FUTURE_CS_03

Wi-Fi Security Assessment Report

Objective

To assess the security posture of the current Wi-Fi network and identify potential vulnerabilities, including weak passwords, open ports, and unauthorized devices.

Environment Details

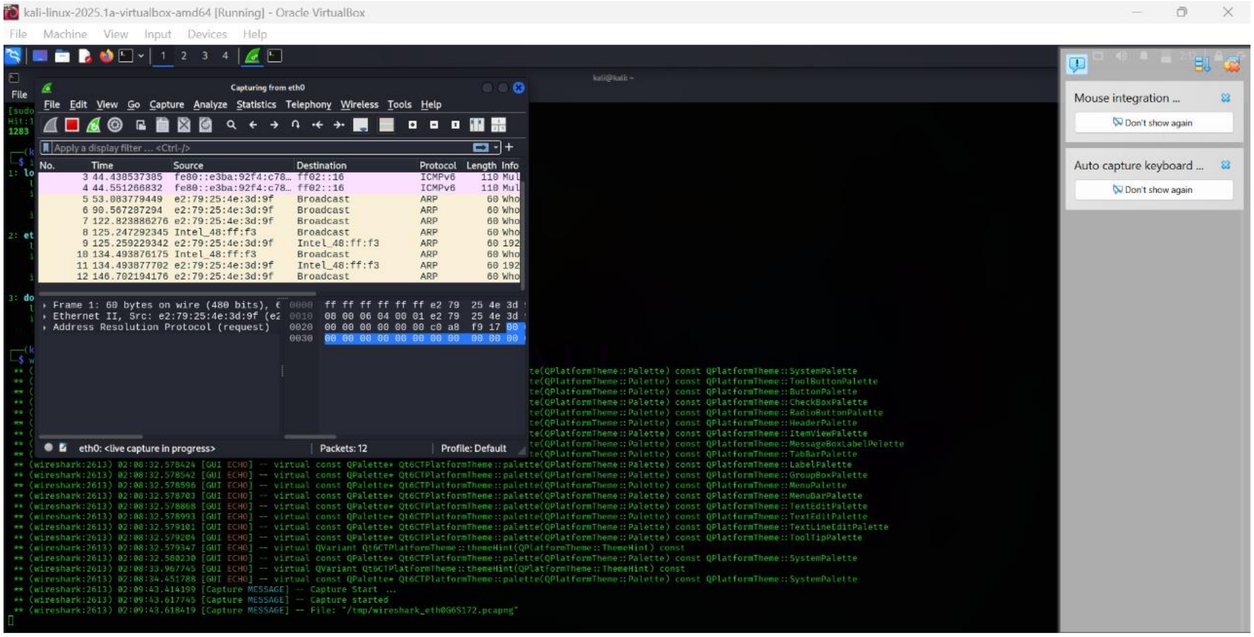
- **Network Type:** Wi-Fi Router
- **Encryption:** WPA2-PSK
- **Assessment Device:** Kali Linux (No external Wi-Fi adapter)

Tools Used

- `nmap`
- `netdiscover`
- `Wireshark`

Findings

Password	Weak password detected (12345678)
Encryption	WPA2-PSK (secure protocol, but password undermines it)
Open Ports	No open ports found on gateway (`nmap -sV 192.168.43.1`)
Connected Devices	2 devices identified using `nmap` and `netdiscover`
Unauthorized Devices	No unauthorized devices detected



kali-linux-2025.1a-virtualbox-amd64 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
Capturing from eth0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>
Mouse integration ...
Don't show again
Auto capture keyboard ...
Don't show again

```
No.   Time           Source                     Destination    Protocol  Length Info
    3 44.438537385   fe80::e3ba:92f4:c78…      ff02::16       ICMPv6       110 Mul
    4 44.551266832   fe80::e3ba:92f4:c78…      ff02::16       ICMPv6       110 Mul
    5 53.083779449   e2:79:25:4e:3d:9f          Broadcast      ARP           60 Who
    6 90.567287294   e2:79:25:4e:3d:9f          Broadcast      ARP           60 Who
    7 122.823886276  e2:79:25:4e:3d:9f          Broadcast      ARP           60 Who
    8 125.247292345  Intel_48:ff:f3             Broadcast      ARP           60 Who
    9 125.259229342  e2:79:25:4e:3d:9f          Intel_48:ff:f3 ARP           60 192
   10 134.493876175  Intel_48:ff:f3             Broadcast      ARP           60 Who
   11 134.493877702  e2:79:25:4e:3d:9f          Intel_48:ff:f3 ARP           60 192
   12 146.702194176  e2:79:25:4e:3d:9f          Broadcast      ARP           60 Who

› Frame 1: 60 bytes on wire (480 bits), €     0000  ff ff ff ff ff ff e2 79  25 4e 3d
› Ethernet II, Src: e2:79:25:4e:3d:9f (e2     0010  08 00 06 04 00 01 e2 79  25 4e 3d
› Address Resolution Protocol (request)       0020  00 00 00 00 00 00 c0 a8  f9 17 00
                                              0030  00 00 00 00 00 00 00 00  00 00 00

eth0: <live capture in progress>        Packets: 12        Profile: Default
```

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** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::SystemPalette
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::ToolButtonPalette
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::ButtonPalette
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::CheckBoxPalette
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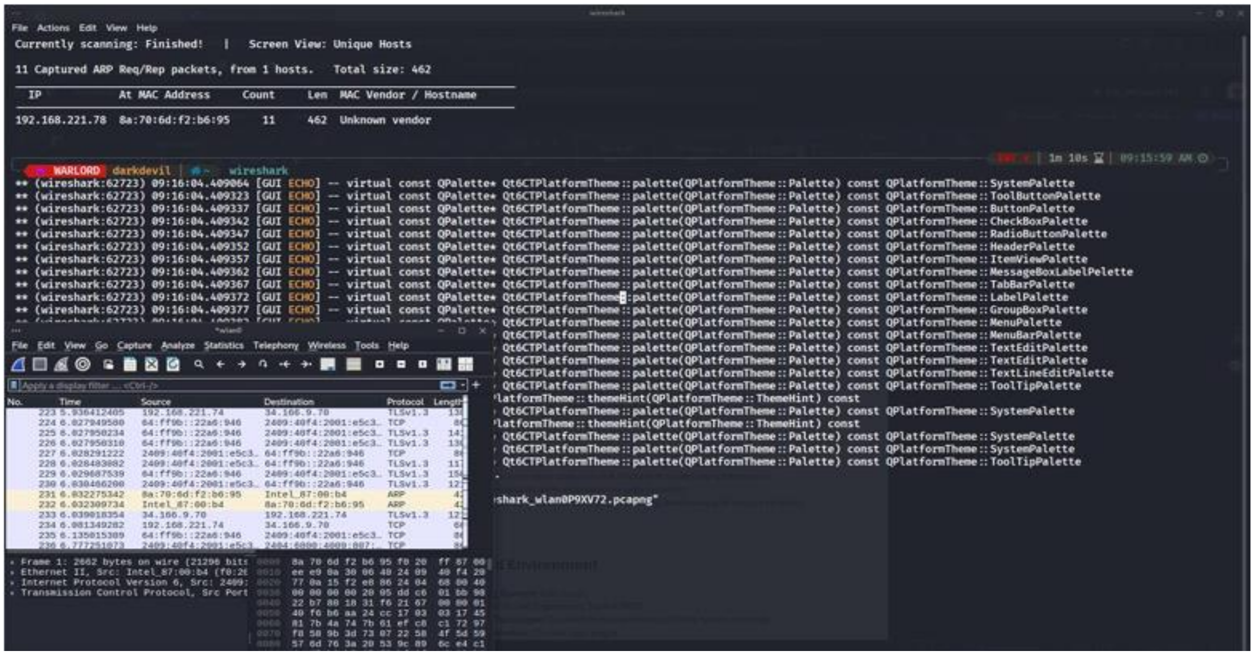
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::HeaderPalette
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::ItemViewPalette
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::MessageBoxLabelPelette
** (                                                                          te(QPlatformTheme::Palette) const QPlatformTheme::TabBarPalette
** (wireshark:2613) 02:08:32.578424 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::LabelPalette
** (wireshark:2613) 02:08:32.578542 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::GroupBoxPalette
** (wireshark:2613) 02:08:32.578596 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::MenuPalette
** (wireshark:2613) 02:08:32.578703 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::MenuBarPalette
** (wireshark:2613) 02:08:32.578868 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::TextEditPalette
** (wireshark:2613) 02:08:32.578993 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::TextEditPalette
** (wireshark:2613) 02:08:32.579101 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::TextLineEditPalette
** (wireshark:2613) 02:08:32.579204 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::ToolTipPalette
** (wireshark:2613) 02:08:32.579347 [GUI ECHO] -- virtual QVariant Qt6CTPlatformTheme::themeHint(QPlatformTheme::ThemeHint) const
** (wireshark:2613) 02:08:32.580230 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::SystemPalette
** (wireshark:2613) 02:08:33.967745 [GUI ECHO] -- virtual QVariant Qt6CTPlatformTheme::themeHint(QPlatformTheme::ThemeHint) const
** (wireshark:2613) 02:08:34.451788 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::SystemPalette
** (wireshark:2613) 02:09:43.414199 [Capture MESSAGE] -- Capture Start ...
** (wireshark:2613) 02:09:43.617745 [Capture MESSAGE] -- Capture started
** (wireshark:2613) 02:09:43.618419 [Capture MESSAGE] -- File: "/tmp/wireshark_eth0G6S172.pcapng"
```



File Actions Edit View Help
*wlan0
File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help
Apply a display filter ... <Ctrl-/>

```
Currently scanning: Finished!   |   Screen View: Unique Hosts

11 Captured ARP Req/Rep packets, from 1 hosts.   Total size: 462
_____________________________________________________________________________
  IP            At MAC Address     Count     Len  MAC Vendor / Hostname
_____________________________________________________________________________
192.168.221.78  8a:70:6d:f2:b6:95     11     462  Unknown vendor

 WARLORD darkdevil | ~  wireshark                                                                  | 1m 10s ⌛ | 09:15:59 AM
** (wireshark:62723) 09:16:04.409064 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::SystemPalette
** (wireshark:62723) 09:16:04.409323 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::ToolButtonPalette
** (wireshark:62723) 09:16:04.409337 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::ButtonPalette
** (wireshark:62723) 09:16:04.409342 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::CheckBoxPalette
** (wireshark:62723) 09:16:04.409347 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::RadioButtonPalette
** (wireshark:62723) 09:16:04.409352 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::HeaderPalette
** (wireshark:62723) 09:16:04.409357 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::ItemViewPalette
** (wireshark:62723) 09:16:04.409362 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::MessageBoxLabelPelette
** (wireshark:62723) 09:16:04.409367 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::TabBarPalette
** (wireshark:62723) 09:16:04.409372 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::LabelPalette
** (wireshark:62723) 09:16:04.409377 [GUI ECHO] -- virtual const QPalette* Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::GroupBoxPalette
                                                             Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::MenuPalette
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                                                             Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::TextLineEditPalette
                                                             Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::ToolTipPalette
                                                            latformTheme::themeHint(QPlatformTheme::ThemeHint) const
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                                                             Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::SystemPalette
                                                             Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::SystemPalette
                                                             Qt6CTPlatformTheme::palette(QPlatformTheme::Palette) const QPlatformTheme::ToolTipPalette

                                                            shark_wlan0P9XV72.pcapng"
```

```
No.   Time          Source                   Destination              Protocol  Length
  223 5.936412405   192.168.221.74           34.166.9.70              TLSv1.3   13
  224 6.027949580   64:ff9b::22a6:946        2409:40f4:2001:e5c3…     TCP       8
  225 6.027950234   64:ff9b::22a6:946        2409:40f4:2001:e5c3…     TLSv1.3   14
  226 6.027950310   64:ff9b::22a6:946        2409:40f4:2001:e5c3…     TLSv1.3   13
  227 6.028291222   2409:40f4:2001:e5c3…     64:ff9b::22a6:946        TCP       8
  228 6.028483082   2409:40f4:2001:e5c3…     64:ff9b::22a6:946        TLSv1.3   11
  229 6.029687539   64:ff9b::22a6:946        2409:40f4:2001:e5c3…     TLSv1.3   15
  230 6.030466200   2409:40f4:2001:e5c3…     64:ff9b::22a6:946        TLSv1.3   12
  231 6.032275342   8a:70:6d:f2:b6:95        Intel_87:00:b4           ARP       4
  232 6.032309734   Intel_87:00:b4           8a:70:6d:f2:b6:95        ARP       4
  233 6.039018354   34.166.9.70              192.168.221.74           TLSv1.3   12
  234 6.081349282   192.168.221.74           34.166.9.70              TCP       6
  235 6.135015309   64:ff9b::22a6:946        2409:40f4:2001:e5c3…     TCP       8
  236 6.777251073   2409:40f4:2001:e5c3…     2404:6800:4009:807:…     TCP       8

› Frame 1: 2662 bytes on wire (21296 bits   0000  8a 70 6d f2 b6 95 f0 20  ff 87 00
› Ethernet II, Src: Intel_87:00:b4 (f0:20   0010  ee e9 0a 30 06 40 24 09  40 f4 20
› Internet Protocol Version 6, Src: 2409:   0020  77 0a 15 f2 e8 86 24 04  68 00 40
› Transmission Control Protocol, Src Port   0030  00 00 00 00 20 05 dd c6  01 bb 90
                                            0040  22 b7 80 18 31 f6 21 67  00 00 01
                                            0050  40 f6 b6 aa 24 cc 17 03  03 17 45
                                            0060  81 7b 4a 74 7b 61 ef c8  c1 72 97
                                            0070  f8 58 9b 3d 73 07 22 58  4f 5d 59
                                            0080  57 6d 76 3a 20 53 9c 89  6c e4 c1
```

Recommendations

- Use a **strong Wi-Fi password** (16+ characters with a mix of uppercase, lowercase, numbers, and symbols).
- Regularly **monitor connected devices** using tools like `nmap` or mobile apps.
- Enable **MAC address filtering** (if supported) to restrict unknown devices.
- **Avoid using default or easily guessable passwords** (like "12345678").

Conclusion

Despite the hardware limitations (no external Wi-Fi adapter), the assessment successfully identified a critical weakness—**poor password hygiene**. Basic scanning techniques using tools like `nmap`, `netdiscover`, and `Wireshark` provided valuable insights into the current network security.

For a deeper assessment (e.g., packet injection, handshake capturing), using a compatible external Wi-Fi adapter is highly recommended.

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