table

Showing All entries

<input type="checkbox"/>	VLAN	Name	Type	VLAN Interface State
<input type="checkbox"/>	1	default	Default	Enabled

Edit Delete

설정 방법

Apply **VLAN 2, 3 선택 후 적용**

VLAN Table

Showing All entries

<input type="checkbox"/>	VLAN	Name	Type	VLAN Interface State
<input type="checkbox"/>	1	default	Default	Enabled
<input type="checkbox"/>	2	VLAN0002	Static	Disabled
<input type="checkbox"/>	3	VLAN0003	Static	Disabled

Edit Delete **VLAN 생성 확인**

3. VLAN 설정



다. VLAN 설정 - 포트별 VLAN 모드 설정

WEB 메뉴

- ▷ VLAN
 - VLAN
 - Port Setting

- ▼ Status
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
 - VLAN
 - Create VLAN
 - VLAN Configuration
 - Membership
 - Port Setting
 - Voice VLAN
 - Protocol VLAN
 - MAC VLAN
 - Surveillance VLAN
 - GVRP
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management

VLAN >> VLAN >> Port Setting

Port Setting Table

<input type="checkbox"/>	Entry	Port	Mode	PVID	Accept Frame Type	Ingress Filtering	Uplink	TPID
<input type="checkbox"/>	1	GE1	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	2	GE2	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	3	GE3	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	4	GE4	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	5	GE5	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	6	GE6	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	7	GE7	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	8	GE8	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	9	GE9	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	10	GE10	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	11	GE11	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	12	GE12	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	13	GE13	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	14	GE14	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	15	GE15	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	16	GE16	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	17	GE17	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	18	GE18	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	19	GE19	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	20	GE20	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	21	GE21	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	22	GE22	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	23	GE23	Trunk	1	All	Enabled	Disabled	0x8100
<input type="checkbox"/>	24	GE24	Trunk	1	All	Enabled	Disabled	0x8100

Edit Port Setting

Port: GE1

Mode:

- Hybrid
- Access
- Trunk
- Tunnel

PVID: (1 - 4094)

Accept Frame Type:

- All
- Tag Only
- Untag Only

Ingress Filtering: Enable

Uplink: Enable

TPID:

포트별 VLAN 모드 설정

PVID 입력 (포트별 VLAN 할당에서 변경 가능)

포트별 VLAN 모드 확인

<input type="checkbox"/>	Entry	Port	Mode	PVID	Accept Frame Type
<input type="checkbox"/>	1	GE1	Access	3	Untag Only
<input type="checkbox"/>	2	GE2	Hybrid	1	All
<input type="checkbox"/>	3	GE3	Trunk	1	All

3. VLAN 설정

라. VLAN 설정 - 포트별 VLAN 할당

WEB 메뉴

▷ VLAN

- VLAN
- Membership

- ^ Status
 - System Information
 - Logging Message
- ▼ Port
 - Link Aggregation
 - MAC Address Table
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
 - VLAN
 - Create VLAN
 - VLAN Configuration
 - Membership
 - Port Setting
- ▼ Voice VLAN
- ▼ Protocol VLAN
- ▼ MAC VLAN
- ▼ Surveillance VLAN
- ▼ GVRP
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management

VLAN >> VLAN >> Membership

Membership Table

	Entry	Port	Mode	Administrative VLAN	Operational VLAN
<input type="radio"/>	1	GE1	Trunk	1UP	1UP
<input type="radio"/>	2	GE2	Access	1UP	1UP
<input type="radio"/>	3	GE3	Hybrid	1UP	1UP
<input type="radio"/>	4	GE4			
<input type="radio"/>	5	GE5			
<input type="radio"/>	6	GE6			
<input type="radio"/>	7	GE7			
<input type="radio"/>	8	GE8			
<input type="radio"/>	9	GE9			
<input type="radio"/>	10	GE10			
<input type="radio"/>	11	GE11			
<input type="radio"/>	12	GE12			
<input type="radio"/>	13	GE13			
<input type="radio"/>	14	GE14			
<input type="radio"/>	15	GE15			
<input type="radio"/>	16	GE16			
<input type="radio"/>	17	GE17			
<input type="radio"/>	18	GE18			
<input type="radio"/>	19	GE19			
<input type="radio"/>	20	GE20			
<input type="radio"/>	21	GE21			
<input type="radio"/>	22	GE22			
<input type="radio"/>	23	GE23			
<input type="radio"/>	24	GE24			

Edit Port Setting

Port: GE2

Mode: Hybrid

Membership

3

1UP, 2T

Forbidden
 Excluded
 Tagged
 Untagged
 PVID

포트별 VLAN 할당

Tag 부착 방식 선택

Edit

Apply

Close

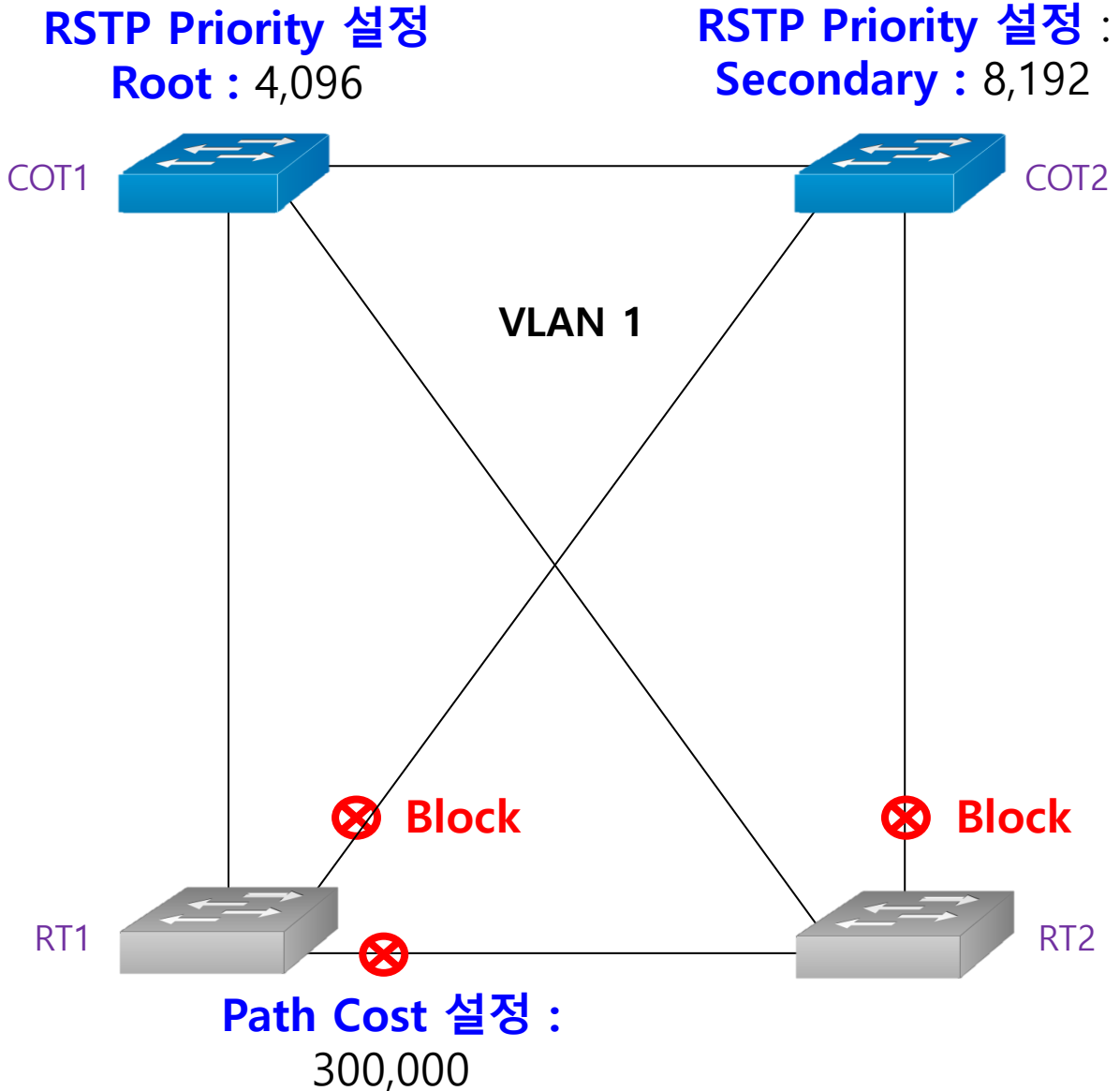
포트별 VLAN 할당 확인

	Entry	Port	Mode	Administrative VLAN	Operational VLAN
<input type="radio"/>	1	GE1	Access	3UP	3UP
<input type="radio"/>	2	GE2	Hybrid	1UP, 2T	1UP, 2T
<input type="radio"/>	3	GE3	Trunk	1UP, 2T, 3T	1UP, 2T, 3T

4. RSTP 설정

가. RSTP 구성도(예시)

* RSTP : Rapid Spanning Tree Protocol



참고사항

- * STP 종류 : STP(전환시간 50초 이내), RSTP(전환시간 5초 이내)
MSTP(복수 VLAN을 묶어서 동작)
- * STP 우선순위 : 4,096단위로 지정, Default 32,768
낮을 수록 우선순위 높음, 우선순위 미설정 시 MAC 주소가
가장 낮은 스위치가 Root로 동작함
- * Path Cost : 특정 포트 지정 차단 시 사용, 차단 포트에 30만
이상의 수치로 지정(기본값 - 100M : 20만, 1G : 2만)

4. RSTP 구성



나. RSTP Priority 설정

WEB 메뉴

▽ Spanning Tree

- Property

- ▼ Status
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
 - Property
 - Port Setting
 - MST Instance
 - MST Port Setting
 - Statistics
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management

Spanning Tree >> Property

State	<input type="checkbox"/> Enable
Operation Mode	<input type="radio"/> STP <input checked="" type="radio"/> RSTP <input type="radio"/> MSTP
Path Cost	<input checked="" type="radio"/> Long <input type="radio"/> Short
BPDU Handling	<input type="radio"/> Filtering <input checked="" type="radio"/> Flooding
Priority	<input type="text" value="32768"/> (0 - 61440, default 32768)
Hello Time	<input type="text" value="2"/> Sec (1 - 10, default 2)
Max Age	<input type="text" value="20"/> Sec (6 - 40, default 20)
Forward Delay	<input type="text" value="15"/> Sec (4 - 30, default 15)
Tx Hold Count	<input type="text" value="6"/> (1 - 10, default 6)
Region Name	<input type="text" value="80:1C:91:0C:0E:A1"/>
Revision	<input type="text" value="0"/> (0 - 65535, default 0)
Max Hop	<input type="text" value="20"/> (1 - 40, default 20)
Operational Status	
Bridge Identifier	32768-80:1C:91:0C:0E:A1
Designated Root Bridge	0-00:00:00:00:00:00
Root Port	N/A
Root Path Cost	0
Topology Change Count	0
Last Topology Change	0D/0H/0M/0S

Apply

설정 방법

State	<input checked="" type="checkbox"/> Enable	→ RSTP Enable(Default : Disable)
Operation Mode	<input type="radio"/> STP <input checked="" type="radio"/> RSTP <input type="radio"/> MSTP	
Path Cost	<input checked="" type="radio"/> Long <input type="radio"/> Short	- 우선순위 Default : 32,768 - 4,096단위로 지정 - Root : 4,096 설정 - Secondary : 8,192 설정
BPDU Handling	<input type="radio"/> Filtering <input checked="" type="radio"/> Flooding	
Priority	<input type="text" value="4096"/>	

* 우선순위 미설정 시
MAC 주소가 가장 낮은 스위치가 Root로 동작함

4. RSTP 구성



다. RSTP Path Cost 설정

WEB 메뉴

- Spanning Tree
 - Port Setting

- Status
 - System Information
 - Logging Message
- Port
 - Link Aggregation
 - MAC Address Table
- Network
- Port
 - POE Setting
- VLAN
- MAC Address Table
- Spanning Tree
 - Property
 - Port Setting
 - MST Instance
 - MST Port Setting
 - Statistics
- ERPS
- Discovery
- DHCP
- Multicast
- Routing
- Security
- ACL
- QoS
- Diagnostics
- Management

Spanning Tree >> Port Setting

Port Setting Table

Entry	Port	State	Path Cost	Priority	BPDU Filter	BPDU Guard	Operational Edge	Operational Point-to-Point	Port Role	Port State	Designated Bridge	Designated Port ID	Designated Cost
<input type="checkbox"/>	1	GE1	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-1	20000
<input type="checkbox"/>	2	GE2	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-2	20000
<input type="checkbox"/>	3	GE3	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-3	20000
<input type="checkbox"/>	4	GE4	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-4	20000
<input type="checkbox"/>	5	GE5	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-5	20000
<input type="checkbox"/>	6	GE6	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-6	20000
<input type="checkbox"/>	7	GE7	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-7	20000
<input type="checkbox"/>	8	GE8	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-8	20000
<input type="checkbox"/>	9	GE9	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-9	20000
<input type="checkbox"/>	10	GE10	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-10	20000
<input type="checkbox"/>	11	GE11	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-11	20000
<input type="checkbox"/>	12	GE12	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-12	20000
<input type="checkbox"/>	13	GE13	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-13	20000
<input type="checkbox"/>	14	GE14	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-14	20000
<input type="checkbox"/>	15	GE15	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-15	20000
<input type="checkbox"/>	16	GE16	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-16	20000
<input type="checkbox"/>	17	GE17	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-17	20000
<input type="checkbox"/>	18	GE18	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-18	20000
<input type="checkbox"/>	19	GE19	Disabled	20000	128	Disabled	Disabled	Enabled	Disabled	Forwarding	0-00-00-00-00-00-00	128-19	20000
<input type="checkbox"/>	20	GE20	Disabled	20000	128	Disabled	Disabled	Disabled	Disabled	Disabled	0-00-00-00-00-00-00	128-20	20000
<input type="checkbox"/>	21	GE21	Disa										
<input type="checkbox"/>	22	GE22	Disa										
<input type="checkbox"/>	23	GE23	Disa										
<input type="checkbox"/>	24	GE24	Disa										

Protocol

Edit Port Setting

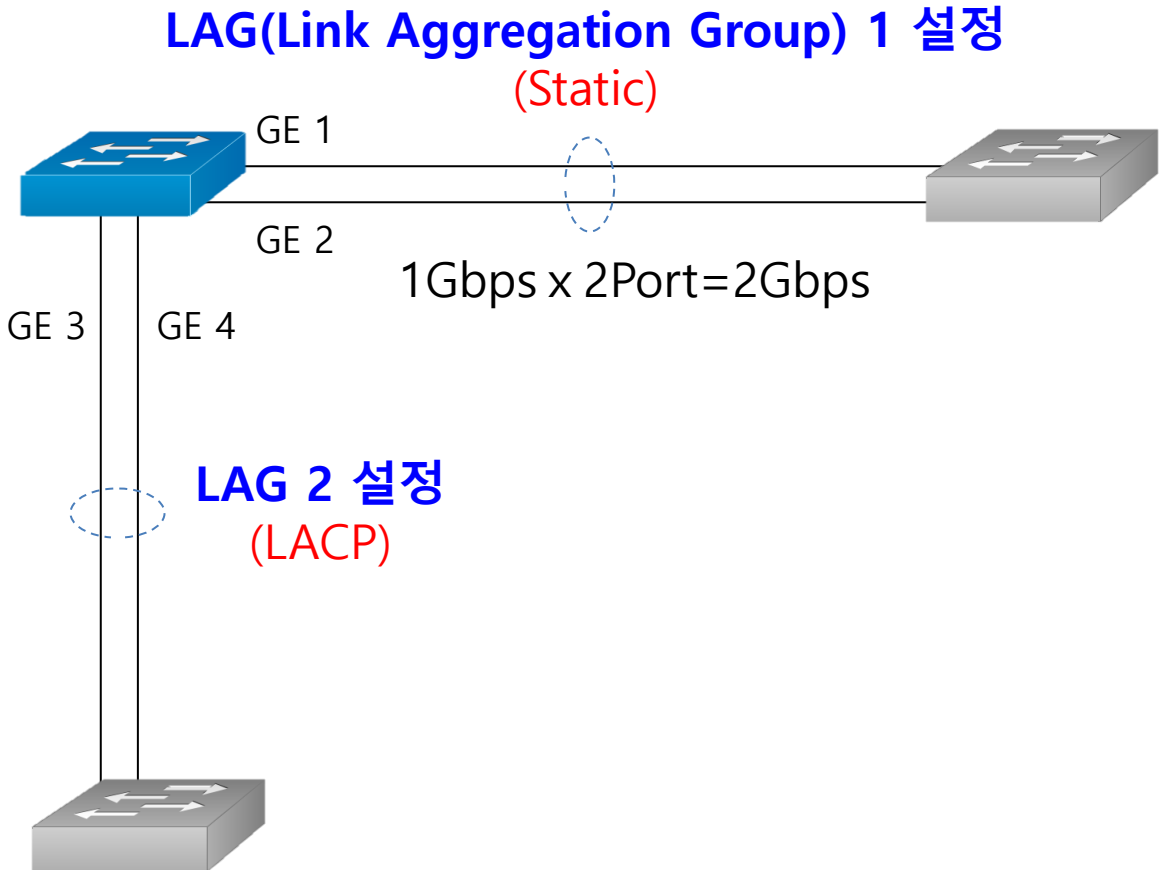
Port	GE1
State	<input type="checkbox"/> Enable
Path Cost	<input type="text" value="0"/> (0 - 200000000) (0 = Auto)
Priority	<input type="text" value="128"/>
Edge Port	<input checked="" type="radio"/> Auto <input type="radio"/> Enable <input type="radio"/> Disable
BPDU Filter	<input type="checkbox"/> Enable
BPDU Guard	<input type="checkbox"/> Enable
Point-to-Point	<input checked="" type="radio"/> Auto <input type="radio"/> Enable <input type="radio"/> Disable
Port State	Disabled
Designated Bridge	0-00-00-00-00-00-00
Designated Port ID	128-1
Designated Cost	20000
Operational Edge	False
Operational Point-to-Point	False

Path cost에 200,000 입력 후 적용

* Path Cost는 특정 포트 지정 차단 시 사용

* 기본값 : 1Gbps(20,000)

가. Link Aggregation 구성도(예시)



참고사항

- * Link Aggregation 종류
 - Static : 정적 작동, 일반적으로 널리 사용됨
스위치와 스위치 또는 스위치와 서버 간에 사용
 - LACP : 스위치 간에 프로토콜 통신으로 동적 작동
- * 최대 8포트까지 결합해서 사용 가능

5. Link Aggregation 설정



나. Link Aggregation Group 설정

WEB 메뉴

▷ Port

- Link Aggregation
- Group

- ▼ Status
- ▼ Network
- ▼ Port
 - Port Setting
 - Error Disabled
 - ▼ Link Aggregation
 - Group
 - Port Setting
 - LACP
 - EEE
 - Jumbo Frame
 - Port Security
 - Protected Port
 - Storm Control
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL

Port >> Link Aggregation >> Group

Load Balance Algorithm

- MAC Address
- IP-MAC Address
- Dst-MAC Address
- Src-MAC Address
- Dst-IP Address
- Src-IP Address

Apply

Link Aggregation Table

	LAG	Name	Type	Link Status	Active Member	Inactive Member
<input type="radio"/>	LAG 1	---	---	---		
<input type="radio"/>	LAG 2	---	---	---		
<input type="radio"/>	LAG 3	---	---	---		
<input type="radio"/>	LAG 4	---	---	---		
<input type="radio"/>	LAG 5	---	---	---		
<input type="radio"/>	LAG 6	---	---	---		
<input type="radio"/>	LAG 7	---	---	---		
<input type="radio"/>	LAG 8	---	---	---		

Edit

Edit Link Aggregation Group

LAG 1(static) 설정

LAG 1

Name:

Type: Static / LACP

Member:

Available Port	Selected Port
GE3 GE4 GE5 GE6 GE7 GE8 GE9 GE10	GE1 GE2

Apply Close

Edit Link Aggregation Group

LAG 2(LACP) 설정

LAG 2

Name:

Type: Static / LACP

Member:

Available Port	Selected Port
GE1 GE2 GE5 GE6 GE7 GE8 GE9 GE10	GE3 GE4

Apply Close

6. 시스템 관리

가. 설정 파일 다운로드

WEB 메뉴

- Management
 - Configuration
 - Upgrade/Backup

- ▼ Status
- ▼ Network
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management
 - User Account
 - ▼ Firmware
 - ▲ Configuration
 - Upgrade / Backup
 - Save Configuration

Management >> Configuration >> Upgrade / Backup

Action	<input type="radio"/> Upgrade
	<input checked="" type="radio"/> Backup
Method	<input type="radio"/> TFTP
	<input checked="" type="radio"/> HTTP
Configuration	<input checked="" type="radio"/> Running Configuration
	<input type="radio"/> Startup Configuration
	<input type="radio"/> Backup Configuration
	<input type="radio"/> RAM Log
	<input type="radio"/> Flash Log

→ 설정 파일 다운로드

→ running-config : 동작중인 설정값

→ startup-config : 저장되어있는 설정값

Apply

다운로드

파일 | 홈 | 공유 | 보기

즐거찾기에 고정 | 복사 | 붙여넣기 | 잘라내기 | 경로 복사 | 바로 가기 붙여넣기

클립보드

← → ↓ ↑ ↓ > 내 PC > 다운로드

이름

- 오늘 (2)
- running-config
- startup-config

설정 파일을 다운로드하여 PC에 스위치별로 보관할 경우 장애 시 백업 가능함

```
running-config (1) - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)
SYSTEM CONFIG FILE ::= BEGIN
! System Description: KT-NOS EL-G24E4G-POE Switch
! System Version: v1.0.0.5
! System Name: Switch
! System Up Time: 0 days, 0 hours, 24 mins, 56 secs
```

6. 시스템 관리

나. 설정 파일 업로드

WEB 메뉴

- Management
 - Configuration
 - Upgrade/Backup

- Status
- Network
- Port
- POE Setting
- VLAN
- MAC Address Table
- Spanning Tree
- ERPS
- Discovery
- DHCP
- Multicast
- Routing
- Security
- ACL
- QoS
- Diagnostics
- Management
 - User Account
 - Firmware
 - Configuration
 - Upgrade / Backup
 - Save Configuration

Management >> Configuration >> Upgrade / Backup

Action	<input checked="" type="radio"/> Upgrade → 설정 파일 업로드 <input type="radio"/> Backup
Method	<input type="radio"/> TFTP <input checked="" type="radio"/> HTTP
Configuration	<input type="radio"/> Running Configuration <input checked="" type="radio"/> Startup Configuration <input type="radio"/> Backup Configuration <input type="radio"/> RAM Log <input type="radio"/> Flash Log
Filename	파일 선택 선택된 파일 없음

Apply

파일 선택 | running-config (1).cfg

설정 방법

Configuration	<input checked="" type="radio"/> Running Configuration
	<input type="radio"/> Startup Configuration
	<input type="radio"/> Backup Configuration
	<input type="radio"/> RAM Log
	<input type="radio"/> Flash Log

- **running-config** : 장비 동작에 즉시 반영, 업로드 후 설정 저장 필요
- **startup-config** : 장비 재기동시 반영, 업로드 후 재기동 필요

6. 시스템 관리



다. SNMP Group 및 Version 설정

장비 출고 시 SNMP는 기본 Disable됨 (10page의 원격접속 설정 후 사용 가능)

WEB 메뉴

- Management
 - SNMP
 - Group

- Status
 - System Information
 - Logging Message
- Port
 - Link Aggregation
 - MAC Address Table
- Network
- Port
- POE Setting
- VLAN
- MAC Address Table
- Spanning Tree
- ERPS
- Discovery
- DHCP
- Multicast
- Routing
- Security
- ACL
- QoS
- Diagnostics
- Management
 - User Account
 - Firmware
 - Configuration
 - SNMP
 - View
 - Group
 - Community
 - User
 - Engine ID
 - Trap Event
 - Notification
 - RMON

Management >> SNMP >> Group

Group Table

Showing All entries

	Group	Version	Security Level	View		
				Read	Write	Notify
<input type="checkbox"/>						

Configure SNMP View to associate a non-default view with a group.

Add Edit Delete

SNMPv2 설정

SNMPv3 설정

Add Group

Group: **snmp2**

Version:
 SNMPv1
 SNMPv2
 SNMPv3

Security Level:
 No Security
 Authentication
 Authentication and Privacy

View:
 Read
all
 Write
all
 Notify
all

Apply Close

Add Group

Group: **snmp3**

Version:
 SNMPv1
 SNMPv2
 SNMPv3

Security Level:
 No Security
 Authentication
 Authentication and Privacy

View:
 Read
all
 Write
all
 Notify
all

Apply Close

SNMPv3 Security Level

- 보안 미사용
- 인증만 사용
- 인증과 암호화 사용

6. 시스템 관리

라. SNMP v1/v2 Community 설정

WEB 메뉴

- Management
 - SNMP
 - Community

- ^ Status
 - System Information
 - Logging Message
- ^ Port
 - Link Aggregation
 - MAC Address Table
- ^ Network
- ^ Port
- ^ POE Setting
- ^ VLAN
- ^ MAC Address Table
- ^ Spanning Tree
- ^ ERPS
- ^ Discovery
- ^ DHCP
- ^ Multicast
- ^ Routing
- ^ Security
- ^ ACL
- ^ QoS
- ^ Diagnostics
- ^ Management
 - User Account
 - Firmware
 - Configuration
 - SNMP
 - View
 - Group
 - Community
 - User
 - Engine ID
 - Trap Event
 - Notification
- ^ RMON

Management >> SNMP >> Community

Community Table

Showing All entries

<input type="checkbox"/>	Community	Group	View	Access
<input type="checkbox"/>	public		all	Read-Only

The access right of a community is defined by a group under advanced mode. Configure [SNMP Group](#) to associate a group with a community.

Add Edit Delete

시스템 기본값으로 설정

SNMP Group용으로 설정

Add Community

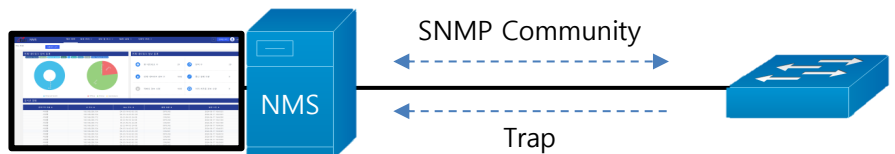
Community	aabbcc@1
Type	<input checked="" type="radio"/> Basic <input type="radio"/> Advanced
View	all
Access	<input checked="" type="radio"/> Read-Only <input type="radio"/> Read-Write
Group	1

Apply Close

Add Community

Community	aabbcc@1
Type	<input type="radio"/> Basic <input checked="" type="radio"/> Advanced
View	all
Access	<input type="radio"/> Read-Only <input type="radio"/> Read-Write
Group	snmp2

Apply Close



6. 시스템 관리



마. SNMP v3 User 설정

WEB 메뉴

- Management
 - SNMP
 - User

Management >> SNMP >> User

User Table

Showing All entries

<input type="checkbox"/>	User	Group	Security Level	Authentication Method	Privacy Method
--------------------------	------	-------	----------------	-----------------------	----------------

Configure [SNMP Group](#) to associate an SNMPv3 group with an SNMPv3 user.

Add Edit Delete

Add User

User	<input type="text" value="snmpuser"/>
Group	<input type="text" value="snmp3"/>
Security Level	<input type="radio"/> No Security <input type="radio"/> Authentication <input checked="" type="radio"/> Authentication and Privacy
Authentication	
Method	<input type="radio"/> None <input checked="" type="radio"/> MD5 <input type="radio"/> SHA
Password	<input type="text" value="aabbcc@1"/>
Privacy	
Method	<input type="radio"/> None <input checked="" type="radio"/> DES
Password	<input type="text" value="aabbcc@1"/>

인증용 Hash
설정

암호 알고리즘
설정

* Password는 8자리
이상 입력

Apply Close

6. 시스템 관리



바. SNMP Trap 설정

WEB 메뉴

- Network Admin
 - SNMP
 - Notification

- Status
 - System Information
 - Logging Message
- Port
 - Link Aggregation
 - MAC Address Table
- Network
 - Port
 - POE Setting
 - VLAN
 - MAC Address Table
 - Spanning Tree
 - ERPS
 - Discovery
 - DHCP
 - Multicast
 - Routing
 - Security
 - ACL
 - QoS
 - Diagnostics
- Management
 - User Account
 - Firmware
 - Configuration
 - SNMP
 - View
 - Group
 - Community
 - User
 - Engine ID
 - Trap Event
 - Notification
 - RMON

Management >> SNMP >> Notification

Notification Table

Showing All entries

<input type="checkbox"/>	Server Address	Server Port	Timeout	Retry	Version	Type	Community / User	Security Level
--------------------------	----------------	-------------	---------	-------	---------	------	------------------	----------------

For SNMPv1,2 Notification, SNMP Community needs to be defined.
For SNMPv3 Notification, SNMP User must be created.

Add Edit Delete

Add Notification

Address Type	<input type="radio"/> Hostname <input checked="" type="radio"/> IPv4 <input type="radio"/> IPv6
Server Address	<input type="text" value="192.168.0.100"/>
Version	<input type="radio"/> SNMPv1 <input checked="" type="radio"/> SNMPv2 <input type="radio"/> SNMPv3
Type	<input checked="" type="radio"/> Trap <input type="radio"/> Inform
Community / User	<input type="text" value="public"/>
Security Level	<input checked="" type="radio"/> No Security <input type="radio"/> Authentication <input type="radio"/> Authentication and Privacy
Server Port	<input checked="" type="checkbox"/> Use Default <input type="text" value="162"/>
Timeout	<input checked="" type="checkbox"/> Use Default <input type="text" value="15"/>
Retry	<input checked="" type="checkbox"/> Use Default <input type="text" value="3"/>

Apply Close

NMS 서버 주소 설정
(Trap 수신 및 경고 시현)

Trap 이벤트 항목은
Default로 Enable되어 있음

Management >> SNMP >> Trap Event

Authentication Failure	<input checked="" type="checkbox"/> Enable
Link Up / Down	<input checked="" type="checkbox"/> Enable
Cold Start	<input checked="" type="checkbox"/> Enable
Warm Start	<input checked="" type="checkbox"/> Enable

Apply

사. Syslog

WEB 메뉴

- ▽ Diagnostics
 - ▷ Logging
 - Remote Server

Diagnostics >> Logging >> Remote Server

Remote Server Table

<input type="checkbox"/>	Entry	Server Address	Server Port	Facility	Minimum Severity
--------------------------	-------	----------------	-------------	----------	------------------

Add Edit Delete

Add Remote Server

Address Type: Hostname IPv4 IPv6

Server Address:

Server Port: (1 - 65535, default 514)

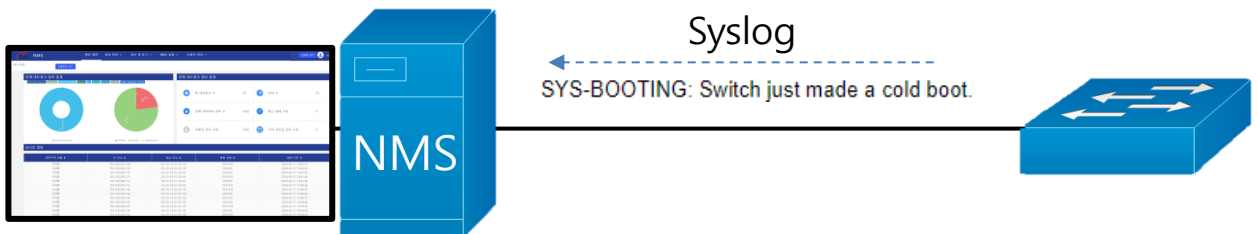
Facility:

Minimum Severity:

Note: Emergency, Alert, Critical, Error, Warning, Notice

Apply Close

**NMS 서버 주소 설정
(Syslog 수신 및 저장, 경고 시현)**



192.168.0.100

6. 시스템 관리



아. 시스템 시간 설정

* SNTP : Simple Network Time Protocol

WEB 메뉴

Network

System Time

- ▼ Status
- ▼ Network
 - DNS
 - Hosts
 - System Time
- ▼ Port
- ▼ POE Setting
- ▼ VLAN
- ▼ MAC Address Table
- ▼ Spanning Tree
- ▼ ERPS
- ▼ Discovery
- ▼ DHCP
- ▼ Multicast
- ▼ Routing
- ▼ Security
- ▼ ACL
- ▼ QoS
- ▼ Diagnostics
- ▼ Management

Network >> System Time

Source	<input type="radio"/> SNTP <input type="radio"/> From Computer <input checked="" type="radio"/> Manual Time
Time Zone	UTC +8:00
SNTP	
Address Type	<input checked="" type="radio"/> Hostname <input type="radio"/> IPv4
Server Address	
Server Port	123 (1 - 65535, default 123)
Manual Time	
Date	2023-01-02 YYYY-MM-DD
Time	06:35:22 HH:MM:SS
Daylight Saving Time	
Type	<input checked="" type="radio"/> None <input type="radio"/> Recurring <input type="radio"/> Non-recurring <input type="radio"/> USA <input type="radio"/> European
Offset	60 Min (1 - 1440, default 60)
Recurring	From: Day Sun Week First Month Jan Time To: Day Sun Week First Month Jan Time
Non-recurring	From: YYYY-MM-DD HH:MM To: YYYY-MM-DD HH:MM
Operational Status	
Current Time	2023-01-02 06:35:22 UTC+8

시스템 날짜 및 시간
수동 설정

Apply

설정 방법

Source	<input checked="" type="radio"/> SNTP <input type="radio"/> From Computer <input type="radio"/> Manual Time
Time Zone	UTC +8:00
SNTP	
Address Type	<input checked="" type="radio"/> Hostname <input type="radio"/> IPv4
Server Address	192.168.0.100
Server Port	123 (1 - 65535, default 123)

NTP 서버에서
기준 시간 수신

NTP 서버 주소

* SNTP : Simple Network Time Protocol, NTP와 기능 동일
핵심 기능만 단순화

Apply

6. 시스템 관리

자. 접근 통제 ACL 생성

* ACL : Access Control List

WEB 메뉴

- Security
 - Management Access
 - Management ACL

- Status
- Network
- Port
- POE Setting
- VLAN
- MAC Address Table
- Spanning Tree
- ERPS
- Discovery
- DHCP
- Multicast
- Routing
- Security
 - RADIUS
 - TACACS+
 - AAA
 - Management Access
 - Management Service
 - Management ACL
 - Management ACE
 - Authentication Manager

Security >> Management Access >> Management ACL

ACL Name

Apply

Management ACL Table

Showing All entries

<input type="checkbox"/>	ACL Name	State	Rule
<input type="checkbox"/>			

Active Deactive Delete



ACL Name

Apply **ACL 생성**

Management ACL Table

Showing All entries **ACL 생성 확인**

<input type="checkbox"/>	ACL Name	State	Rule
<input type="checkbox"/>	test	Deactive	0

Active Deactive Delete

ACL Active는 다음 단계인 ACE 설정 후 실행

6. 시스템 관리



차. 접근 통제 ACE 설정

* ACL : Access Control Equipment

WEB 메뉴

- ▽ Security
 - ▷ Management Access
 - Management ACE

- ▽ Status
- ▽ Network
- ▽ Port
- ▽ POE Setting
- ▽ VLAN
- ▽ MAC Address Table
- ▽ Spanning Tree
- ▽ ERPS
- ▽ Discovery
- ▽ DHCP
- ▽ Multicast
- ▽ Routing
- ▽ Security
 - RADIUS
 - TACACS+
 - ▽ AAA
 - △ Management Access
 - Management Service
 - Management ACL
 - Management ACE
 - ▽ Authentication Manager

Security >> Management Access >> Management ACE

Management ACE Table

ACL Name (Active)

Showing entries

<input type="checkbox"/>	Priority	Action	Service	Port	Address / Mask
<input type="button" value="Add"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>					

Edit Management ACE

ACL Name	test	→ 사용할 ACL 명칭 선택				
Priority	1					
Service	<input type="radio"/> All <input type="radio"/> Http <input type="radio"/> Https <input type="radio"/> Snmp <input type="radio"/> SSH <input checked="" type="radio"/> Telnet	WEB, SNMP, TELNET, SSH 접속에 접근 통제 기능 설정				
Action	<input checked="" type="radio"/> Permit <input type="radio"/> Deny	→ 지정된 IP 주소만 시스템 접근 허용				
Port	<table border="0"> <tr> <td>Available Port</td> <td>Selected Port</td> </tr> <tr> <td> GE2 LAG1 LAG2 LAG3 LAG4 LAG5 LAG6 LAG7 </td> <td> GE1 GE3 GE4 GE5 GE6 GE7 GE8 GE9 </td> </tr> </table>	Available Port	Selected Port	GE2 LAG1 LAG2 LAG3 LAG4 LAG5 LAG6 LAG7	GE1 GE3 GE4 GE5 GE6 GE7 GE8 GE9	접속 포트 설정 (접속 포트 불명확시 전체 포트 지정)
Available Port	Selected Port					
GE2 LAG1 LAG2 LAG3 LAG4 LAG5 LAG6 LAG7	GE1 GE3 GE4 GE5 GE6 GE7 GE8 GE9					
IP Version	<input type="radio"/> All <input checked="" type="radio"/> IPv4 <input type="radio"/> IPv6	접속 IP 설정				
IPv4	<input type="text" value="192.168.0.100"/> / <input type="text" value="255.255.255.255"/>					
IPv6	<input type="text" value=""/> / <input type="text" value="128"/> (1 - 128)					

ACE 설정 완료 후 ACL Active 실행해야 동작함!

고객이 필요한 시스템을 연구 개발하고
최고의 만족을 위해 노력합니다.



*NETWORK를
선도하는 기업!*