

```
PROBLEMS OUTPUT DEBUG CONSOLE PORTS TAILSCALE
TERMINAL Monitor - Task
-- Received ACK package from server in 170.28 ms
[NICE] Transmission completed!
[1/5] Checking key...
-- Key is still valid
[2/5] Transmitting trigger signal to STM32...
-- Constructing frame for transmitting trigger signal to STM32...
-- Command: 1
-- Transmitting trigger signal to STM32
-- Transmit trigger signal to STM32 completed in 9.95 ms
[3/5] Frame processing...
-- Receiving data from STM32
-- Frame parsing completed in 0.33 ms
-- Frame parsing completed in 32.65 ms
[4/5] Construct and send data to server...
Safe counter current: 201
-- Constructing server data frame
-- Sequence number: 8
-- Server data frame constructed in 0.0950 ms
-- Publish succeeded
-- Sent server data frame to server in 5.7810 ms
-- Send data to server completed in 6.58 ms
[5/5] Waiting for ACK package...
-- Received ACK package from server in 102.88 ms
[NICE] Transmission completed!
[1/5] Checking key...
-- Key is still valid
[2/5] Transmitting trigger signal to STM32...
-- Constructing frame for transmitting trigger signal to STM32...
-- Command: 1
-- Transmitting trigger signal to STM32
-- Transmit trigger signal to STM32 completed in 9.95 ms
[3/5] Frame processing...
-- Receiving data from STM32
-- Frame parsing completed in 0.33 ms
-- Frame parsing completed in 32.71 ms
[4/5] Construct and send data to server...
Safe counter current: 70
-- Constructing server data frame
-- Sequence number: 9
-- Server data frame constructed in 0.0940 ms
-- Publish succeeded
-- Sent server data frame to server in 4.7570 ms
```

Thứ tự thực hiện  
quá trình truyền

```
Derived key successfully: 5df3c0790b7b294b...
-- Session key generated: 5df3c0790b7b294b...
-- Derivation index 514
```

[1/3] Parse data frame completed

-- Parsed Server Data Frame:

(index)	Field	Value
0	'Preamble'	'0xaa55'
1	'Identifier ID'	'0x8110910'
2	'Packet Type'	'0x1'
3	'Sequence Number'	9
4	'Nonce'	'ffe7e0ef22c73cf665421ff0010c4a14'
5	'Payload Length'	20
6	'Encrypted Payload'	'579e367f79df20d8d00911fd3ee3af1342d15ea'
7	'MAC Tag'	'79df20d8d00911fd3ee3af1342d15ea'
8	'End Marker'	'0xaaab'

Phân giải  
khung truyền

[2/3] Parsed sensor data completed

Safe counter current: 164

{ data1: 76, data2: 90, data3: 179, data4: 9 }

[3/3] Publish ACK to handshake-send/ecdh completed

[NICE] Everything is done

-> Processed handshake/ecdh in 49ms

Trích xuất dữ liệu

Gửi ACK

npm start

```
[TOPIC_SUBSCRIBED] mqttjs_0bad9e3d → metrics/data
[TOPIC_SUBSCRIBED] mqttjs_0bad9e3d → init/session
[CLIENT_CONNECTED] ESP32Client
[TOPIC_SUBSCRIBED] ESP32Client → handshake-send/ecdh
[CLIENT_DISCONNECTED] ESP32Client
[CLIENT_CONNECTED] ESP32Client
[TOPIC_SUBSCRIBED] ESP32Client → handshake-send/ecdh
[CLIENT_DISCONNECTED] ESP32Client
[CLIENT_CONNECTED] ESP32Client
[TOPIC_SUBSCRIBED] ESP32Client → handshake-send/ecdh
[CLIENT_DISCONNECTED] mqttjs_0bad9e3d
[CLIENT_CONNECTED] mqttjs_c4c230d1
[TOPIC_SUBSCRIBED] mqttjs_c4c230d1 → sensors/data
[TOPIC_SUBSCRIBED] mqttjs_c4c230d1 → encrypt/dhexchange
[TOPIC_SUBSCRIBED] mqttjs_c4c230d1 → handshake/ecdh
[TOPIC_SUBSCRIBED] mqttjs_c4c230d1 → metrics/data
[TOPIC_SUBSCRIBED] mqttjs_c4c230d1 → init/session
[CLIENT_DISCONNECTED] ESP32Client
[CLIENT_CONNECTED] ESP32Client
[TOPIC_SUBSCRIBED] ESP32Client → handshake-send/ecdh
[CLIENT_DISCONNECTED] ESP32Client
[CLIENT_CONNECTED] ESP32Client
[TOPIC_SUBSCRIBED] ESP32Client → handshake-send/ecdh
```