iwd - State of the union

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Wi-Fi on Linux still sucks
I want to be a pirate.
The three trials!
The three trials!
The three trials!
I’ve got JUST the boat for you!
UI

NetworkManager

iwd

systemd-resolved

nl80211

Known Networks

RTNL
• Centralized known networks database
• Personal and enterprise network provisioning
• Optimized scanning
• Roaming and fast transitions
• Radio resource management
• Automatic WPA3 and OWE support
• Integrated EAP engine
• Hotspot 2.0 support
• Simple Configuration and Protected Setup
• Address randomization for privacy
• Access Point mode for Personal Hotspot
Improving provisioning
Now press Windows-Key + R and type in cmd
Now press Ctrl+Shift+Enter and answer with yes to open an administrative Command Prompt
Insert the following command to install the eduroam Wi-Fi profile:

```bash
netsh wlan add profile filename="C:\WiFi-eduroam-MPIEVA.xml"
```

https://www.eva.mpg.de/service/it/network-for-guests/wlan-eduroam.html
# TLS
[Security]
EAP-Method=TLS
EAP-TLS-ClientCert=/certs/client-cert.pem
EAP-TLS-ClientKey=/certs/client-key.pem
EAP-TLS-CACert=/certs/ca-cert.pem
EAP-TLS-ServerDomainMask=*.domain.com

# TTLS + PAP
[Security]
EAP-Method=TTLS
EAP-Identity=open@identity.com
EAP-TTLS-CACert=/certs/ca-cert.pem
EAP-TTLS-Phase2-Method=Tunneled-PAP
EAP-TTLS-Phase2-Identity=username
EAP-TTLS-Phase2-Password=password
EAP-TTLS-ServerDomainMask=*.domain.com

# PWD
[Security]
EAP-Method=PWD
EAP-Identity=user@domain.com
EAP-Password=secret123

# PSK
[Security]
Passphrase=secret123
# TLS with embedded certificates

[Security]
EAP-Method=TLS
EAP-TLS-ClientCert=embed:client_cert
EAP-TLS-ClientKey=embed:client_key
EAP-TLS-CACert=embed:ca_cert
EAP-TLS-ServerDomainMask=*.domain.com

[@pem@ca_cert]
----- BEGIN CERTIFICATE -----  
MIIEajCCAlKgAwIBAgIUWB7MPgcDDAF7TDEPD5bdizrXRSUwDQYJKoZIhvcNAQEL 
BQAweDE1MDMGA1UECgwsSW50ZXJuYXRpb25hbCBVbmlvbiBvZiBFGtcGx1IE9y 
... 
pggZ4vLtLFLiG8ktfL/DMbToKaisFV+Z4grKjrNY 
----- END CERTIFICATE -----  

[@pem@client_cert]
----- BEGIN CERTIFICATE -----  
MIIEuZCCAzugAwIBAgIUUM2iku6AR8PCNUP30eU7nbOASuXowDQYJKoZIhvcNAQEL 
BQAweDE1MDMGA1UECgwsSW50ZXJuYXRpb25hbCBVbmlvbiBvZiBFGtcGx1IE9y 
... 
0Kuwj5fqIA== 
----- END CERTIFICATE -----  

[@pem@client_key]
-----BEGIN PRIVATE KEY-----  
MIIeVQIBADANBgkqhkiG9w0BAQEFAASCBKcwwgSjAgEAAAoIBAQDRiA4WnW892qOE 
iTExSsBYfMQCNJzyyIwnfJxPcAp3lBrvieiClRTNWXEyNOqbJg5MwH+hdHz32t 
... 
x5suh0ta8S/wE+jCh3QfxFo= 
-----END PRIVATE KEY-----
man iwd.network.5
Linux Wi-Fi provisioning needs a standard
Ah! A red herring!
I'm looking for the Sword Master of Mêlée Island™.
• Integrated DHCP v4 client
• Integrated network configuration
• IPv6 routing and DNS configuration
• Support for systemd-resolved and resolvconf

• Experimental and work in progress
man iwd.config.5
Please! I have a wife and three children!
• Goal is a complete connection in 100ms or less

• Fully integrated setup
  – Scanning   ~100ms
  – Connecting ~100ms
  – DHCP       50-100ms

• Without PAE over nl80211 it is 4x slower

• Address randomization adds another 300ms to it

• Android folks reported 3 seconds penalty
iwd can not work miracles
nl80211 needs optimizations
No thanks!

We are too busy
iwd 1.0 is the latest

~40k SLOC
~2500 commits
28 contributors

Please test and report bugs
I'm Stan of Stan's Previously Owned Vessels.