

Connect Before Break

Application Note



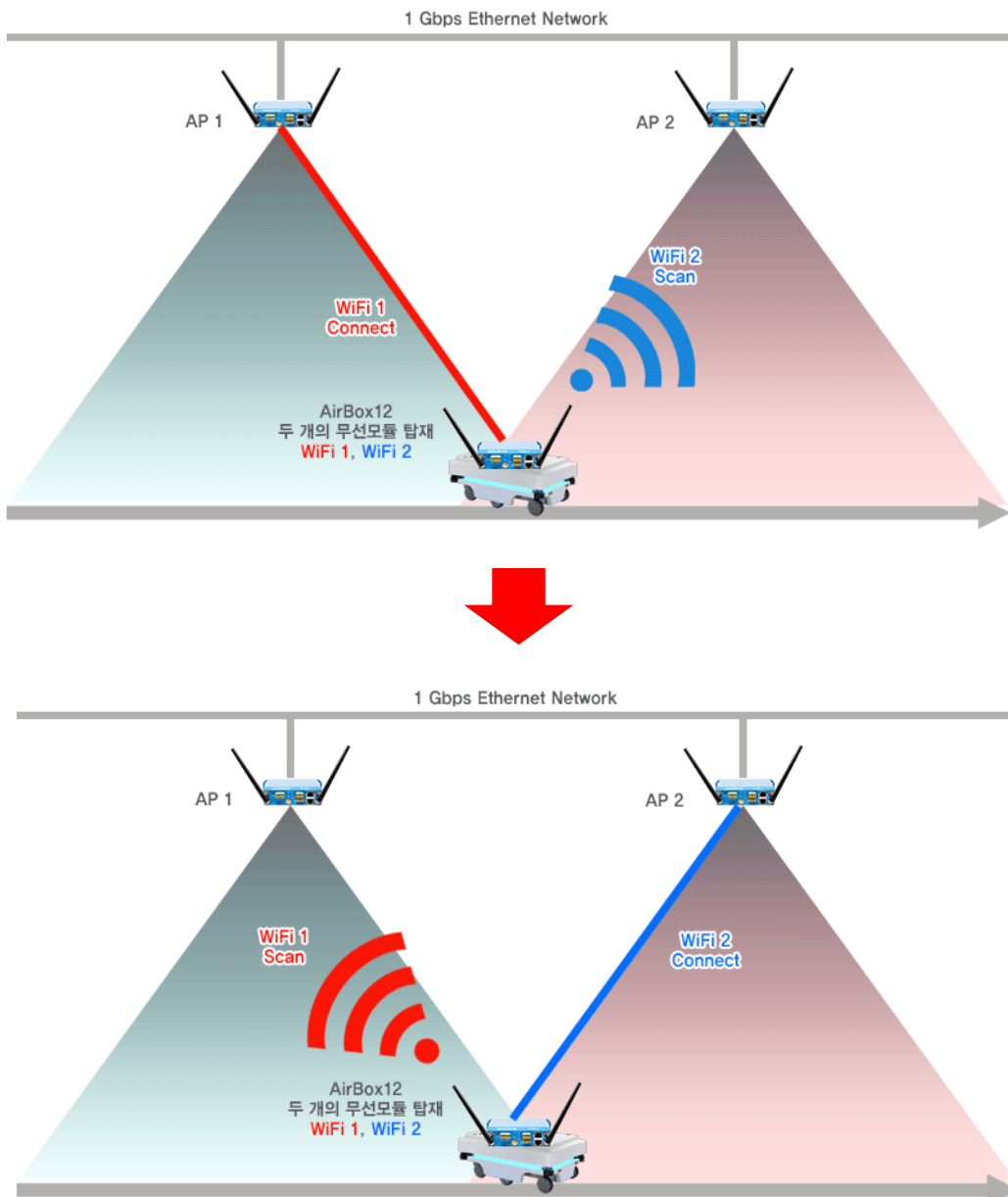
Connect Before Break – Application Note

Connect Before Break

Connect Before Break 기능은 두 개의 무선 모듈을 사용하는 방식으로써 첫번째 무선 모듈이 무선 AP에 연결되어 데이터통신을 하는 동안 두 번째 무선 모듈은 데이터통신에 관여하지 않고 가장 우수한 무선 신호세기를 가진 무선 AP를 스캔하는 작업만을 수행 합니다.

이때 이동체의 이동으로 앞서 주변 AP를 스캔하던 두 번째 무선 모듈은 가장 우수한 AP를 발견 즉시 스캔하던 역할을 멈추고 스캔이 완료된 우수한 신호의 AP에 즉시 연결(Connect)을 하고, 데이터 통신 작업을 수행하는 역할로 즉시 변경되며, 데이터 통신을 담당하던 첫번째 무선 모듈은 데이터 통신을 하던 기존 AP와의 연결을 끊고(Break) 즉시 주변 AP를 스캔하는 역할로 변경됩니다.

이러한 반복적인 프로세스로 진행되며 현재 가장 진보된 최신의 고속 무선 로밍(0ms) 기술인 "Connect Before Break" 라는 명칭으로 서비스되고 있습니다.



Connect Before Break – Application Note

STATUS

MAC ADDRESS

STATUS – NETWORK 탭에서 LAN & WiFi 의 MAC 주소를 확인할 수 있습니다.

DEVICE INFO

NETWORK

BRIDGES

MULTICAST ROUTES

ROUTES

WIRELESS

SECURITY

SERVICES

LOGS

INTERFACES

LAN

IP CONFIGURATION

IPv4 Stack

IPv4: 192.168.1.253 Netmask: 24 MTU: 1500

IPv6 Stack

IPv6: fd38:1e7a:b587::1 Netmask: 60 Scope: global

IPv6: fe80::209:90ff:fe02:6326 Netmask: 64 Scope: link

GRAPH	PHYSICAL INTERFACE	MAC ADDRESS	TX COUNT (IN BYTES)	RX COUNT (IN BYTES)	INTERFACE MODE	MTU
	WiFi 2	00:09:90:02:63:25	645331	7516	Role: Access Point (infrastructure) SSID: acksys Channel: 165	1500
	WiFi 1	00:09:90:02:63:24	650323	21840	Role: Access Point (infrastructure) SSID: acksys Channel: 11	1500
	LAN1	00:09:90:02:63:26	551996	880060	Negotiated 1000 baseTX FD, link ok	1500
	LAN2	00:09:90:02:63:27	0	0	no link	1500



LAN	IP CONFIGURATION IPv4 Stack IPv4: 192.168.2.200 Netmask: 24 MTU: 1500 IPv6 Stack IPv6: fd71:259e:6a28::1 Netmask: 60 Scope: global IPv6: fe80::68e8:10ff:fe6c:3acc Netmask: 64 Scope: link					
GRAPH	PHYSICAL INTERFACE	MAC ADDRESS	TX COUNT (IN BYTES)	RX COUNT (IN BYTES)	INTERFACE MODE	MTU
	bond1	6a:e8:10:6c:3a:cc	0	0	no link	1500
	LAN1	00:09:90:02:63:26	435448	183270	Negotiated 1000 baseTX FD, link ok	1500
	LAN2	00:09:90:02:63:27	0	0	no link	1500

※ CBB 설정이 완료될 경우 해당 WiFi MAC 이 표시되지 않습니다.

보안 서버 MAC 등록이 필요한 경우, 사전에 미리 WiFi MAC 주소를 캡처하여 주시기 바랍니다.

Connect Before Break – Application Note

Client – Configuration (Dual Radio 제품만 지원)

무선 설정

SETUP – PHYSICAL INTERFACES 탭을 클릭하여 무선 설정값을 변경할 수 있습니다.

PHYSICAL INTERFACES

VIRTUAL INTERFACES

NETWORK

VPN

BRIDGING

ROUTING / FIREWALL

QOS

SERVICES

SETUP

TOOLS

STATUS

WIRELESS INTERFACES OVERVIEW

You can set up to 8 simultaneous roles (wifi interface types) per radio card, among the following combinations:

Combination	Channel selection		Max number of interfaces			
	Multiplicity	Can use DFS	Access point	Infrastructure client	Mesh point	Ad-hoc
Wi-Fi 5 radio cards						
Multiple access points	single, auto, multiple	yes	8			
Client / bridge	single, auto, multiple, roaming	yes		1		
SRCC	single	yes	SRCC managed	SRCC managed		
Other / Ad-hoc	single	no			unsupported	unsupported
Wi-Fi 4 only radio cards						
Multiple access points	single, auto, multiple	yes	8			
Portal	single	no	8		1	
Client / bridge	single, auto, multiple, roaming	yes		1		
Other / repeater	single	no	8	1 (non-roaming)	1	1

When using several roles, they all use the same shared channel; in this case, the client role must not be set to multichannel roaming.
Repeater mode is a combination of two roles: access point + client.

WI-FI INTERFACE

WiFi 1: Wi-Fi 4 (802.11n) Wireless interface

CHANNEL	802.11 MODE	SSID	ROLE	SECURITY	ACTIONS
36 40 44 48	802.11a+n	acksys	Transparent client (infrastructure)	none	무선 디바이스 활성화 ACTIONS 편집 버튼 클릭

WI-FI INTERFACE

WiFi 2: Wi-Fi 5 (802.11ac) Wireless interface (not configurable - part of a cluster)

CHANNEL	802.11 MODE	SSID	ROLE	SECURITY	ACTIONS
36 40 44 48	802.11a+n	acksys	Transparent client (infrastructure)	none	

GLOBAL WIFI PARAMETERS

RADIO REGULATION AREA

Country

United States

RADIO CLUSTER

Cluster mode

Group for connect before break

Primary data card

☒ WiFi 1
 ☐ WiFi 2

Secondary data card

☐ WiFi 1
 ☒ WiFi 2

- RADIO CLUSTER** 탭에서 **Cluster mode** 를 **Group to connect before break** 로 변경합니다.
- 반드시 Primary 와 Secondary 인터페이스는 분리해야 합니다.
예) Primary : WiFi 1 / Secondary : WiFi 2
- 무선 디바이스 활성화 버튼 클릭 후 Save 버튼을 클릭합니다.
(녹색 : 활성화, 적색 : 비활성화)
- ACTIONS 의 편집 버튼을 클릭합니다.



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Connect Before Break – Application Note

Client - Configuration

DEVICE CONFIGURATION

General Setup | a/b/g Data Rates | 802.11n Mcs | Advanced Settings

802.11 mode 802.11a+n (5 GHz)
 ? Changing the mode may affect the list in the 'a/b/g data rates' tab

HT mode 20MHz
 ? Automatic 40MHz HT mode is not compatible with AP, Ad-hoc, Mesh

Automatic channel select ☐ ? Automatic channel select is not compatible with Ad-hoc, Mesh

Channel

- 36 (5.180 GHz) - Max Tx power 23 dBm
- 40 (5.200 GHz) - Max Tx power 23 dBm
- 44 (5.220 GHz) - Max Tx power 23 dBm
- 48 (5.240 GHz) - Max Tx power 23 dBm
- 52 (5.260 GHz) - Max Tx power 23 dBm (DFS)
- 56 (5.280 GHz) - Max Tx power 23 dBm (DFS)

1. **802.11 mode** 탭에서 사용하고자 하는 주파수 방식을 선택합니다. (802.11a+n 5GHz 권장)
2. **Automatic channel select** 탭의 체크박스를 해제 한 후 AccessPoint 와 동일한 채널을 선택합니다.
※Ctrl 버튼을 누른 상태로 선택하면 멀티 채널을 선택 할 수 있습니다.

INTERFACE CONFIGURATION

General Setup | Wireless Security | Advanced Settings | Roaming | Advanced Roaming | Frame filters

Role Client (infrastructure)

Multiple ESSIDs ☐

ESSID jacksys

Mesh ID

Bond interface ☒ create bond interface: Hyundai

? The cluster mode "connect before break" requires a "bond" virtual interface to work

3. **Role** 탭에서 **Client** 로 설정합니다.
4. **ESSID** 탭을 통해 네트워크의 SSID 를 설정합니다.
(AccessPoint & Client 동일 설정)
5. **Bond interface** 에서 Connect Before Break 에 대한 인터페이스를 추가합니다.

Connect Before Break – Application Note

Client - Configuration

General Setup	Wireless Security	Advanced Settings	Roaming	Advanced Roaming	Frame filters
When Proactive Roaming is disabled, the device will scan the general channels selection configured above. When Proactive Roaming is enabled, its suboption 'list of channels scanned' will supersede the general channels selection above. DFS channels are subject to passive scans.					
Enable proactive roaming ☒ If unchecked, the device will not roam until it loses its current AP					
Access point selection algorithm ☐ Use Predictive Linear Handover. See 'Linear Roaming' tab for specific options.					
List of channels scanned for the next AP discovery 36 (5.180 GHz) 40 (5.200 GHz) 42 (5.210 GHz) 44 (5.220 GHz) 48 (5.240 GHz) 52 (5.260 GHz) (DFS) If no channel is selected, the scan list is the complete list of available channels In 802.11n HT mode 40MHz, if the primary channel of the AP is not fixed, you will have to select both the primary and sec channels					
Delay between two successive scan cycles 10000 Value in milliseconds, e.g. "10000". Must be greater than 0					
Current AP leave threshold -40 Value in dBm, e.g. "-60". Below (worse than) this value, the device will try to use another AP					

6. **Roaming** 탭에서 **Enable proactive roaming** 을 체크하여 로밍 기능을 활성화 합니다.

7. **List of channels scanned for the next AP discovery** 에서 설정된 AccessPoint 의 채널을 선택합니다.

※Ctrl 버튼을 누른 상태로 선택하면 멀티 채널을 선택 할 수 있습니다.

8. **Current AP leave threshold** 에서 통신 신호 세기에 대한 로밍 절체 시간값을 조절할 수 있습니다. (기본값 -60)

General Setup	Wireless Security	Advanced Settings	Roaming	Advanced Roaming	Frame filters
Bridging mode 4 addresses format (WDS) Allows to set the bridging method. Applied only if this interface is added in a bridge					

9. **Advanced Settings** 탭에서 **Bridging mode** 를 **4 addresses format (WDS)** 로 변경 합니다.

Connect Before Break – Application Note

Client - Configuration

IP 변경

SETUP – NETWORK – LAN 탭 클릭 후 제품의 IP 주소, 서브넷 마스크, 게이트웨이를 변경할 수 있습니다.

SETUP TOOLS STATUS

NETWORK - LAN

On this page you can configure the network interfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and tick the names of several network interfaces.

COMMON CONFIGURATION

General Setup Interfaces Settings Advanced Settings IPv6 Setup

Enable interface ☒

Network description

Friendly name for your network

Protocol static

IPv4-Address 192.168.2.102

IPv4-Netmask 255.255.255.0

Default IPv4 gateway

Default gateway metric 0

Gateway priority when several default gateways are configured; lowest is chosen.
(Used only when a default gateway is defined on this interface)

DNS server(s)

You can specify multiple DNS servers here, press enter to add a new entry. Servers entered here will override automatically assigned ones.

구성하고자 하는 네트워크의 고정 IP를 입력합니다.

COMMON CONFIGURATION

General Setup Interfaces Settings Advanced Settings IPv6 Setup

Bridge interfaces ☒ creates a bridge over specified interface(s)

Enable STP/RSTP ☐ Enables the Spanning Tree Protocol on this bridge
WARNING: Some cautions must be taken with wireless interfaces, please see user guide

Enable LLDP forwarding ☐ Enables the LLDP frame forwarding.

bridge VLAN ☐ Enable VLAN management in bridge. You must configure the bridge VLANs before enabling this option (setup->bridging)

Interface

☐ WiFi adapter: WiFi 2 - acksys (bond: WITREETEST)

☐ WiFi adapter: WiFi 1 - acksys (bond: WITREETEST)

☒ Bond virtual interface: (network: lan)

☒ Ethernet adapter: LAN1 (network: lan)

☒ Ethernet adapter: LAN2 (network: lan)

MTU 1500

Interfaces Settings 탭 클릭 후 **Interface** 에서 생성된 **Bond virtual interface** 를 체크합니다. 설정이 완료되면 **Save & Apply** 버튼을 클릭하여 설정을 적용합니다.

※ IP 변경 후 PC의 네트워크 또한 변경된 IP 대역으로 설정해야 합니다.

Connect Before Break – Application Note

Client - STATUS

ASSOCIATED STATIONS

ASSOCIATED STATIONS RESULTS : 2

GRAPH	RADIO	NAME / SSID	MODE	MAC	CHANNEL	SIGNAL	NOISE	SIGNAL/NOISE
	WiFi 1	acksys	Infrastructure	00:09:90:02:63:AD	153	-37 dBm	-95 dBm	58 dB
	WiFi 2	acksys	Infrastructure	00:09:90:02:63:B1	153	-37 dBm	-103 dBm	66 dB

SERVICES STATUS

WIFI 1

SERVICE	SSID	MAC	STATUS	CHANNEL	FREQUENCY	CHANNEL WIDTH	HT MODE	PASSPOINT
Client	N.A	00:09:90:02:63:24	SCANNING	N.A	N.A	N.A	N.A	N.A

WIFI 2

SERVICE	SSID	MAC	STATUS	CHANNEL	FREQUENCY	CHANNEL WIDTH	HT MODE	PASSPOINT
Client	acksys	00:09:90:02:63:25	COMPLETED	153	5765 MHz	20 MHz	HT20	N.A

SERVICES STATUS

WIFI 1

SERVICE	SSID	MAC	STATUS	CHANNEL	FREQUENCY	CHANNEL WIDTH	HT MODE	PASSPOINT
Client	acksys	00:09:90:02:63:24	COMPLETED	153	5765 MHz	20 MHz	HT20	N.A

WIFI 2

SERVICE	SSID	MAC	STATUS	CHANNEL	FREQUENCY	CHANNEL WIDTH	HT MODE	PASSPOINT
Client	acksys	00:09:90:02:63:25	COMPLETED	153	5765 MHz	20 MHz	HT20	N.A

STATUS – Wireless 에서 현재 연결되어 있는 AccessPoint 의 정보 및 신호 세기를 확인 할 수 있습니다.