

Null MAC | Cisco AP 1 | AP wired B | AP wired A | Client A

bridge_uwgb_wpa2psk_wired.pcapng

Probe Request (0x0004)

Dst	84:b2:61:24:a2:00
Src	00:00:00:00:00:00
Seq	0

Probe Request – active scanning: client solicits responses from APs; directed (specific SSID) or wildcard (broadcast SSID); faster than passive scanning (beacon-only)

Frame 2 | 2017-02-04T15:31:53.278401Z

DTLS Application Data (23)

Version	DTLS 1.0 (0xfeff)
Epoch	1
Length	64

DTLS Application Data (23)

Version	DTLS 1.0 (0xfeff)
Epoch	1
Length	80

Frame 3 | 2017-02-04T15:31:53.279003Z

Association Request (0x0000)

Dst	84:b2:61:24:a2:00
Src	54:ee:75:49:f1:3e
BSS	84:b2:61:24:a2:00
Seq	16
Capabilities Information	0x3104
Listen Interval	0xc800
AKM	PSK (2)

Association Request – client joins BSS; carries SSID, supported rates, RSN (WPA2/WPA3) capabilities; AP assigns AID in response

Association Response (0x0001)

Dst	54:ee:75:49:f1:3e
Src	84:b2:61:24:a2:00
BSS	84:b2:61:24:a2:00
Seq	0
Status	Successful (0x0000)
AID	0x01c0

Association Response – AP accepts/rejects client; Status 0=Success; assigns AID (Association ID) used for PS-Poll and TIM bitmap addressing

EAPOL Key

Dst	54:ee:75:49:f1:3e
Src	84:b2:61:24:a2:00
BSS	84:b2:61:24:a2:00
Seq	0
Key Descriptor Type	EAPOL RSN Key (2)
Key Information	0x008a
Key Length	16
Replay Counter	0
WPA Key Nonce	6442d7b6bf4f711d39b1b701d2d93ee9f063c43b5e40f5029cec37c914ead2ae

EAPOL 4-Way Handshake – derives PTK from PMK; Msg 1: ANonce, Msg 2: SNonce+MIC, Msg 3: GTK, Msg 4: Confirm; completes encryption key installation

EAPOL Key

Dst	84:b2:61:24:a2:00
Src	54:ee:75:49:f1:3e
BSS	84:b2:61:24:a2:00
Seq	512
Key Descriptor Type	EAPOL RSN Key (2)
Key Information	0x010a
Key Length	16
Replay Counter	0
WPA Key Nonce	b9fc2f4c75e7dceae78aa905891ebba63dd8f199eb89356f49704ac137639043

EAPOL 4-Way Handshake – derives PTK from PMK; Msg 1: ANonce, Msg 2: SNonce+MIC, Msg 3: GTK, Msg 4: Confirm; completes encryption key installation

EAPOL Key

Dst	54:ee:75:49:f1:3e
Src	84:b2:61:24:a2:00
BSS	84:b2:61:24:a2:00
Seq	0
Key Descriptor Type	EAPOL RSN Key (2)
Key Information	0x13ca
Key Length	16
Replay Counter	1
WPA Key Nonce	6442d7b6bf4f711d39b1b701d2d93ee9f063c43b5e40f5029cec37c914ead2ae

EAPOL 4-Way Handshake – derives PTK from PMK; Msg 1: ANonce, Msg 2: SNonce+MIC, Msg 3: GTK, Msg 4: Confirm; completes encryption key installation

Null MAC Cisco AP 1 AP wired B AP wired A Client A

🔑 EAPOL Key

📱 Dst	84:b2:61:24:a2:00
📱 Src	54:ee:75:49:f1:3e
📶 BSS	84:b2:61:24:a2:00
📄 Seq	768
Key Descriptor Type	EAPOL RSN Key (2)
Key Information	0x030a
Key Length	16
Replay Counter	1
WPA Key Nonce	00

💡 EAPOL 4-Way Handshake – derives PTK from PMK; Msg 1: ANonce, Msg 2: SNonce+MIC, Msg 3: GTK, Msg 4: Confirm; completes encryption key installation