FINETAGESL

INSTALLATION MANUAL

* Make sure you read ‘Cautions in Use’ before using it.
* The appearance and composition of the product may differ from the image.

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The year above is when this manual is written.

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About This Manual.

- You are welcomed as a new customer of ©FINETEK.

- For proper use of the product you purchased, please understand this manual before use. It will help you operate the product if you frequently refer to this manual.

- This manual guides you to install and use the product. If any explanation is missing, the Windows screen may be captured for explanation.

- This manual is written for ordinary users and may not explain internal technical issues.

- This manual may not contain information on certain computer hardware or operation system used in the product, application software in use, etc.

- Being unable to use the whole image when explaining a computer screen, some of the screens are explained by using text.

- ©FINETEK is consistently improving all products and there are changes and improvement in technology at any time.Thus, some changes, remodeling and improvement may not be reflected in this manual.

Cautions in Use

Before using the product, make sure to read 'Cautions in Use' for proper use. 'Cautions in Use' deal with important materials regarding safety, so make sure you stick to them.

Danger	When used wrong, it may be highly dangerous.

- There is danger of fire or electric shock for the following.
  - ✓ Connect the product power cord only to the AC socket specified in the use manual or product manual.
  - ✓ Do not spill water in the product nor expose the product to moisture. Never touch the power plug with wet hand
  - ✓ Do not place heavy object (including this product itself) on the power cord. The power cord may be damaged.
  - ✓ Do not place a container with liquid or small metal object on the product. The liquid or metal object may enter the product.
  - ✓ Do not scratch, bend, twist, pull or heat the power cord to damage it.
  - ✓ Do not remove the product case on your own.
  - ✓ Do not remodel the product by yourself.
  - ✓ Use the power cord enclosed with this product. Do not use any other cords.
  - ✓ There is danger of electric shock. In case you need internal inspection or maintenance, contact a franchise store.
- In case of smoke, smell, noise or alien substance or liquid enters the product, immediately turn off the power and unplug the power cord.There is danger of fire or electric shock when the product is used in this situation, so request repair to a franchise store.
- When the product is dropped or damaged, turn off the power and unplug the power cord. There is danger of fire or electric shock when the product is used in this situation, so request repair to a franchise store.
- Do not leave the power cable or other tables on passages. People may trip over.

Cautions in Use

Caution	When used wrong, it may cause small damages.

- When the product is stained, use soft cloth or towel to wipe. Never use chemical solution (thinner, solvent, etc.) for wiping.
- Never use or leave the product in the following places
  - A place too cold or hot
  - A place with high moisture or dramatic temperature change
  - Dusty place
- Do not place a magnetic object around this product.
- Static electricity may damage the internal parts of this product.Release static electricity within your body before touching the terminal of the product backside or the electric parts in the product.
- When assumed that the product is damaged beyond repair, or that its lifespan is over, observe the local regulations for disposal of lead, battery, plastic, etc.

Important	Refers to requirements, limitations in manipulation. Handle the product properly to prevent damages.

- This product may not operate normally due to unstable power or electric shock. Make sure to use proper power.
- When connected with an external device, it may malfunction due to external factors. Use verified external device. Also, have the product regularly inspected by installation experts.

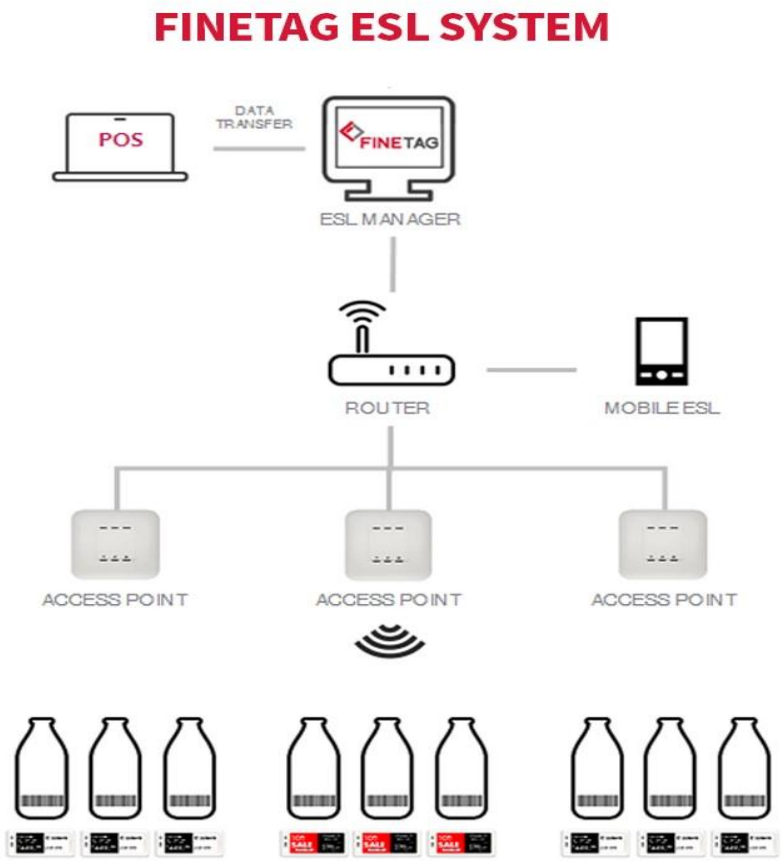
Chapter

I

Product Composition

1. System Composition

- System flow chart



-. **POS:** Market management server with product and price information

-. **ESL Manager:** A server that receives data from POS and sends data to AP and checks operation status of AP and TAG

-. **Router :**Path connecting server to distributed AP

-. **AP :**The role of receiving and transmitting TAG and data over wireless communication by receiving data from ESL Manager server through TCP/IP.

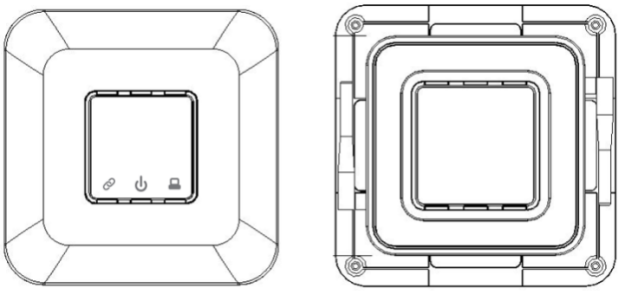
-. **TAG:** The role of displaying data by receiving it via wireless communication from AP.

2. System Operation Specifications

Number of Tags managed per AP	Maximum4,000 units
Distance between APand Tag for communication	Maximum 20m

Important	✓ **There may be variance depending on installation environment, network status and other conditions.**

3. AP Specifications



<Front Side><Rear Side>

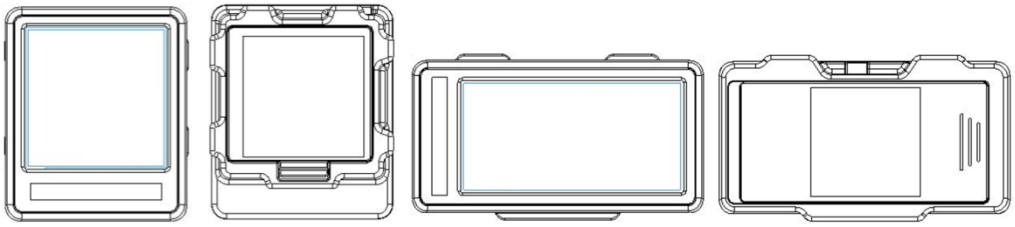
Model	FNTAP	
INDICATOR	LED Color	Sign
	Red	Power
	Green	Ethernet link
	Amber	Ethernet Activate
	Blue/Red	Operation Active(Blue) / Error(Red)
Network	Ethernet (10/100 Base)	
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area: Radius Max. 30m (Line of Sight)	
Antenna	External Dipole Antenna, 3.05dBi	
Approval	FCC,KC	
ROHS	ROHS Compliance	
Power	DC	5V / 3A
	PoE	IEEE802.3af Class 1
Operating Temperature	5°C ~ 40°C / 41°F~104°F	
Operating Humidity	0%~80% / non-condensing	
Size	210mm x 210mm x 40mm(H)	
Weight	445g	

Model	AP
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee)
	3.5 dBm (RF1), 2.5 dBm (RF2)
Available Transmit Power Setting	2.4GHz
	20.0 dBm (100mW)
	18.2 dBm (66mW)
	16.4 dBm (44mW)
	14.2 dBm (27mW)
	11.7 dBm (15mW)
	09.2 dBm (9mW)

Caution: Maximum transmission power setting complies with regulations for each channel or country.

4. TAG Specifications

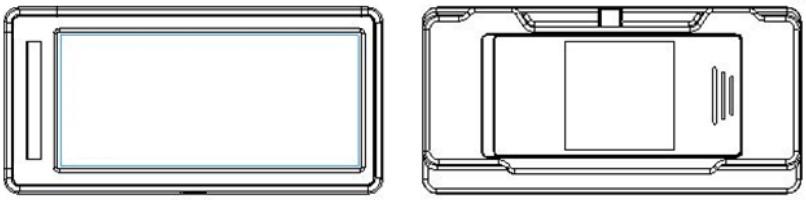
①FNT16, FNT22



<FNT16><FNT22>

Model	FNT16	FNT22
Display	e-Paper 1.6" Matrix	e-Paper 2.2" Matrix
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area : Radius Max. 30m (Line of Sight)	
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee) 2 dBm	
Approval	FCC, KC	
ROHS	ROHS Compliance	
Power	Coin Battery CR2450 x 1	Coin Battery CR2450 x 2
Operating Temperature	0°C ~ 40°C / 41°F~104°F	
Size	36.6mm x 43.2mm x 12.4mm (H)	65.1mm x 34 mm x 12.4mm (H)
Weight	12.28g	18.27g

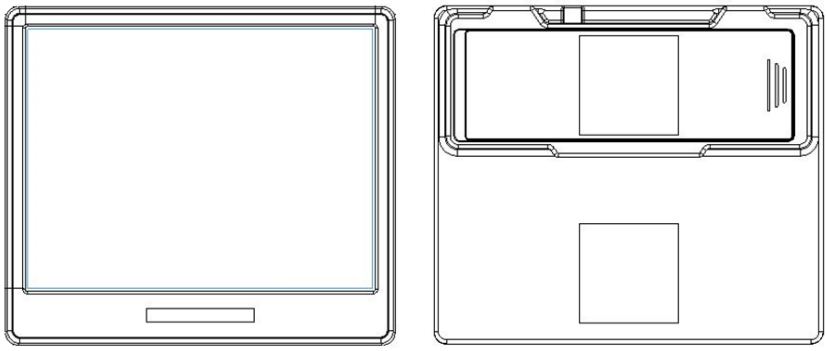
②FNT29



<FNT29>

Model	FNT29
Display	e-Paper 2.9" Matrix
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area : Radius Max. 30m (Line of Sight)
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee) 0 dBm
Approval	TBD
ROHS	ROHS Compliance
Power	Coin Battery CR2450 x 2
Operating Temperature	0°C ~ 40°C / 41°F~104°F
Size	84.9mm x 41.5mm x 12.4mm
Weight	27.35g

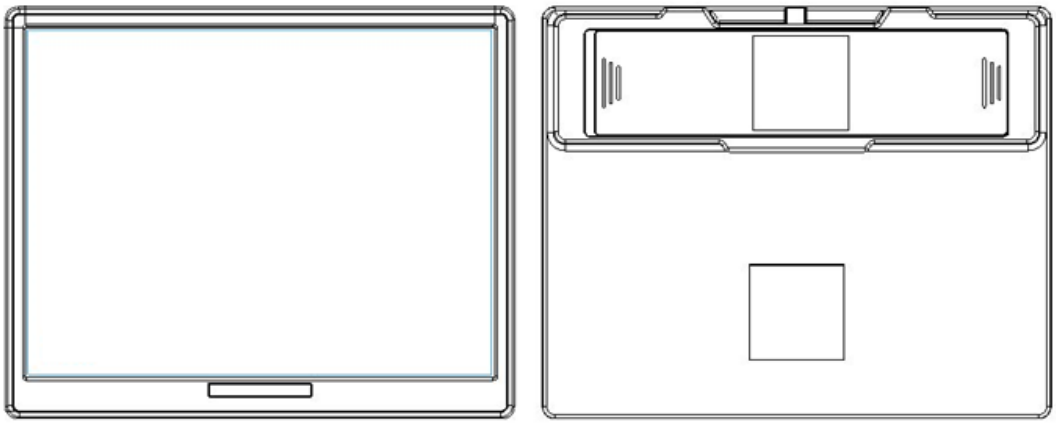
③FNT42



<FNT42>

Model	FNT42
Display	e-Paper 4.2" Matrix
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area : Radius Max. 30m (Line of Sight)
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee) 2 dBm
Approval	FCC, KC
ROHS	ROHS Compliance
Power	Coin Battery CR2450 x 3
Operating Temperature	0°C ~ 40°C / 41°F~104°F
Size	95.8mm x 82.9mm x 13.2mm
Weight	68.88g

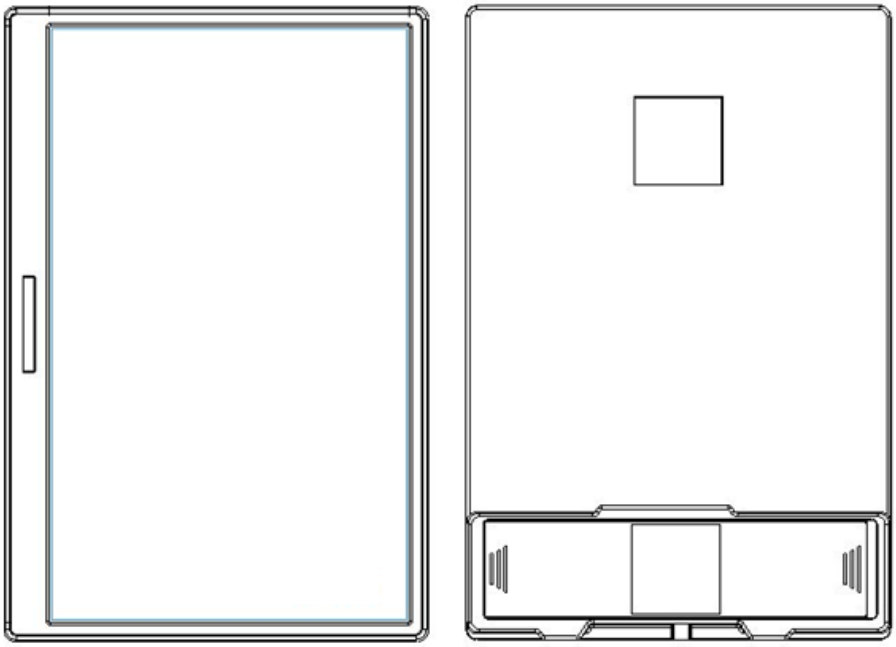
④FNT58



<FNT58>

Model	FNT58
Display	e-Paper 5.8" Matrix
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area : Radius Max. 30m (Line of Sight)
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee) -0.5 dBm
Approval	TBD
ROHS	ROHS Compliance
Power	Coin Battery CR2450 x 4
Operating Temperature	0°C ~ 40°C / 41°F~104°F
Size	130.2mm x 105.4mm x 13.2mm
Weight	124.60g

⑤FNT75



<FNT75>

Model	FNT75
Display	e-Paper 7.5" Matrix
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area : Radius Max. 30m (Line of Sight)
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee) 2 dBm
Approval	TBD
ROHS	ROHS Compliance
Power	Coin Battery CR2450 x 4
Operating Temperature	0°C ~ 40°C / 41°F~104°F
Size	117.1mm x 175mm x 13.2mm
Weight	184g

⑥Specifications

Hardware / Software Version:

ITEM	S/W	H/W
AP	FE_AP V2.1	V2.7
FNT22R	TAG_22_2.1	V2.1
FNT29R	TAG_29_2.1	V2.1
FNT42R	TAG_42_2.1	V2.1
FNT58R	TAG_58_2.1	V2.1
FNT75R	TAG_75_2.1	V2.1

Operating Temperature**:5°C ~ 40°C / 41°F~104°F**

Distance :**Radius Max. 30m (Line of Sight)**

Transmission :2.4GHz - 802.15.4 (Zigbee)

Output Power :

(Unit : dBm)

MODEL	Target	Tolerance	Max
FNT22R	0	±2	2
FNT29R	-2	±2	0
FNT42R	0	±2	2
FNT58R	-2.5	±2	-0.5
FNT75R	0	±2	2
AP RF1	1.50	±2	3.50
AP RF2	0.50	±2	2.50

Operating Frequency :**2 405㎒ ~2 480㎒ (2 405㎒,2 440㎒,2 480㎒)**

Antenna Type and Location : TAG(IFA Antena) / AP(Dipole Antenna)

Antenna Gain **Max gain (dBi)**

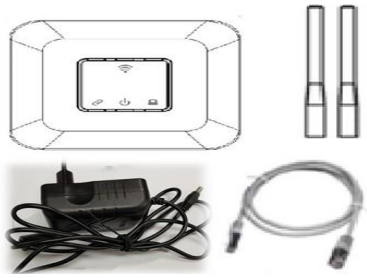
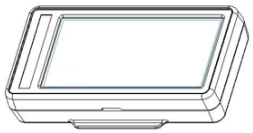
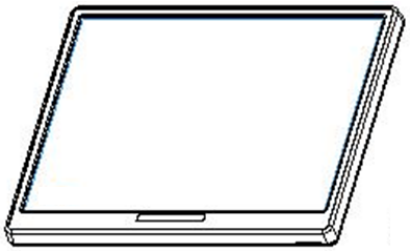
Item	TAG	AP
MAX Gain	5.3	3.05

5. Remote Control Specifications

<IDRM1A>

Model	IDRM1A
Display	LED Display (Red : Click / Blue : Link)
Wireless Communication	IEEE 802.15.4 Based on 2.4GHz ISM Band, Data Rate: 250Kbps, Service Area : Radius Max. 30m (Line of Sight)
Maximum Transmit Power	2.4GHz - 802.15.4 (Zigbee) 10 dBm (10mW)
Approval	FCC, KC
ROHS	ROHS Compliance
Power	Battery 12V 23A
Operating Temperature	0°C ~ 40°C / 41°F~104°F
Size	92mm x 40mm x 15mm
Weight	40g

6. Product Kit Composition

Product Display Access Point (AP)	AP Power adaptor (DC 5V/3A) RJ-45 ethernet cable Exterior antenna	
Product Display(TAG – FNT16)	TAG 1.6inch	
Product Display(TAG – FNT22)	TAG 2.2 inch	
Product Display(TAG – FNT29)	TAG 2.9inch	
Product Display(TAG – FNT42)	TAG 4.2inch	
Remote Control (TAG – FNT58)	TAG 5.8inch	

Product Display(TAG – FNT75)	TAG 7.5inch	
Product Display Remote Control	Remote control (IDRM1A)	

Chapter

II

Installation

1. Software Installation

1.1 Recommended Specifications for Installation Computer

Installation of FINETAG ESL requires the following computer specifications:

Item	Requirement	
	Minimum	Recommended
OS	Windows 7 SP164 or above 64bit	Windows 10 64bit
Memory	4GB or higher	8GB or higher
Disk	HDD 10GB or higher	SSD 20GB or higher
Processor	Intel Celeron 2.4 GHz or higher	Intel i7 or higher
Ethernet	100M/1Gbps or higher	100M/1Gbps or higher

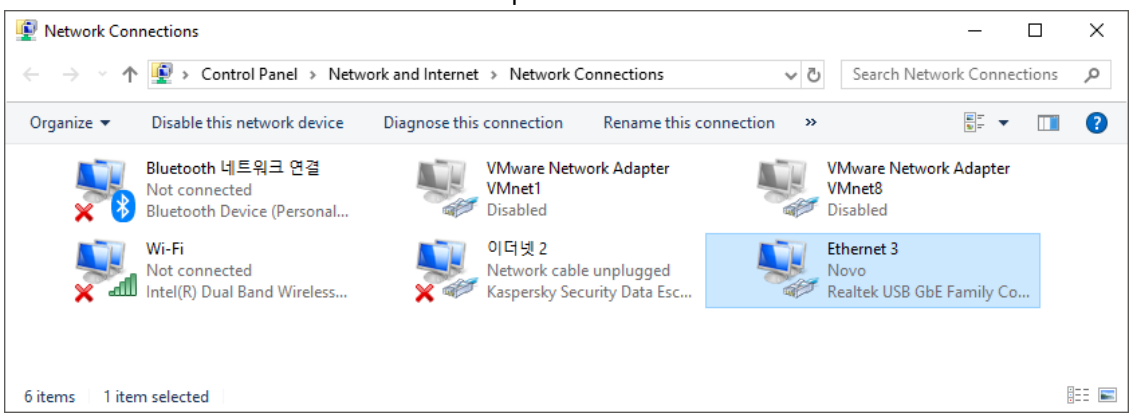
1.2 Installed Software

FINETAG ESLsystem requires following software installed

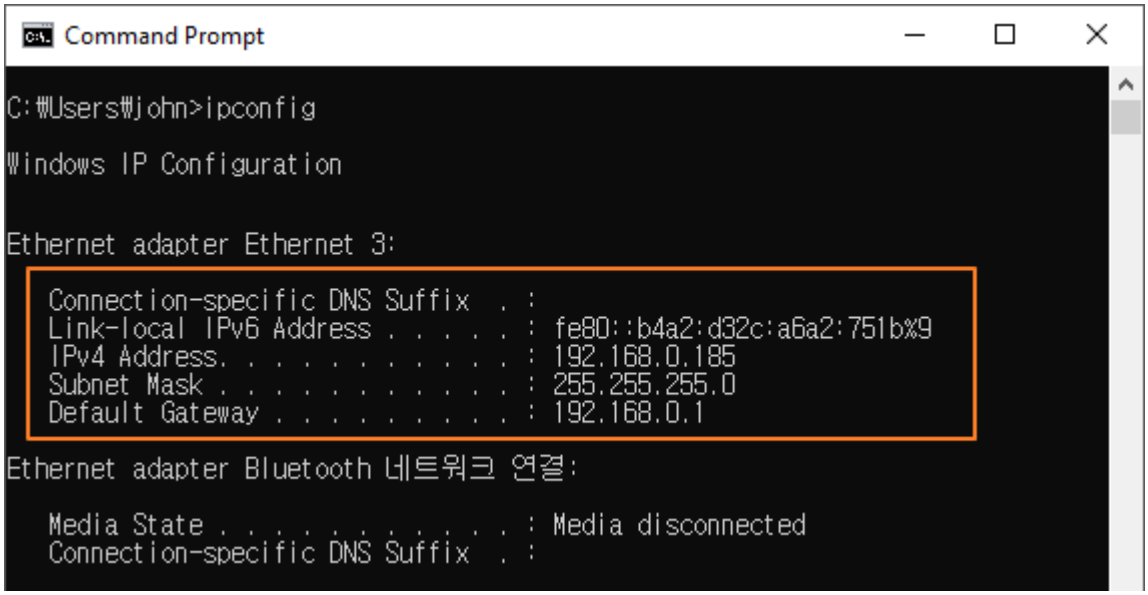
- Nginx (Web Server)
- MariaDB(Database Server)
- ESL Server

1.3 Preparations before Installation

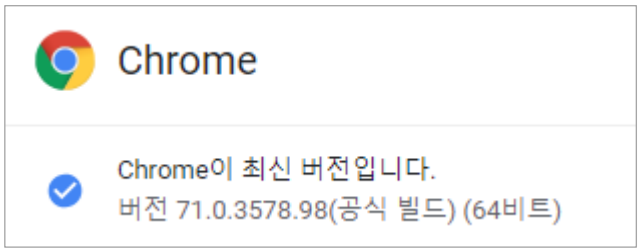
LAN should be connected to the computer to be installed and activated.



IP must be granted to the computer to be installed.



The latest version of Google Chrome browser must be installed on the computer.



(Chrome, the latest version : v71.0.3578.98 (64bit)

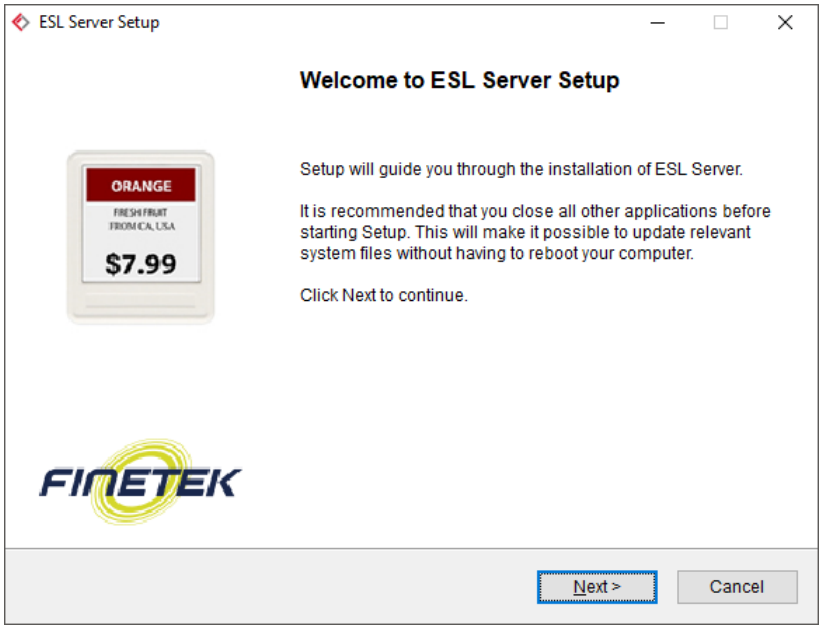
1.4 Software Installation

1. Check the installation file name.

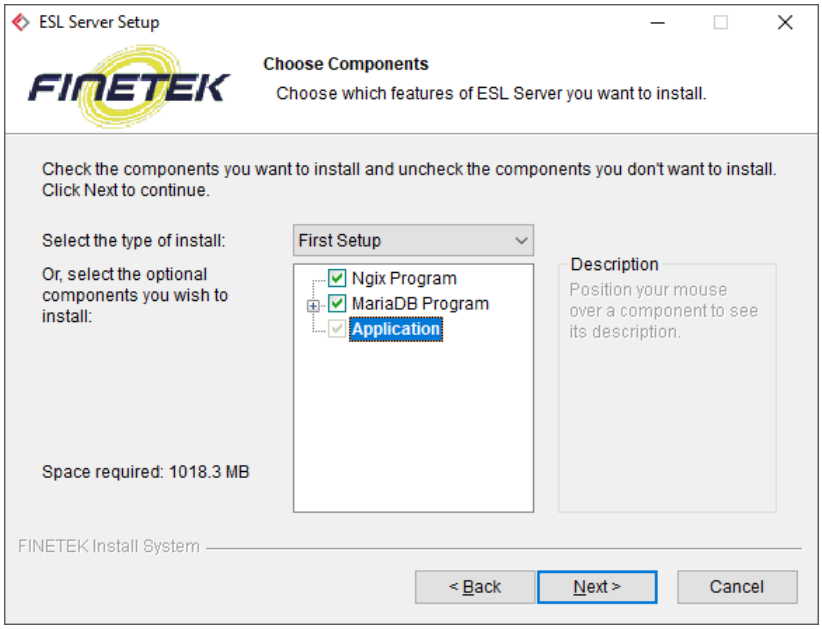
ESL Server Installer v1.2.0 x64 [Store].exe	2019-01-07 오후 10:26	133,091KB

*The file name differs depending on the software version provided.

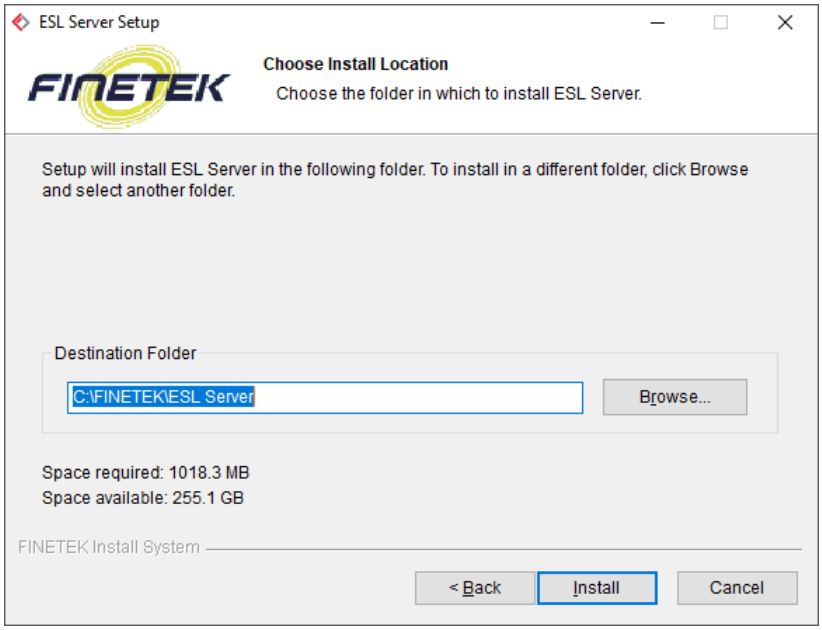
2. Launch the installation file and click on [Next].



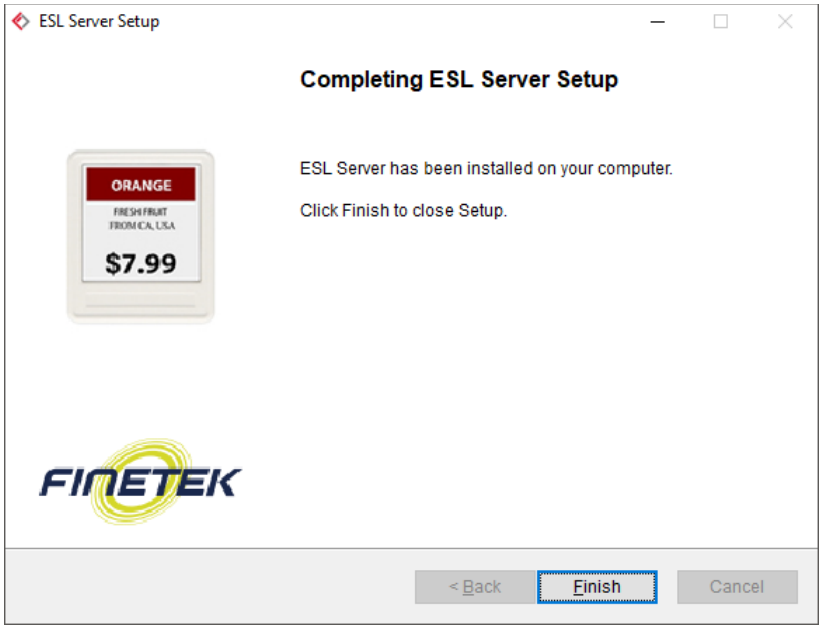
3. Check the installation items and click on [Next].



4. Check the destination folder and click on [Install].



5. Confirm installation completion and click on [Finish].



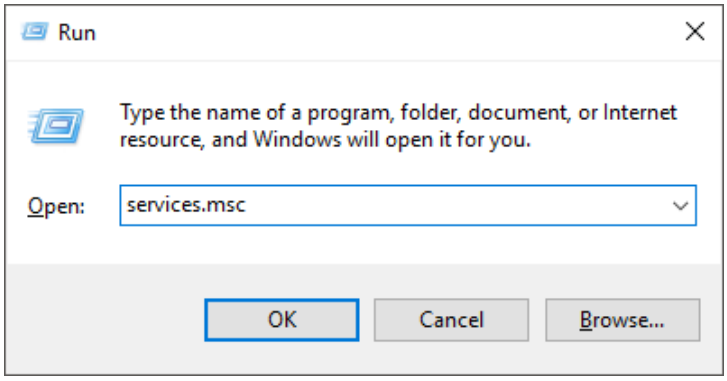
6. Find the icon below on the desktop.

1.5 Check Software Status.

FINETAG ESL is automatically executed upon installation.Use Windows Services Manager to check if the software operates well.

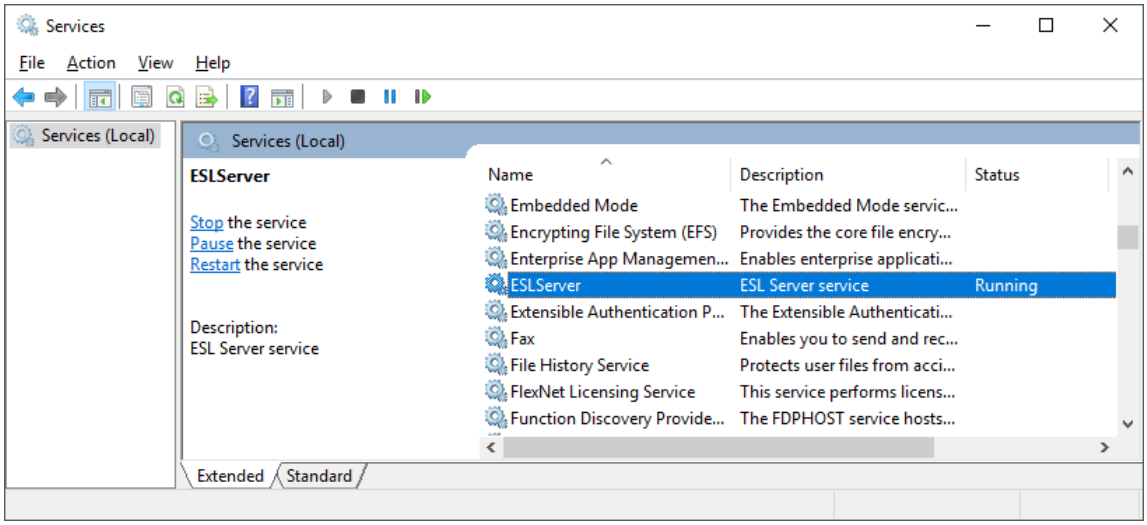
1.5.1 How to Execute Windows Services Manager

1. PressWindows+R to execute Run.
2. Enter “services.msc” and click on [OK].



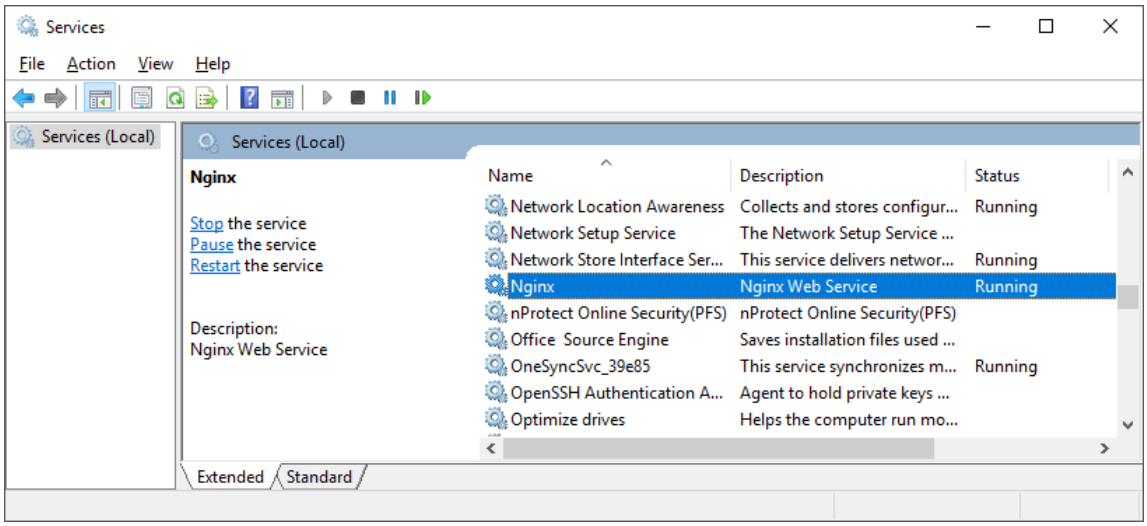
1.5.2 ESL Server Check

Check on Windows Services Manager to confirm“ESL Server”isRunning.



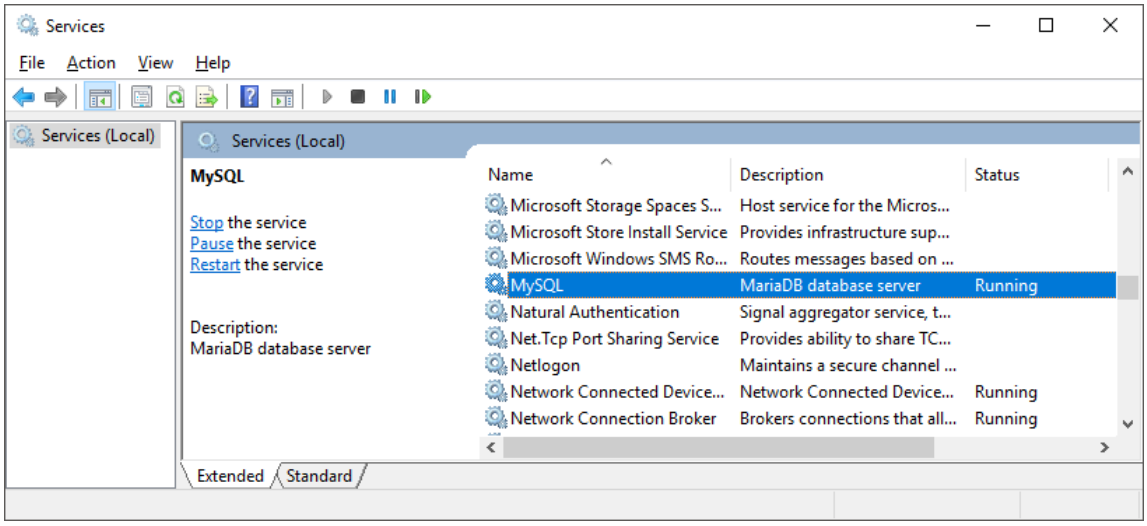
1.5.3 Check Nginx Web Server

Check that "Ngnix" is Running on Windows Services Manager.



1.5.4 Check MariaDBDatabase Server

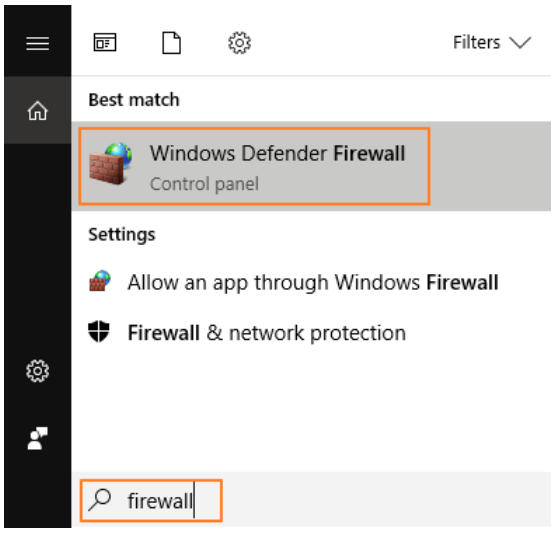
Check that "MySQL" is Running on Windows Services Manager.



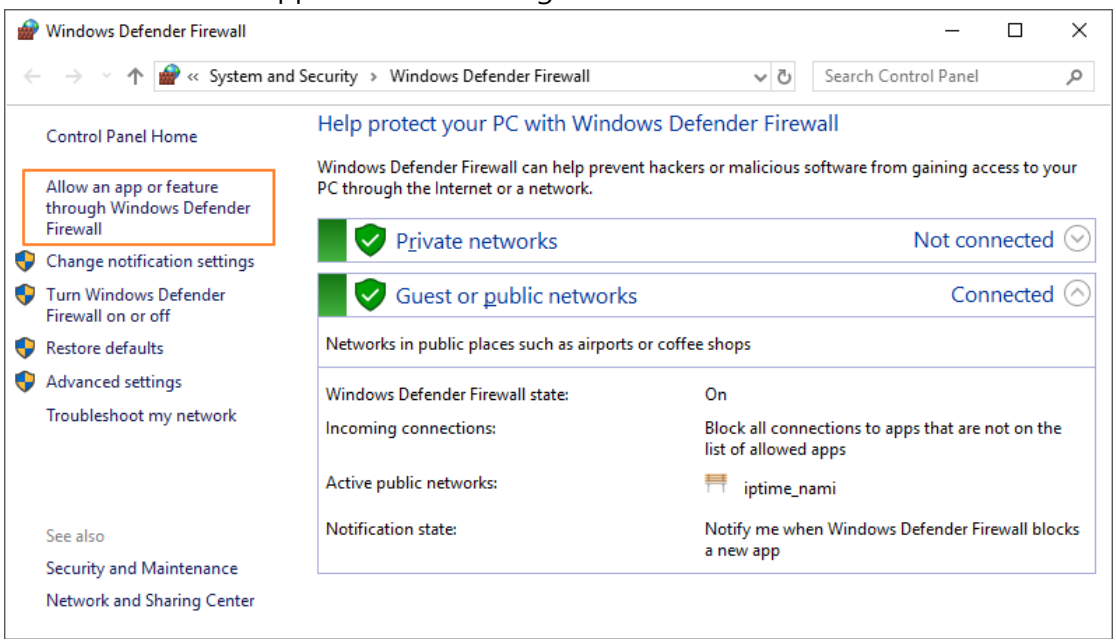
1.6 Computer Setting

1.6.1 Add on Windows Defender Firewall List

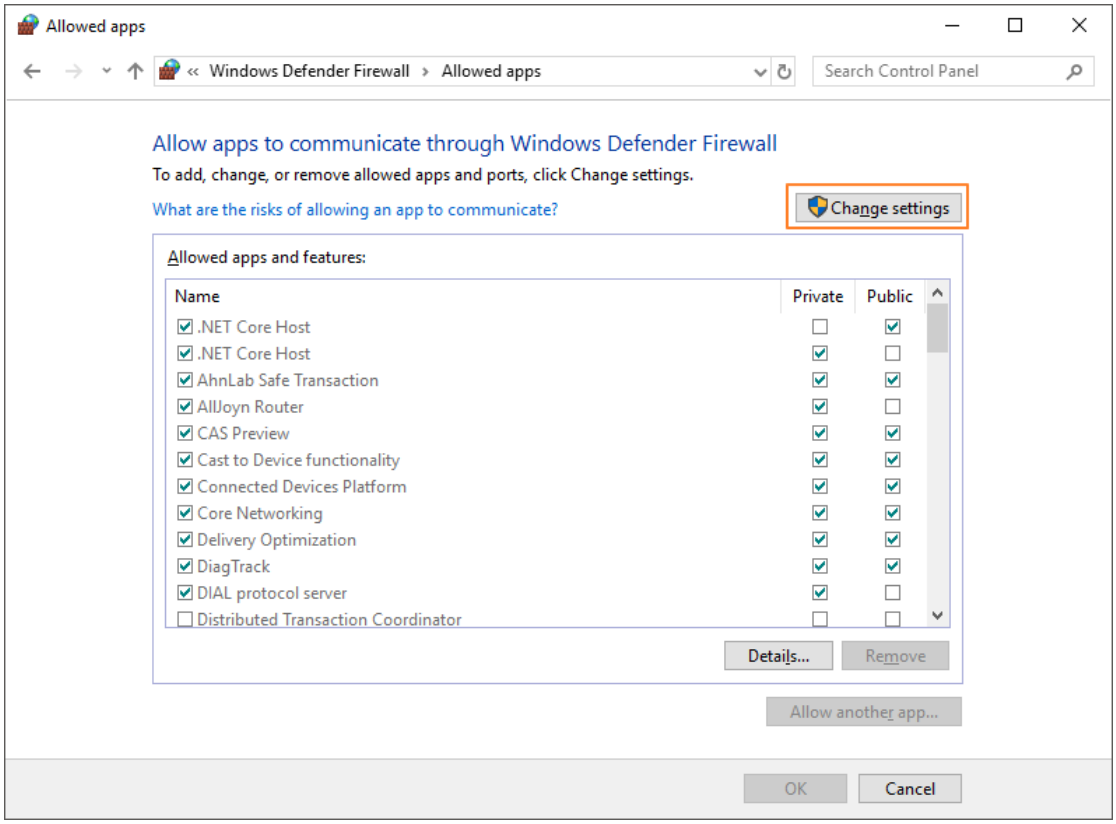
1. Type "firewall" in Windows start menu search bar.
2. Select [Windows Defender Firewall].



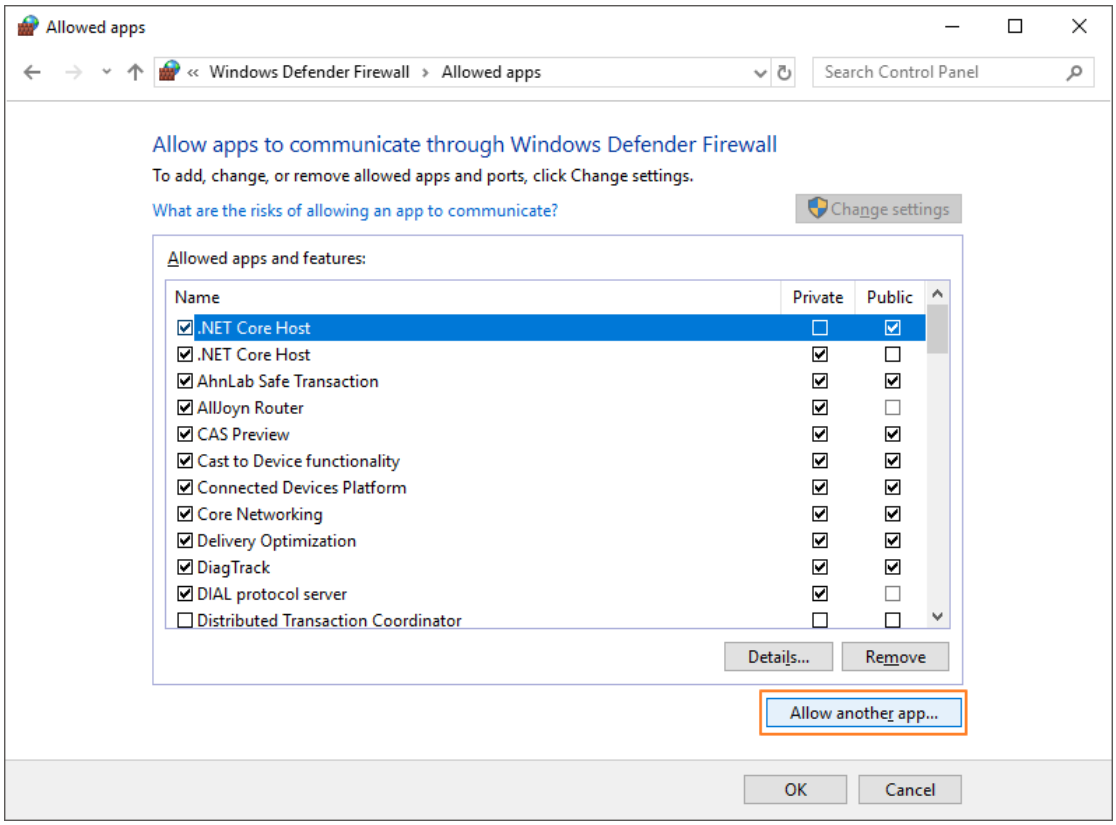
3. Click on "Allow an app or feature through Windows Defender Firewall".



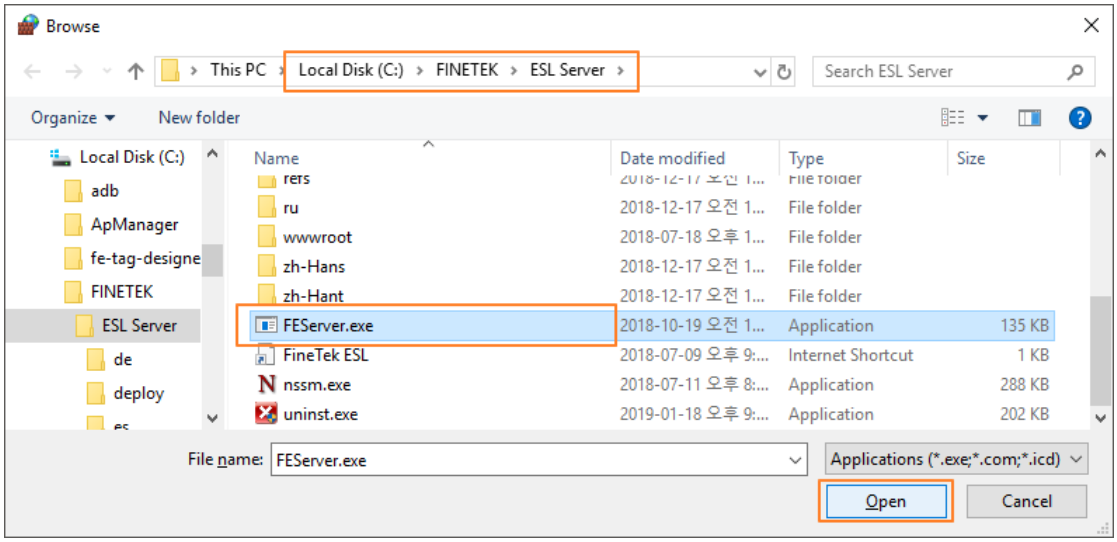
4. Click on [Change settings] to activateappslist.



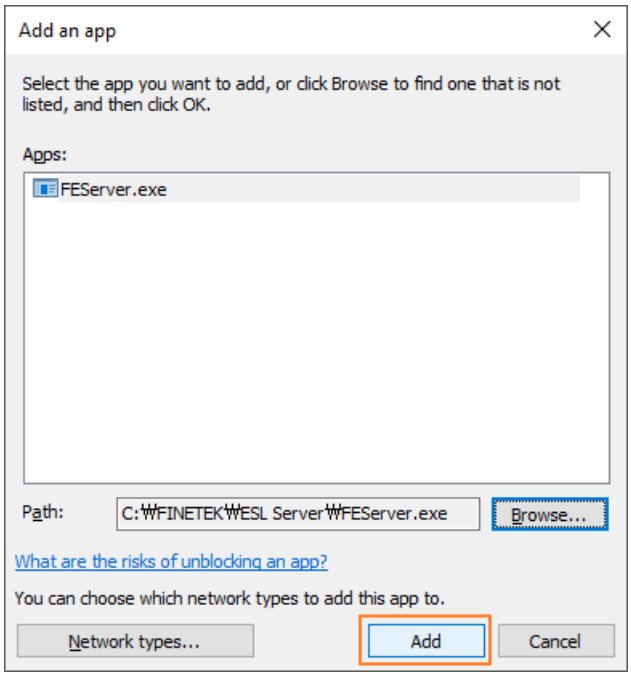
5. Click on [Allow another app].



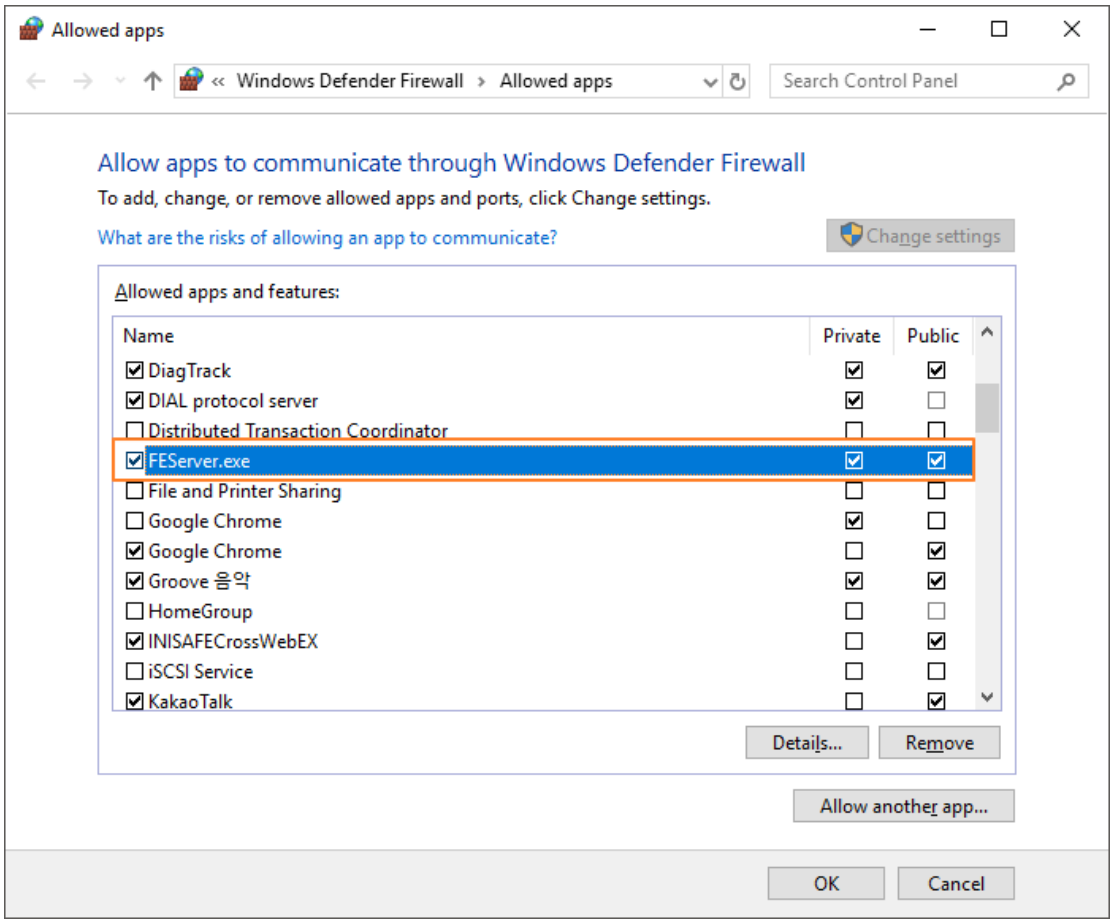
6. Select C:₩FINETEK₩ESL Server₩FEServer.exefile and click on [Open].



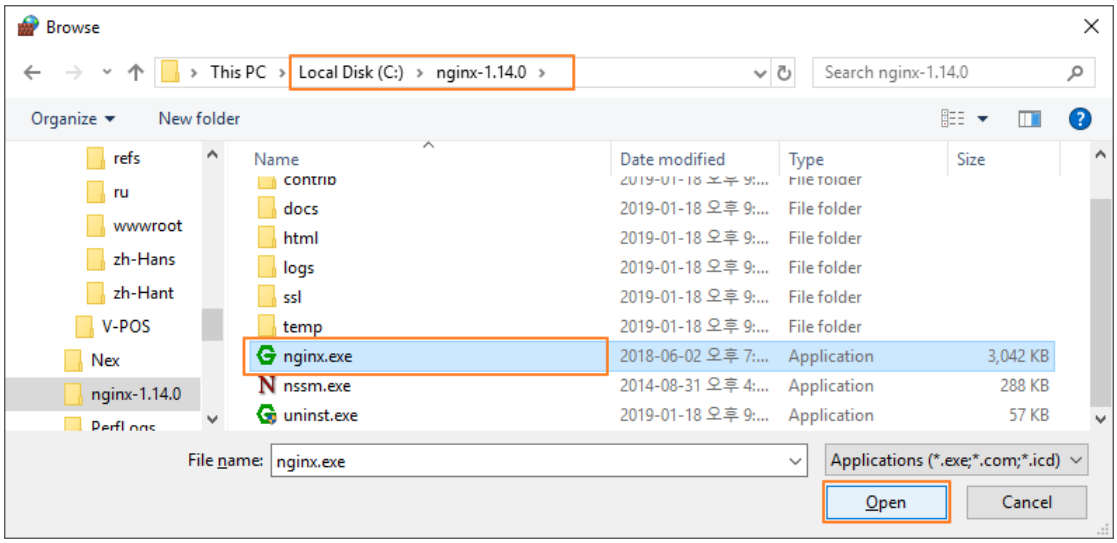
7. Click on [Add].

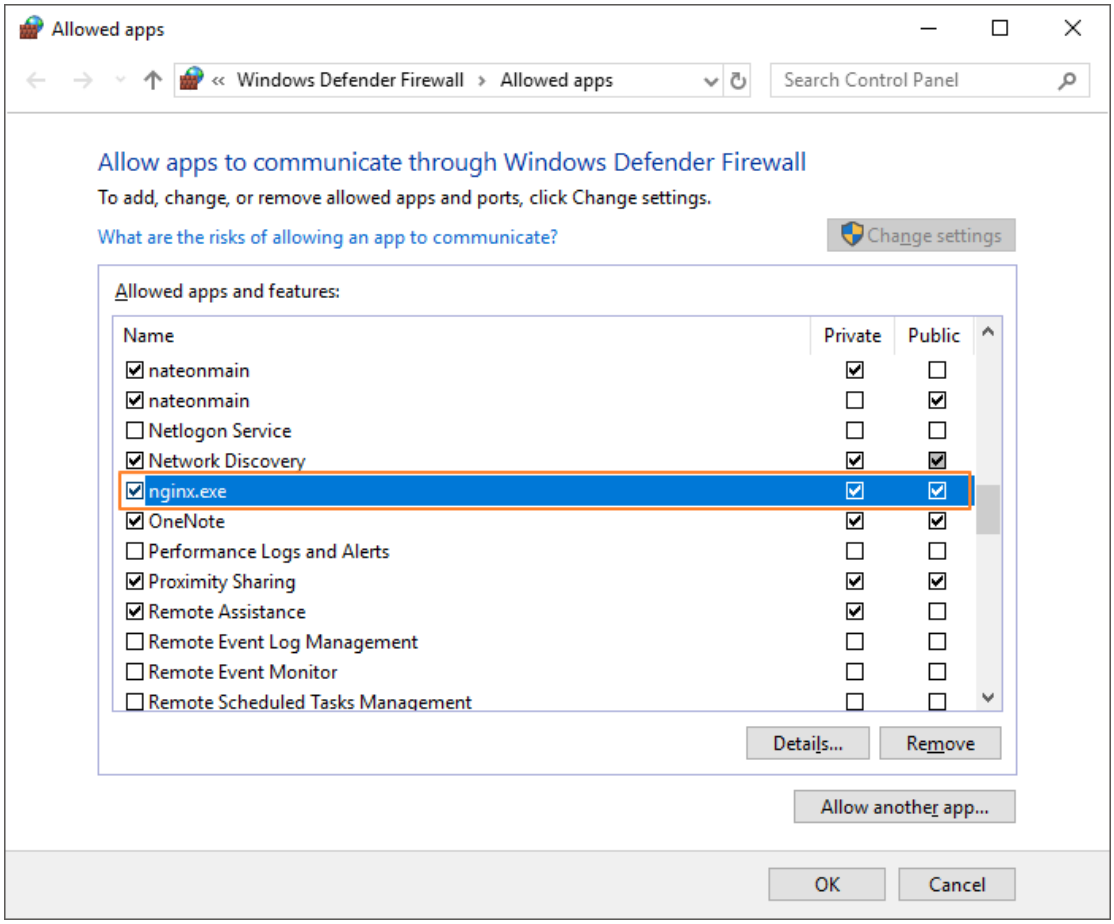


8. Check that FEServer.exe file is added on the allowed apps and features list. Check both private and public.



9. Follow the same steps to add C:\nginx-1.14.0\nginx.exefile on the Firewall list.

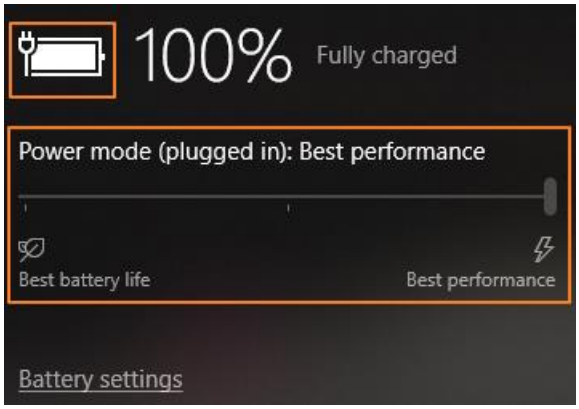




10. Click on [OK] to close the window.

1.6.2 Power Mode Best Performance

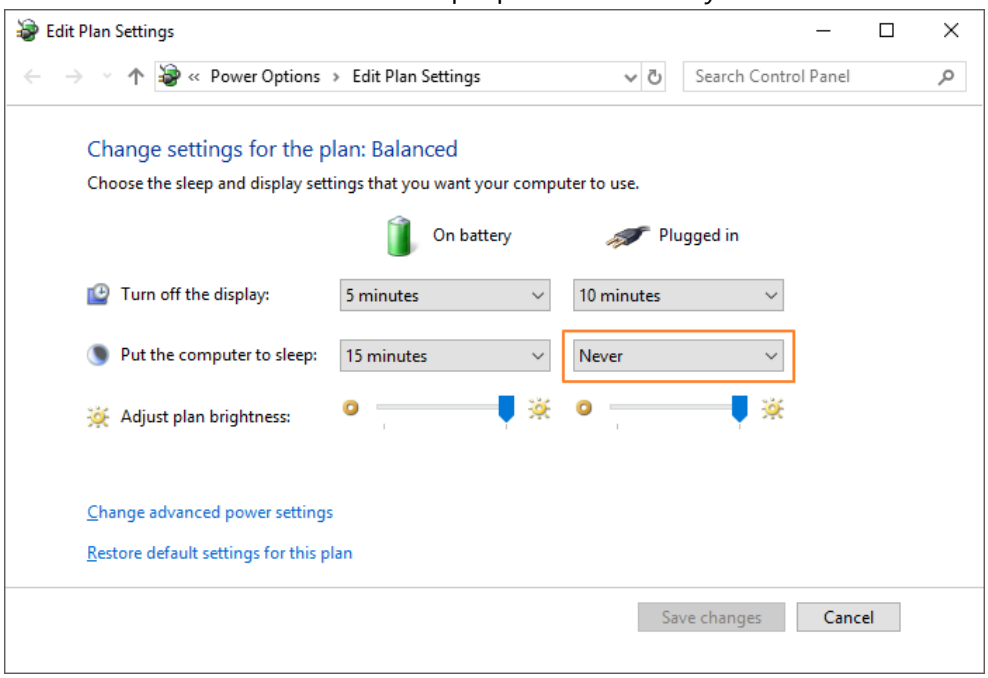
If the software is installed on a laptop, it is recommended to connect AC power and use "Best Performance" mode.



Caution)The way to change to "Best Performance" mode may differ from a Windows OS version to another.

1.6.3 Dismiss Battery Save Mode

If the software is installed on a laptopturn off battery save mode.

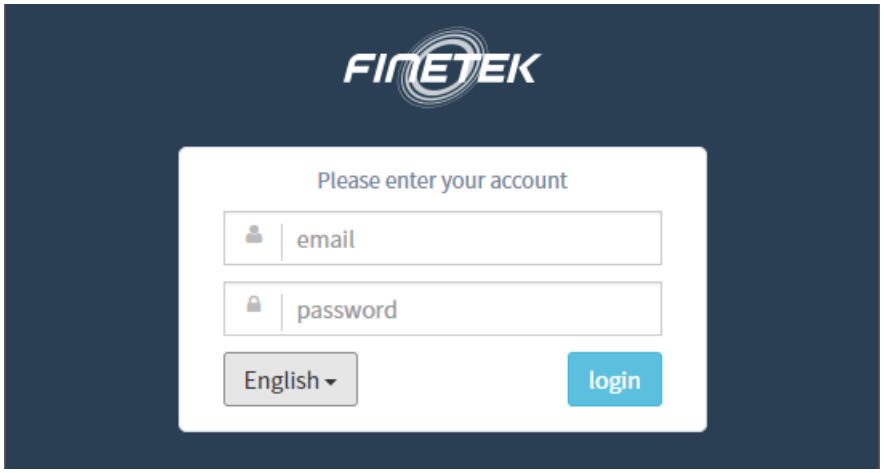


Caution)The way to "dismiss battery save mode" may differ from a Windows OS version to another.

1.7 ESL Client Login

1. Double click theFINETAGESL icon on Desktop.

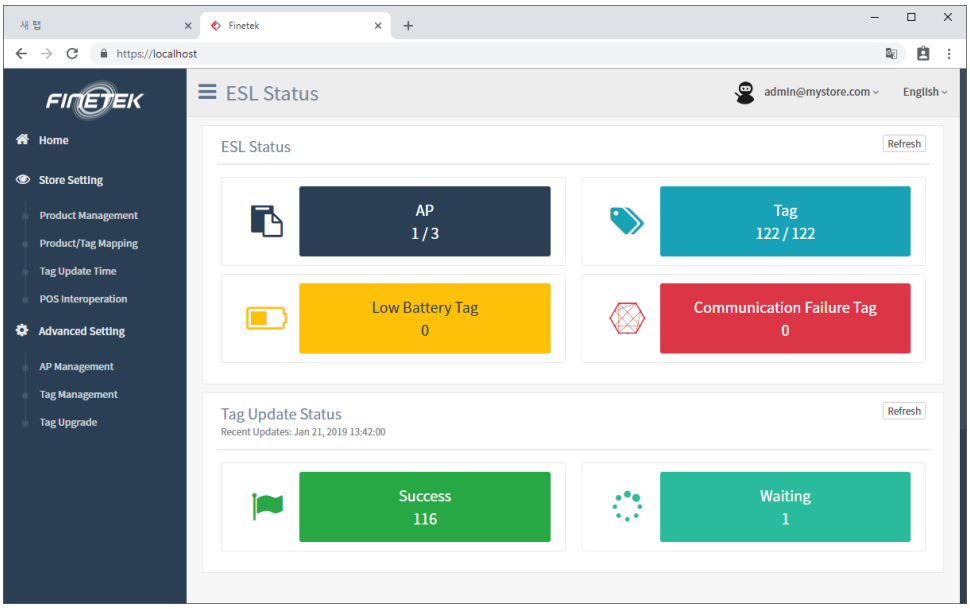
2. Enter email address and password on the log-in page and click on [login].



The default email address and password are presented below.

- ✓ email : admin@mystore.com
- ✓ password : admin_pass

3. Check the monitoring page is presented as below.

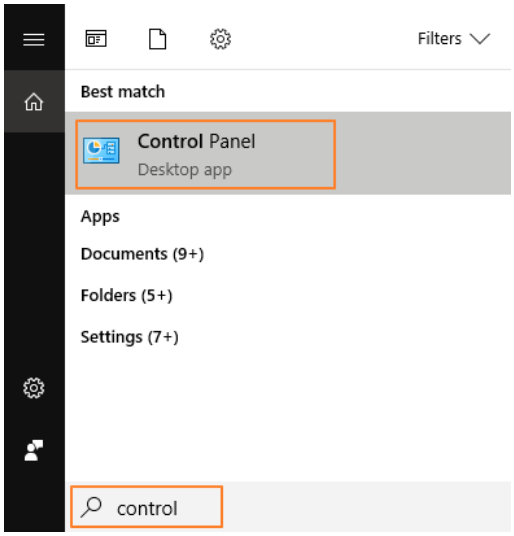


1.8 Delete Software

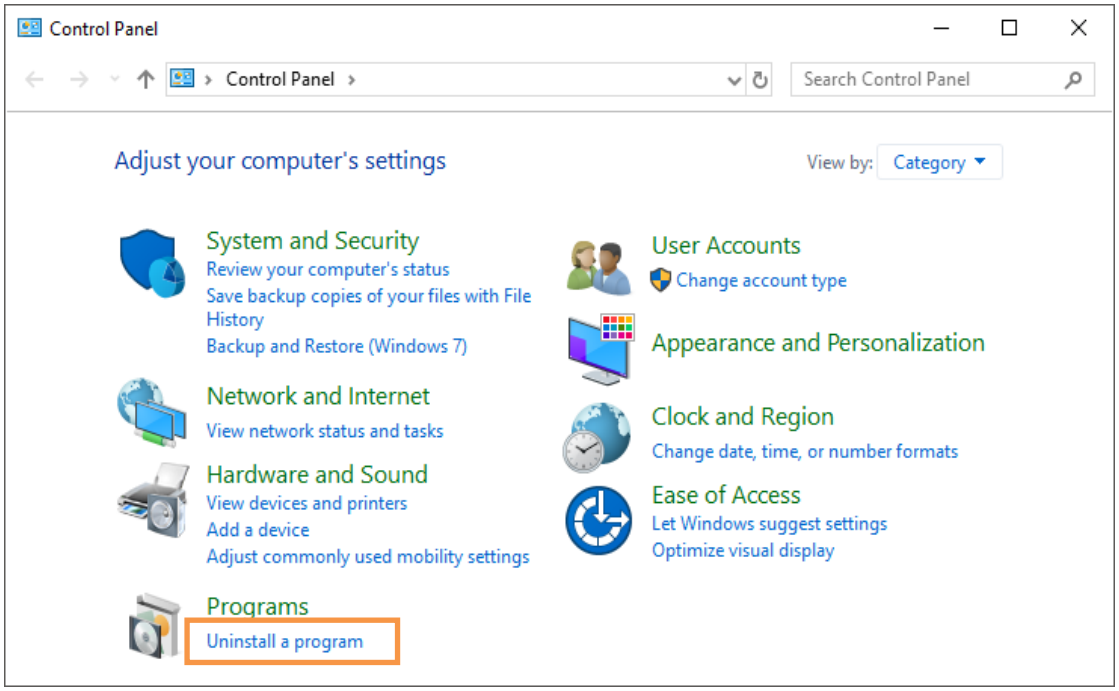
If you decide to not use ESL Software any more, you may useProgram Uninstaller to uninstall the software.

1.8.1 How to Launch Program Uninstaller

1. Type “control” in Windows start menu search bar.
2. Select [Control Panel].

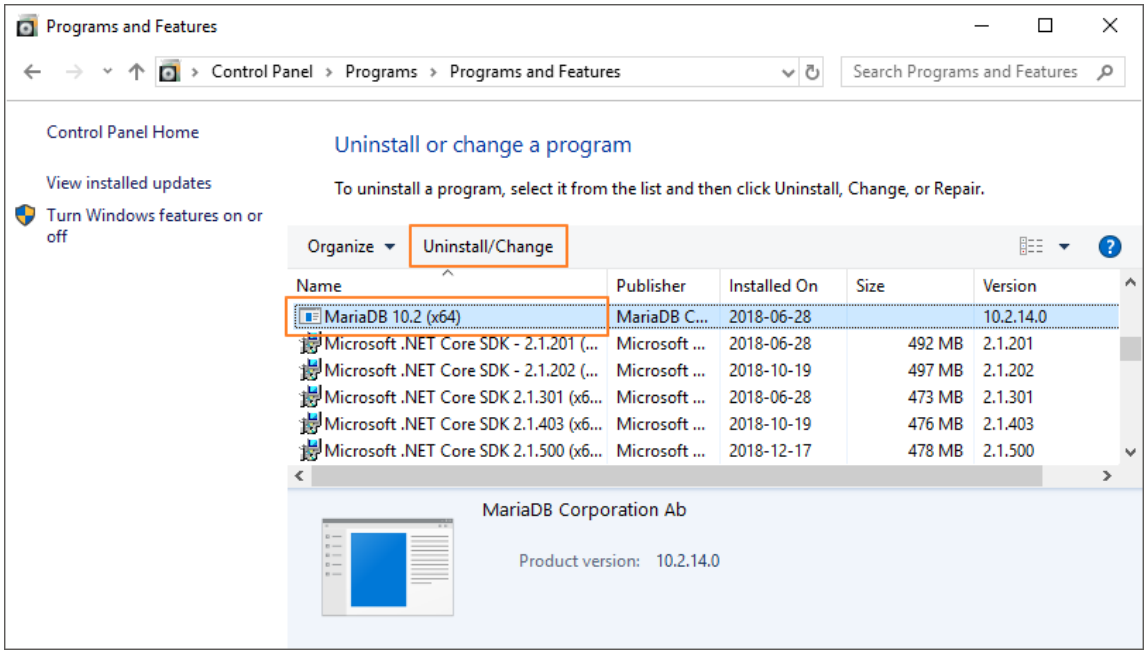


3. Select [Uninstall a program]menu to openProgram and Features.

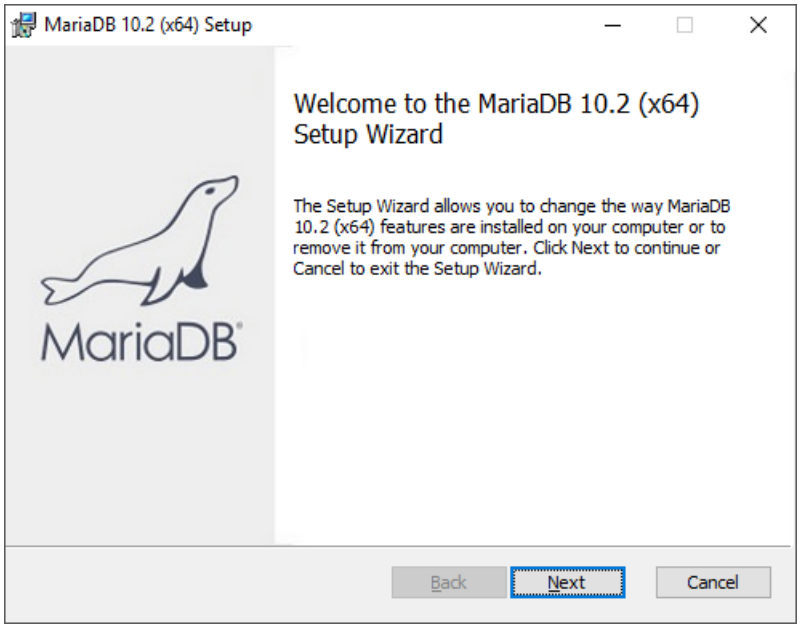


1.8.2 Uninstall MariaDBDatabase Server

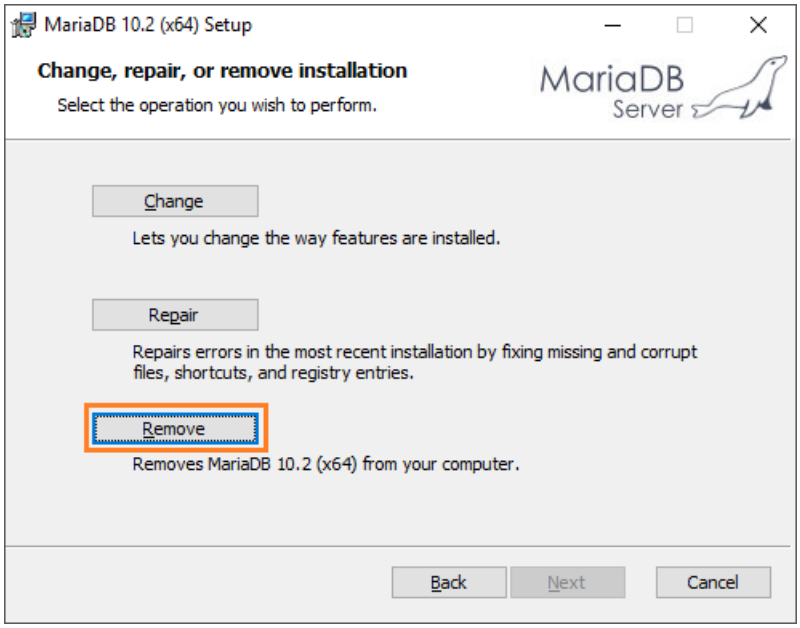
1. Select “MariaDB 10.2 (x64)” and click on[Uninstall/Change].



2. Click on [Next].

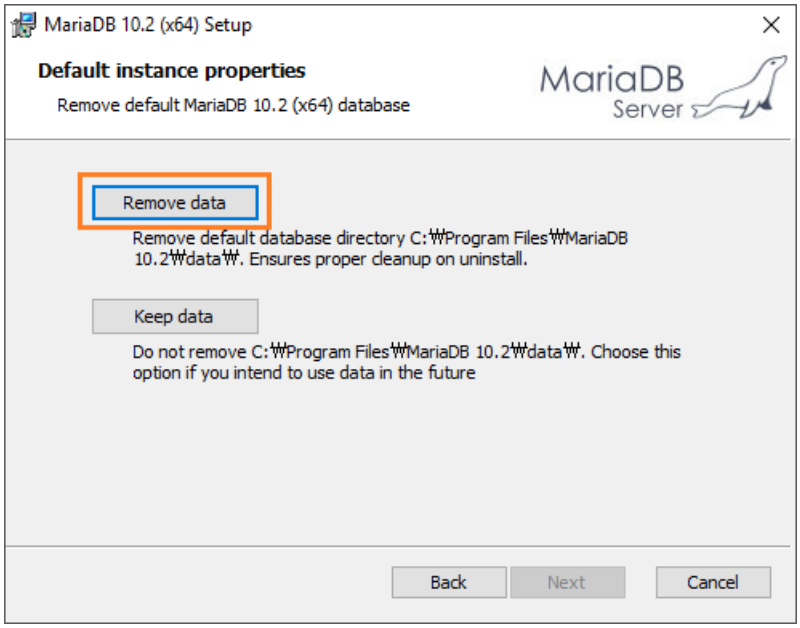


3. Select [Remove].

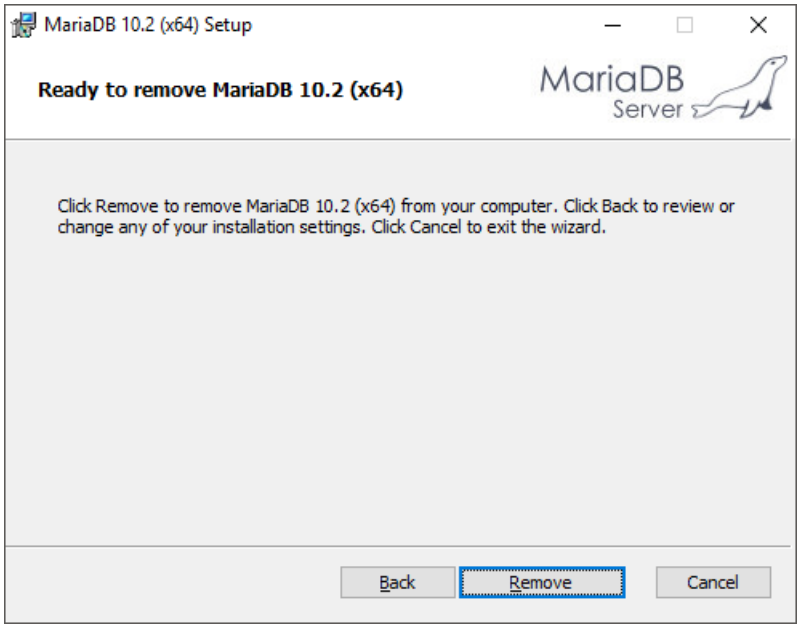


4. Select [Remove data].

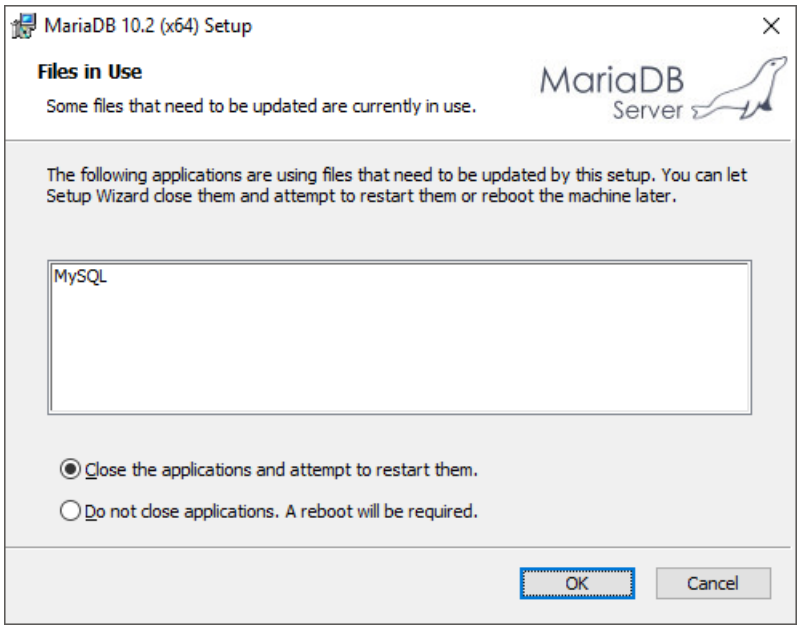
   MariaDB may not be re-installed if you select "Keep data".



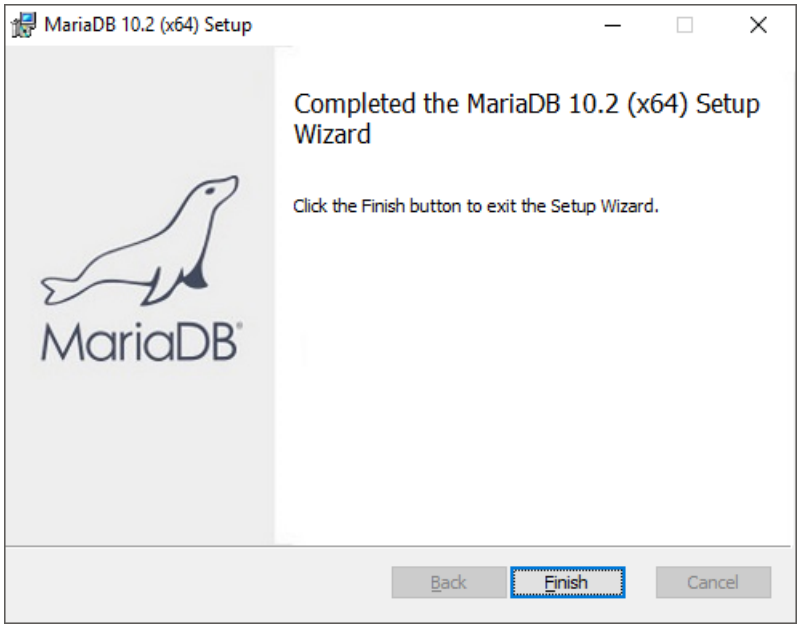
5. Click on [Remove] to start uninstallation.



6. Select "Close the applications and attempt to restart them" and click on[OK].

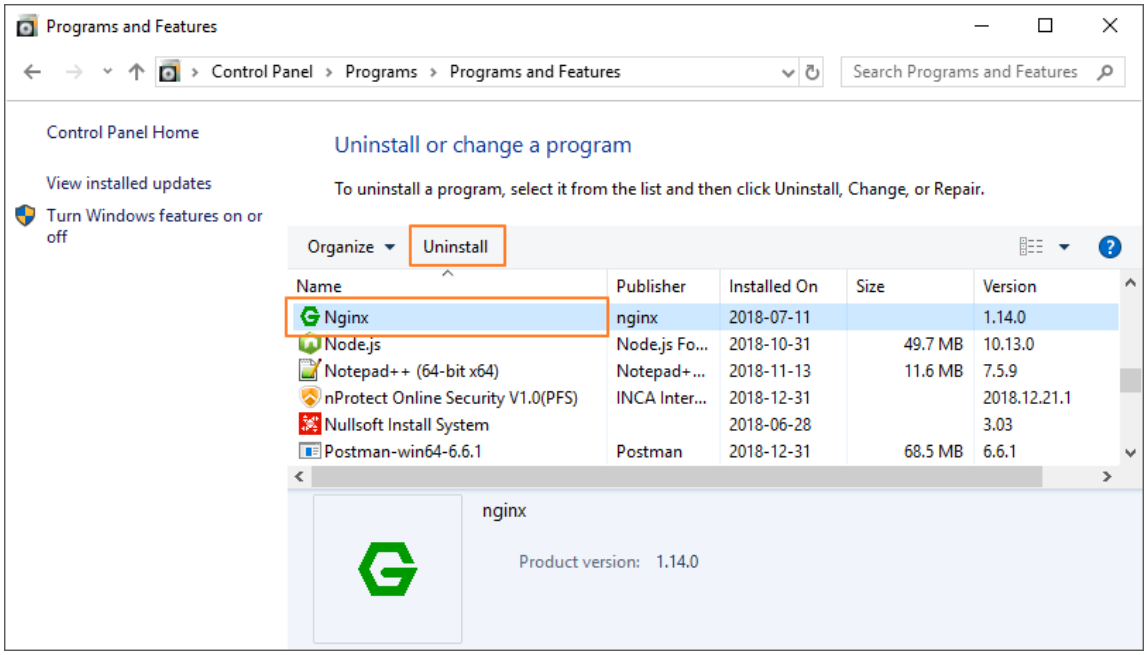


7. Click on [Finish] once uninstallation is completed.

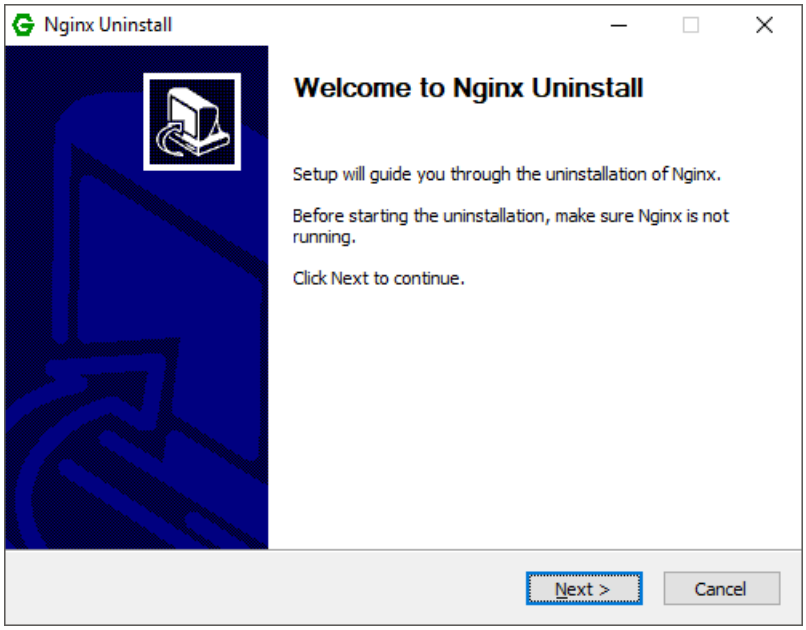


1.8.3 Uninstall NginxWeb Server

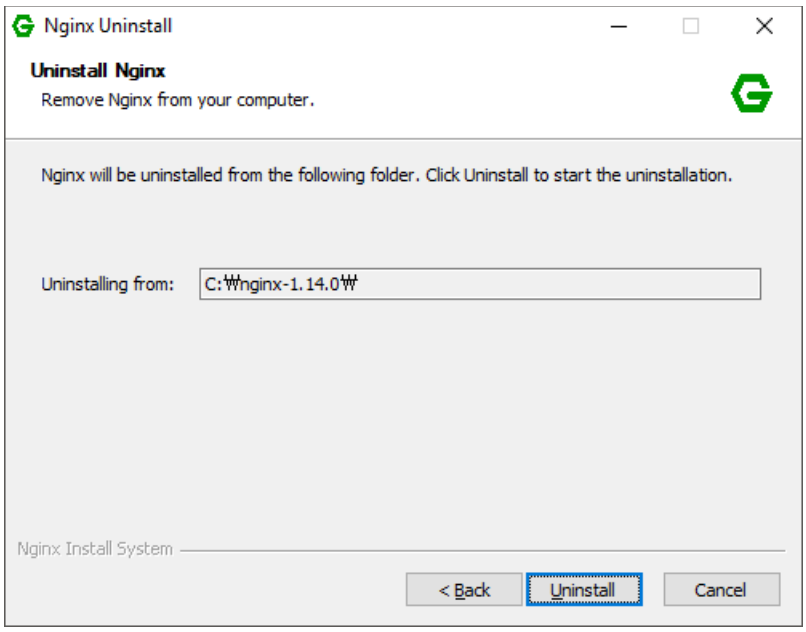
1. Select "Nginx" and click on [Uninstall].



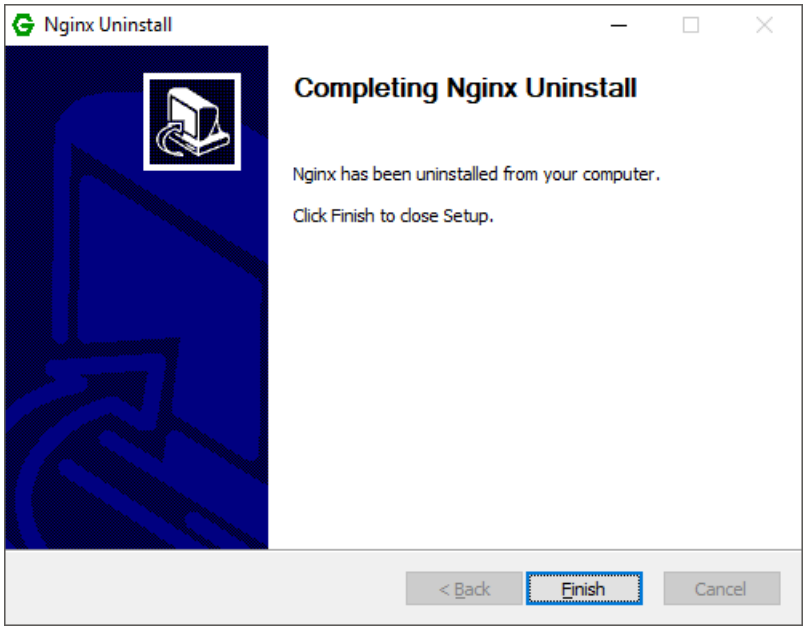
2. Click on [Next].



3. Check the uninstallation path and click on [Uninstall].

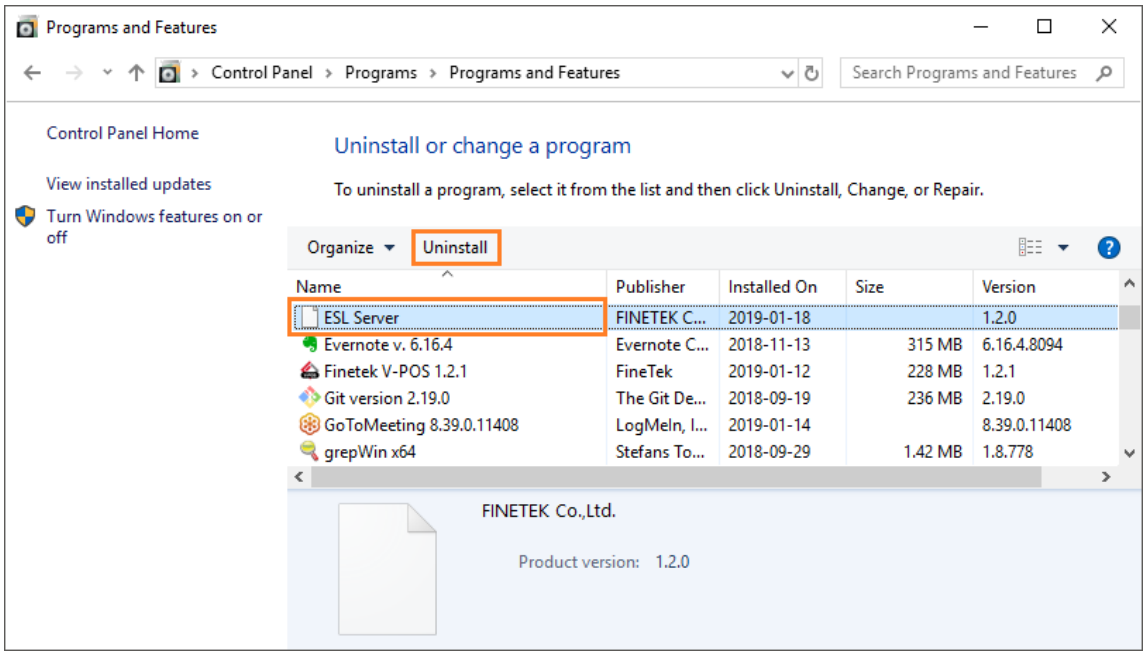


4. Click on [Finish] after uninstallation is completed.

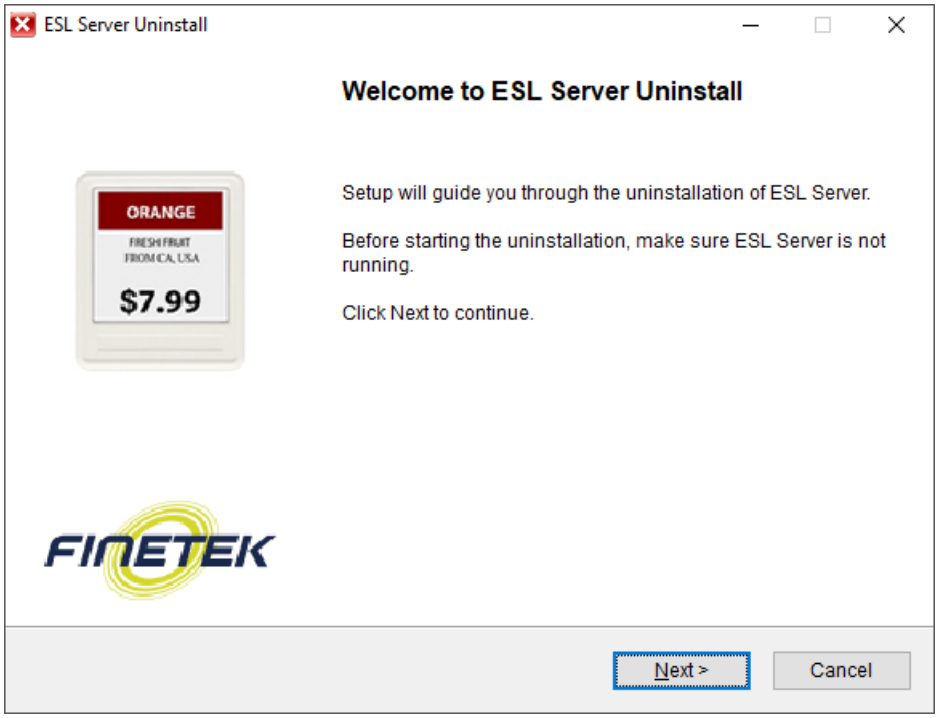


1.8.4 ESL Server Uninstall

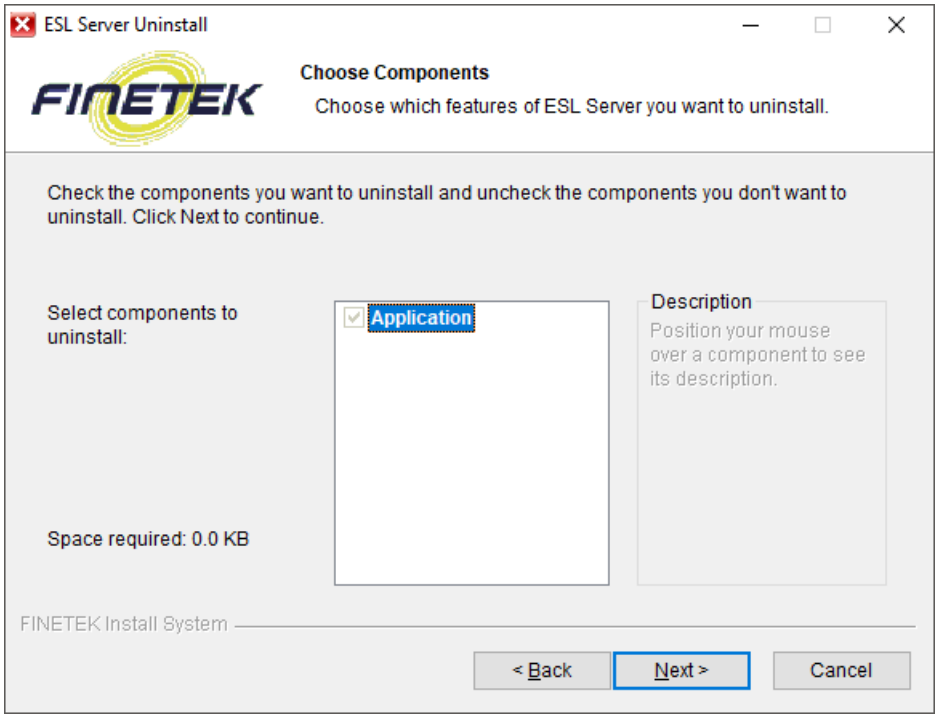
1. Select "ESL Server" and click on[Uninstall].



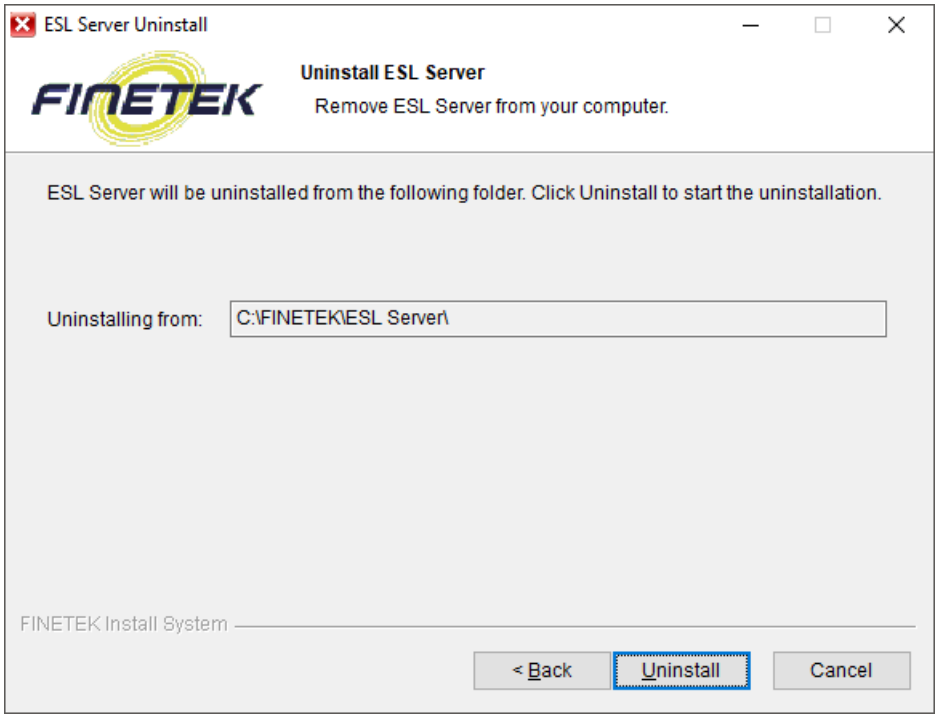
2. Click on [Next].



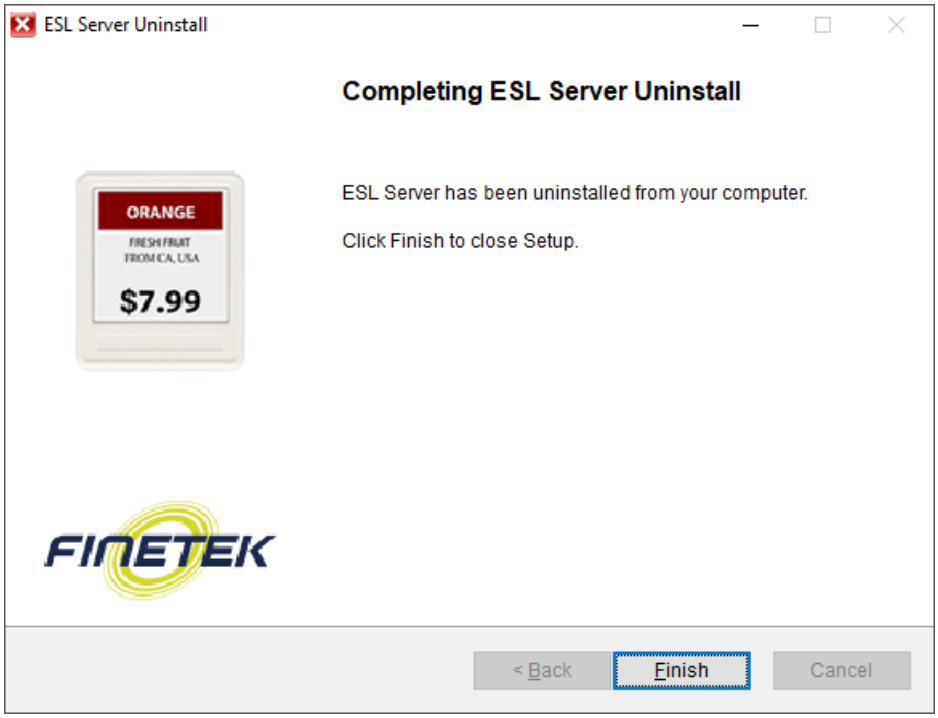
3. Check items to be deleted and click on [Next].



4. Check the uninstallation path and click on [Uninstall].



5. Click on [Finish] after uninstallation is completed.

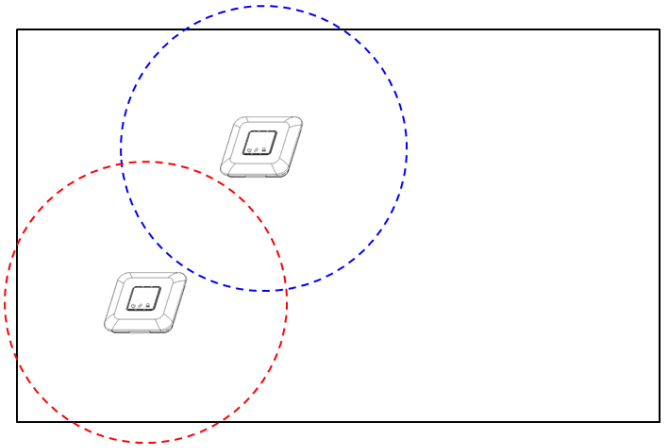


2. AP Installation and Registration

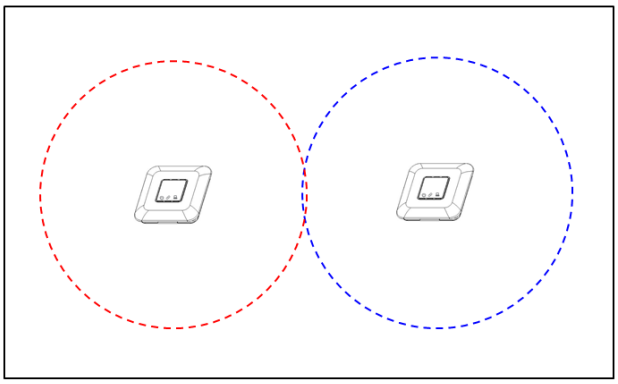
2.1 Select AP Location

To maintain AP performance at its best, consider the following select the location.

- Do not install nearby industrial equipment including transformer, microwave, refrigerator, etc.(keep apart more than 5m)
- Metal, concrete, wall, etc. blocks communication so signals may be lost.
- The ideal installation height is 3m(10ft.) from the ground.
- Have the antenna face the ceiling to improve reception.
- Place AP as close to Tag as possible.
- When aligning two or more AP's, give enough space between the space and the AP to raise efficiency.



<Inappropriate AP Location>



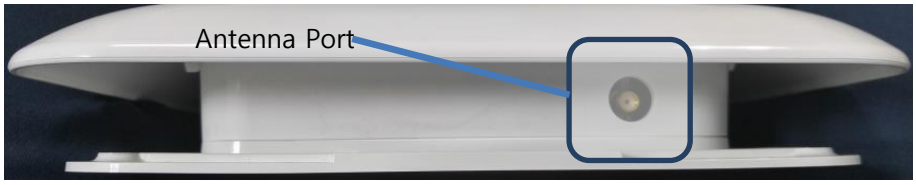
<Appropriate AP Location>

2.2 APInstallation

① Ceiling Installation

When installing at ceiling, place in open place rather than in closed space, and keep 3m or more away from the ground if possible.Also, organize the cables to not interrupt passengers

- Check if the antenna is installed at AP.



- Place AP in the space Tagis installed so everyone can see it well.
- Connect the cable if installation is completed.

② Wall Installation

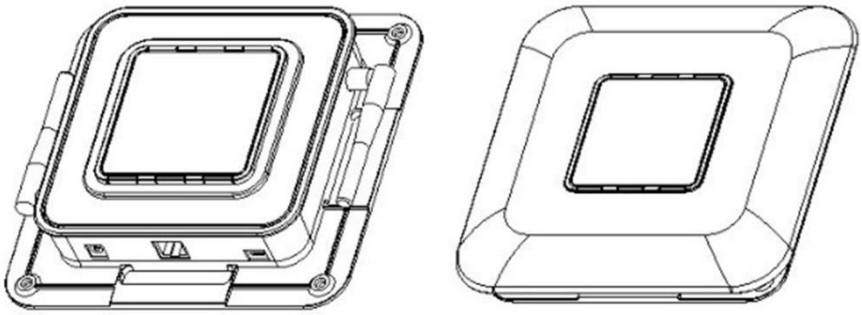
For wall installation, fix the Wall Bracket on a wall and assemble it with the hole on the bottom of the AP.

To install AP on a wall,

- Make sure an antenna is installed.
- Fix the Wall Bracket on a wall and attach the AP to the Bracketto fix it.

- In case you do not use the Wall Bracket, get rid of the TOP case of theAP and use the hole on the bottom to fix on a wall.

<Hole for Fixing AP>



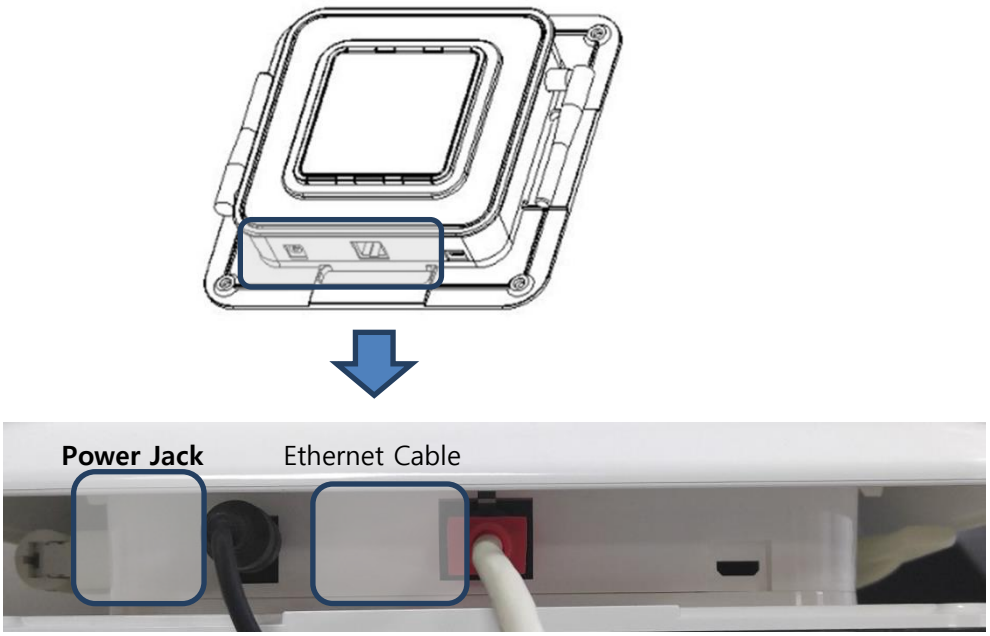
<TOP Case Removal>

- Fix the AP and place the TOP case.

2.3 APCable Connection

① **Ethernet Cable Connection**

Use an ethernet cable to connect the router and AP.

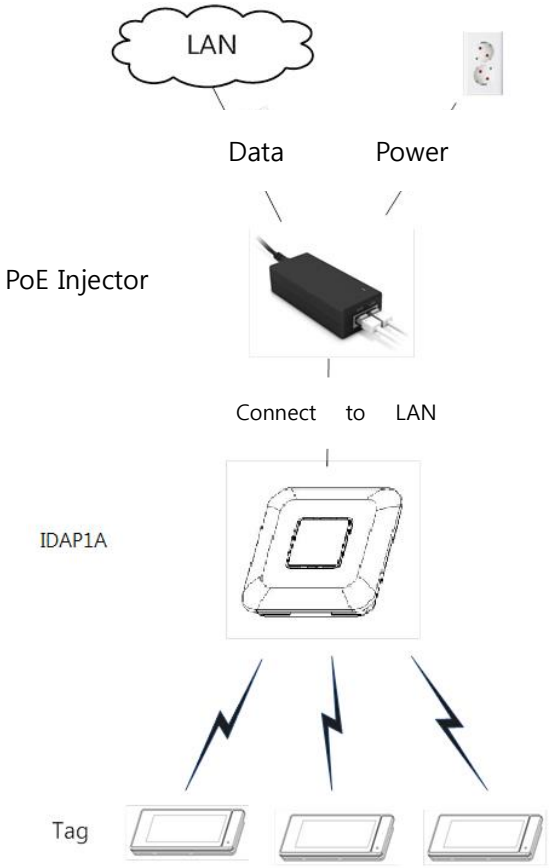


<Using DC Adaptor>

② Power Cable Connection

When using power adaptor to supply power, use the provided adaptor to connect to the power port.

You may use a DC adaptor or a PoE injector for AP power.If it is not easy to use AC power where AP is to be installed, you may use aPoEinjector or PoE switch hub to supply power only with an ethernet cable. Yet, be careful the length of the ethernet cable does not exceed 100M.



The following is how to connect PoEinjector with the AP.

① Connect the injector power code to the AC socket.

② You can find Data In(LAN) portand Data Out(POE) port on the injector.

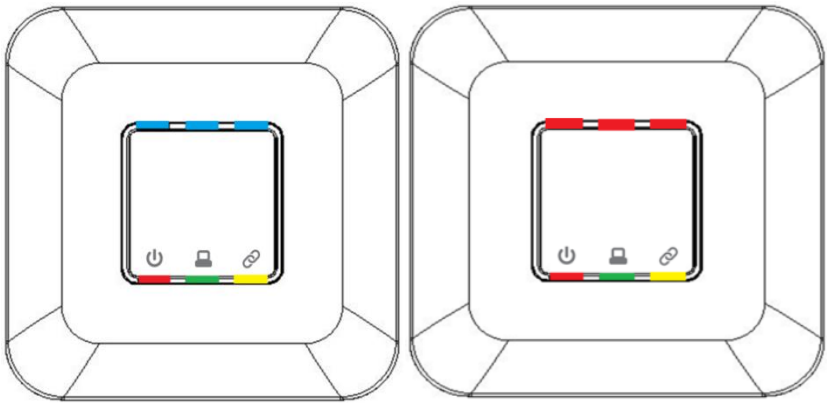
③ Use an ethernet cable to connect the router to Data In(LAN).

④ Connect Data Out(PoE) port to AP.

2.4 APFunction Check

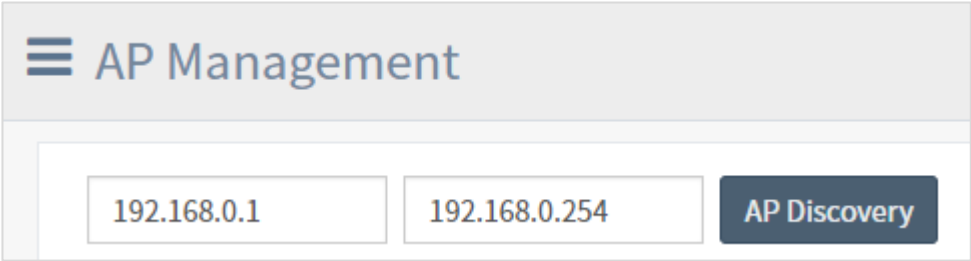
You can check the AP status from the 4 LED's on the front side.

- Red LED
  LED is turned on when power is supplied.
- Green LED
  LED is turned on when connected to network.
- Yellow LED
  LEDflickers on when communicating with network.
- Blue LED / Red LED
  Blue LED flickers when AP normally works.
  Red LED flickers when an error occurs.



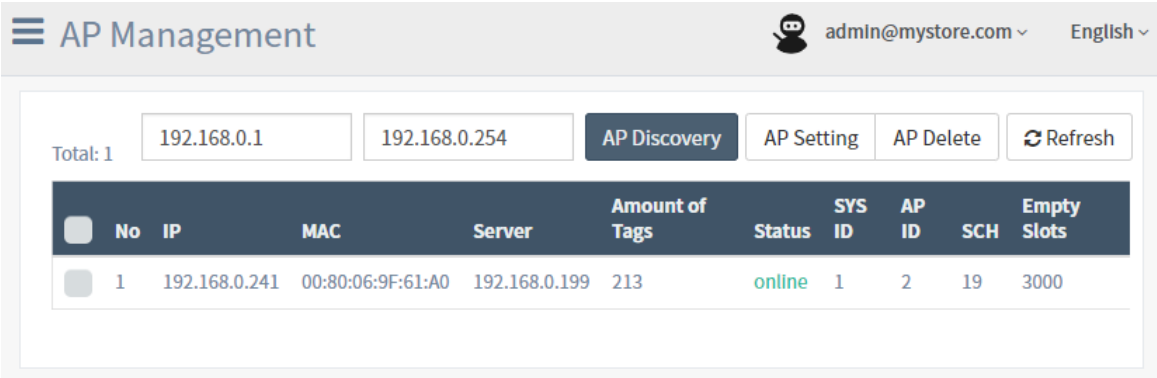
2.5 AP Registration

Log in to ESL client and move toAP Management page.



AP must be connected to the router. Without additional setting, the AP is voluntarily allocated with an IP via the DHCP of the router.

① Enter the startIPand finishIP.
② Click on [AP Discovery] to search AP.
③ Check the Status is online after AP is found.



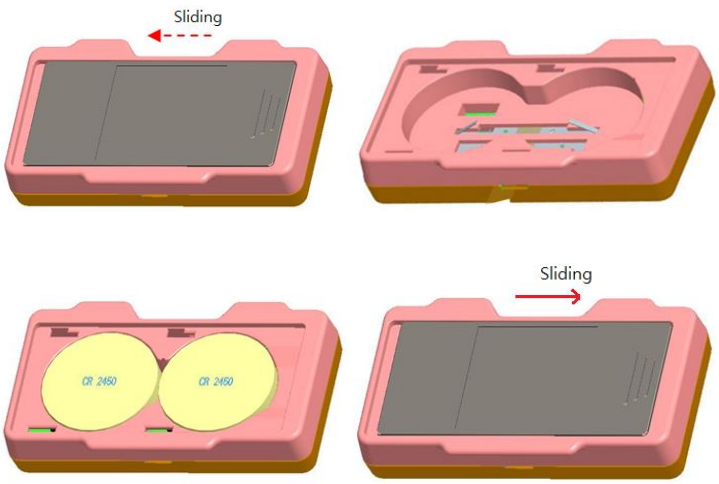
3. TAGInstallation and Registration

Consider the following when installing TAG.

- Do not install nearby industrial equipment including transformer, microwave, refrigerator, etc. (keep apart more than 5m)
- Metal, concrete, wall, etc. blocks communication so signals may be lost.
- If the battery is separately delivered without being installed, make sure batteries are not in contact with each other. (A fire may break out due to damage of the battery or high temperature.)
- Fix the TAG so it does not fall off.
  (It may be damaged when fallen.)
- If you use a metal tool when separating the battery, the (+) and (-) of the battery may be shorted, temporarily consumed to a great amount.

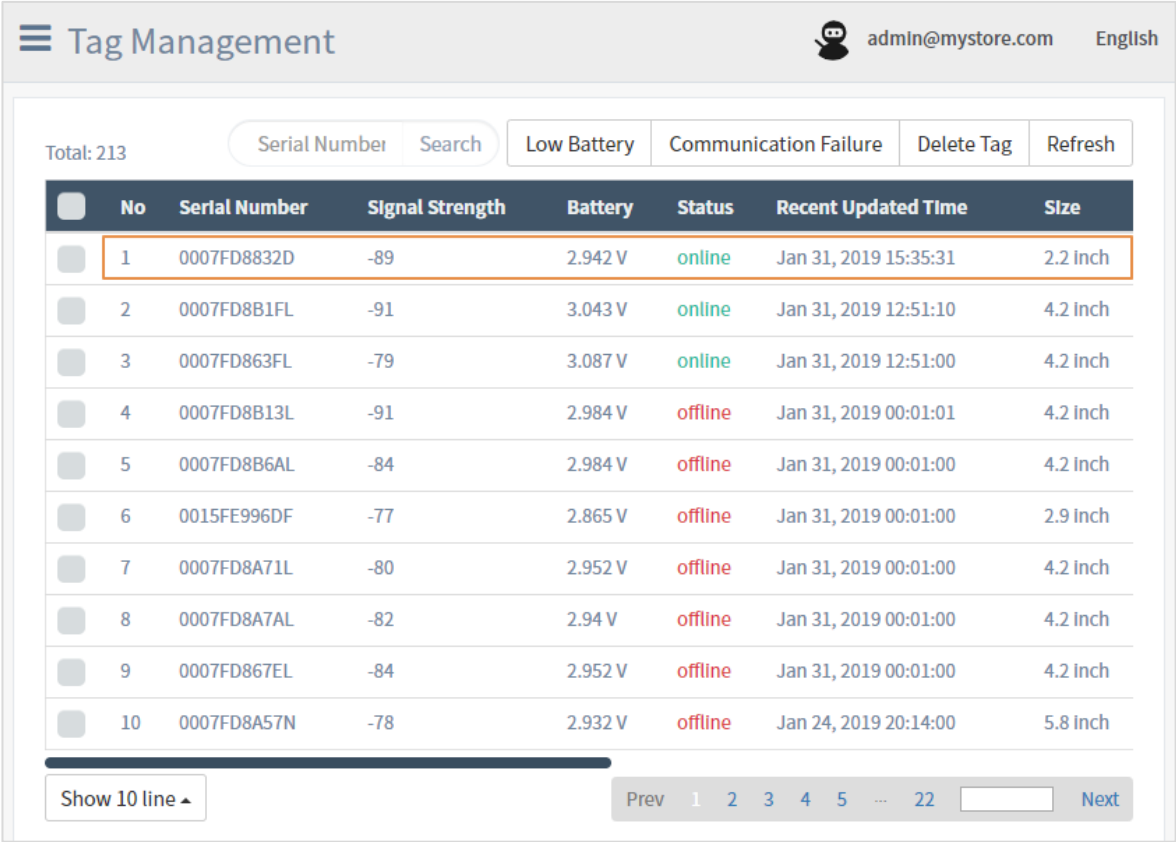
3.1 TAG Installation

① Open the cover of TAG backside and insert theCoin battery.
The battery isCR2450 type.



② About 30 seconds after TAG is turned on,see if the barcode below is made.

③ Tag Management page after Log in to ESL Client and then move to Tag Management page.
Find the TAG with Serial Number"0007FD8832D".



No	Serial Number	Signal Strength	Battery	Status	Recent Updated Time	Size
1	0007FD8832D	-89	2.942 V	online	Jan 31, 2019 15:35:31	2.2 inch
2	0007FD8B1FL	-91	3.043 V	online	Jan 31, 2019 12:51:10	4.2 inch
3	0007FD863FL	-79	3.087 V	online	Jan 31, 2019 12:51:00	4.2 inch
4	0007FD8B13L	-91	2.984 V	offline	Jan 31, 2019 00:01:01	4.2 inch
5	0007FD8B6AL	-84	2.984 V	offline	Jan 31, 2019 00:01:00	4.2 inch
6	0015FE996DF	-77	2.865 V	offline	Jan 31, 2019 00:01:00	2.9 inch
7	0007FD8A71L	-80	2.952 V	offline	Jan 31, 2019 00:01:00	4.2 inch
8	0007FD8A7AL	-82	2.94 V	offline	Jan 31, 2019 00:01:00	4.2 inch
9	0007FD867EL	-84	2.952 V	offline	Jan 31, 2019 00:01:00	4.2 inch
10	0007FD8A57N	-78	2.932 V	offline	Jan 24, 2019 20:14:00	5.8 inch

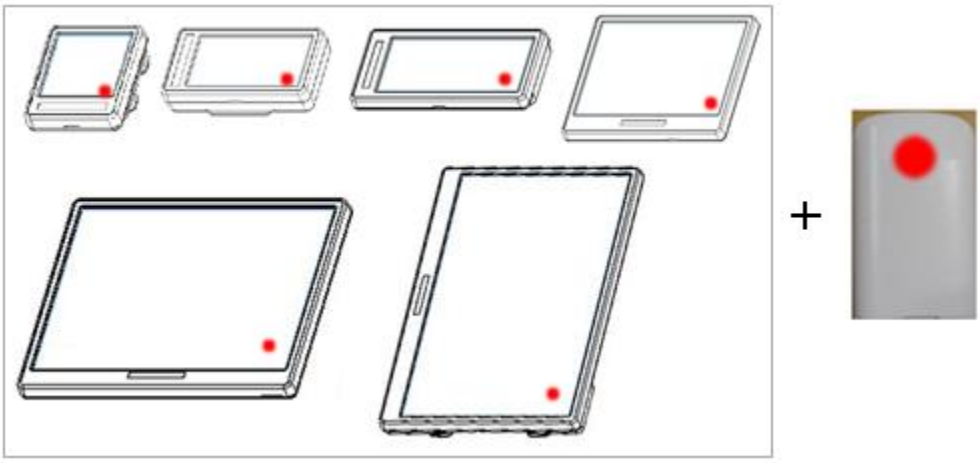
중요	✓ **You will find no change on the screen if the APorESLServer is not under operation.In this case, check the status of AP and ifESLServer is being launched.** ✓ **The battery is consumed fast when the server or AP connection is lost, so keep the it connected.**

4. Remote Control Usage

The remote control is used for tag reset and shut down.

The tag is reset when the bottom right of the tag and the upper part of the remote-control backside is in touch.

The tag flickers several times and displays the price and barcode display received from AP.



Contact the remote control to the tag and press the remote control button every second.

The button functions as following

△ –Tag S/Nbarcode check button

▽ –Tag shutdown button(when you don't want to use the tag)

When the button is pressed, the LED color indicates the following.

LED RED –Turned on when button is pressed.

LED BLUE –Turned on when the remote control is communicated with the tag.

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Interference Statement

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 correct the interference by one 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 which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.