SemFio NETWORKS

AUTOMATING WI-FI VALIDATIONS

WITH NO-CODE TOOLS

François Vergès, CWNE 180

WLPC PHOENIX 2026

WI-CO MONTRÉAL - OCT. 2025

SemFio NETWORKS

	Items to Review and Report	2.4GHz			5GHz			6GHz		
1	Captive Web Portal Use		Use only if required	1		Use only if required	1		Use only if required	1
2	1, 6, 11 Only	✅	Ch 1, 6, 11 Only	1	❌	Not Applicable in 5GHz		❌	Not Applicable in 6GHz	
3	20 MHz Channels	✅	20MHz Channels Only	1		Use	1		Use	1
4	40 MHz Channels	❌	No 40MHz Ch	1		Check CCC	0		Use	1
5	80 MHz Channels	❌	Not Available in 2.4GHz	1	❌	Not Recommended	1		Check CCC	1
6	Interference - Co-Channel		>-85dBm	1		>-85dBm	1		>-85dBm	1
7	OBSS - Consistent Channel Bonding	❌	Do NOT bond channels!	1	✅	High Side Consistent	1	✅	High Side Consistent	1
8	Channels - DFS in Use	❌	Not Applicable			Use & Review	1	❌	Not Applicable in 6GHz	
9	Minimum Basic Rates - Trim		MBR>=12Mbps, No b	0		MBR>=12Mbps	0		MBR>=12Mbps	0
10	SSID's - Across Bands	❌	Have 2.4GHz-only SSIDs	1	✅	Use w/RNR	1	✅	Use w/RNR	1
11	Signal - Primary RSSI		-67dBm	1		-65dBm	1		-65dBm	1
12	Signal - Secondary RSSI *^**		-67dBm	0		-65dBm	0		-65dBm	0
13	AP Transmit Power *^**		7dBm Target	0		13dBm Target	0		16dBm Target	1
14	WPA 2/3 Transition *^**	❌	Not Recommended	1	❌	Not Recommended	1	❌	Not Allowed	1
15	WPA 3		Recommended	1		Recommended	1		Required	1
16	802.11 k - Neighbor Report	✅	Recommended	1	✅	Recommended	1	✅	Recommended	1
17	802.11 r - Fast Transition *^**	✅	Recommended	1	✅	Recommended	1	✅	Recommended	1
18	802.11 v - Transition Management	✅	Recommended	1	✅	Recommended	1	✅	Recommended	1
19	Channels - Utilization/BSS Load *^**		Target <40%	1		Target <20%	1		Target <20%	1
20	Clients per Radio - BSS Load		<40	1		<40	1		<40	1
			2.4 GHz Results	**84%**		**5 GHz Results**	**79%**		**6 GHz Results**	**89%**

SemFio NETWORKS

CAN WE AUTOMATE THESE ENTRIES?

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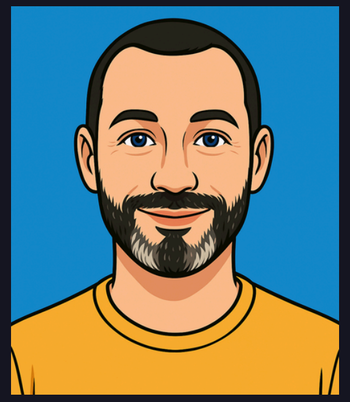
SemFio NETWORKS

WLPC PHX 2026

FRANÇOIS VERGÈS



https://www.linkedin.com/in/francoisverges/

WI-CO

https://wi-co.org/upcoming-events/toronto2026

Toronto - April 22 2026

https://wi-co.org/upcoming-events/toronto2026

Lyon - July 2 2026

SemFio NETWORKS

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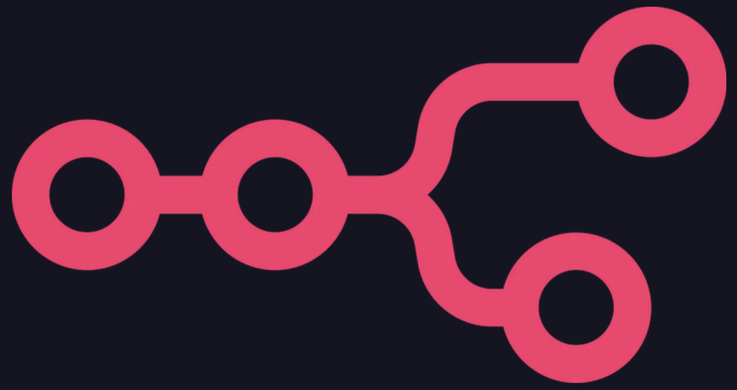
SemFio NETWORKS

N8N

n**(odematio)**n

- Open source automation tool
- AI-Ready
- Lots of integrations



SemFio NETWORKS

N8N - DEPLOYMENT

LOCAL	SELF-HOSTED	N8N SAAS
• Runs locally with Docker / npx • Free	• Docker / VPS • About 5$/month	• Easy setup • Starts at 20$/month
• Hard to keep on all the time	• Setup required	• More expensive

Community edition available

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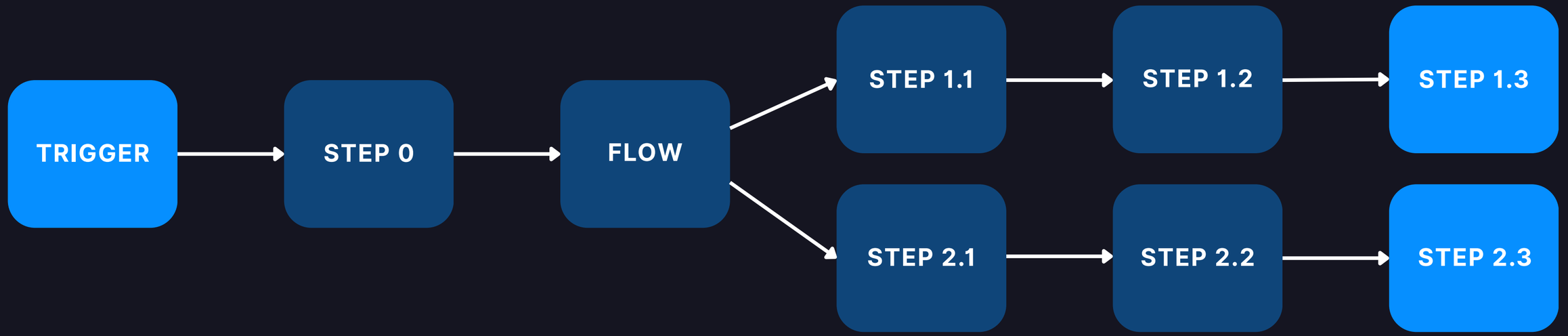
SemFio NETWORKS

N8N - WORKFLOW



An n8n workflow is JSON file

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N8N - NODES

TRIGGER	INTEGRATION	LOGIC / FLOW	CUSTOM / AI
• Manual trigger • Webhook • Schedule	• Pre-defined operations (Gmail, Slack, etc.) • API connectors • File operations	• Switch (if) • Merge • Filter / Split • Loop	• Code (JS / Python) • AI Agent

*Each node has an **input** and an **output***

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SemFio NETWORKS

WHERE IS THE DATA?

Beacons

95% of data*

Configurations

Remaining

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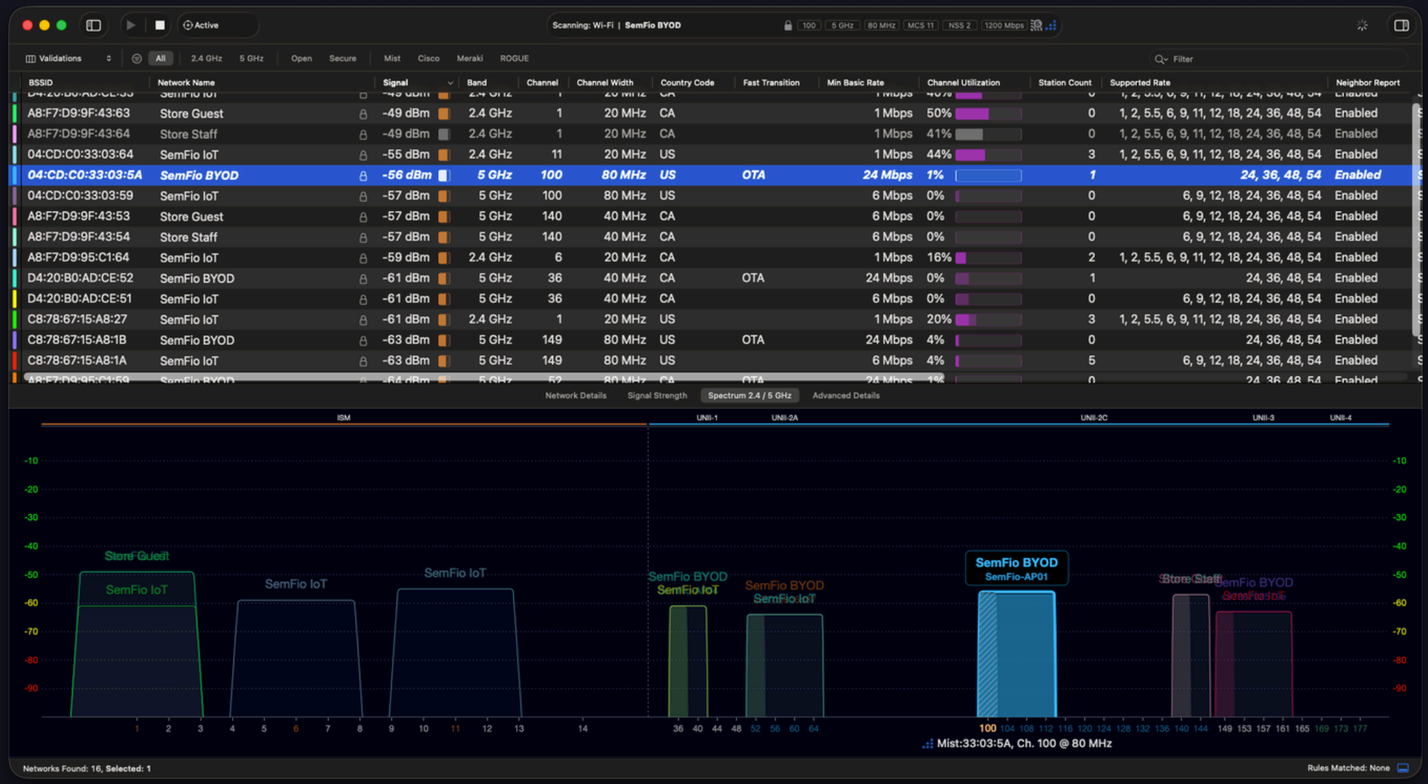
SemFio NETWORKS

GATHER THE DATA

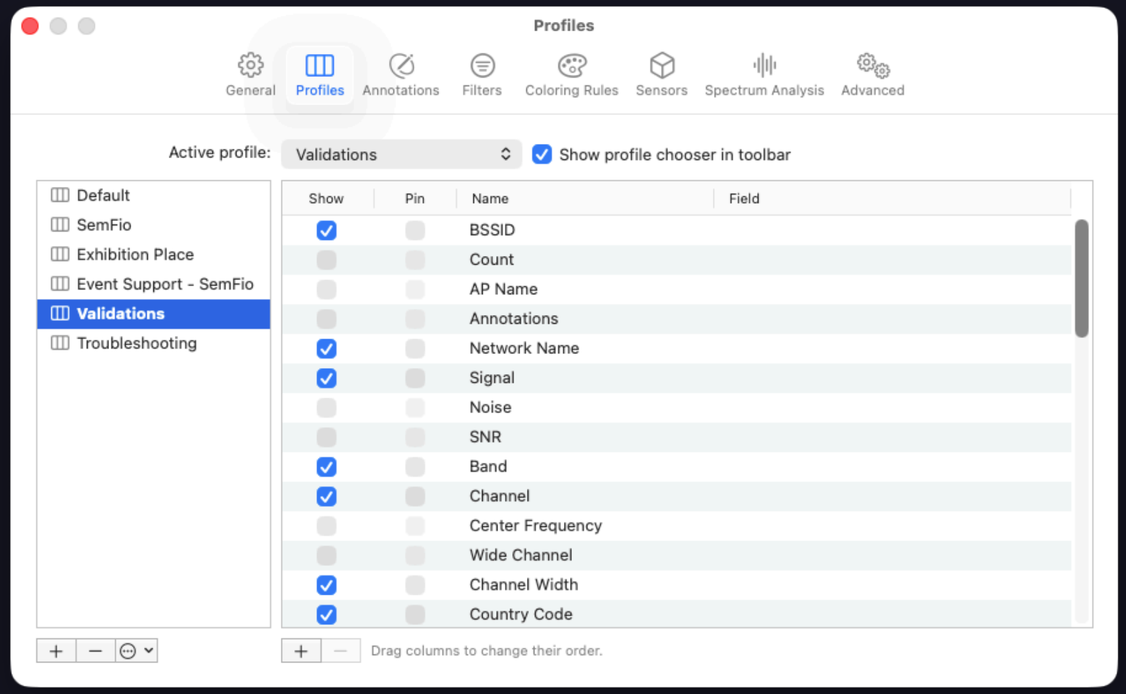
WIFI EXPLORER PRO



GATHER THE DATA

WIFI EXPLORER PRO

Custom Profile



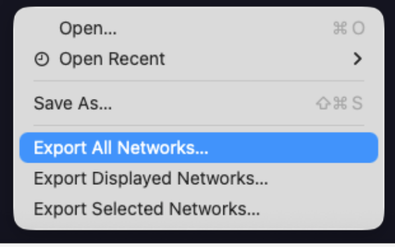
SemFio NETWORKS

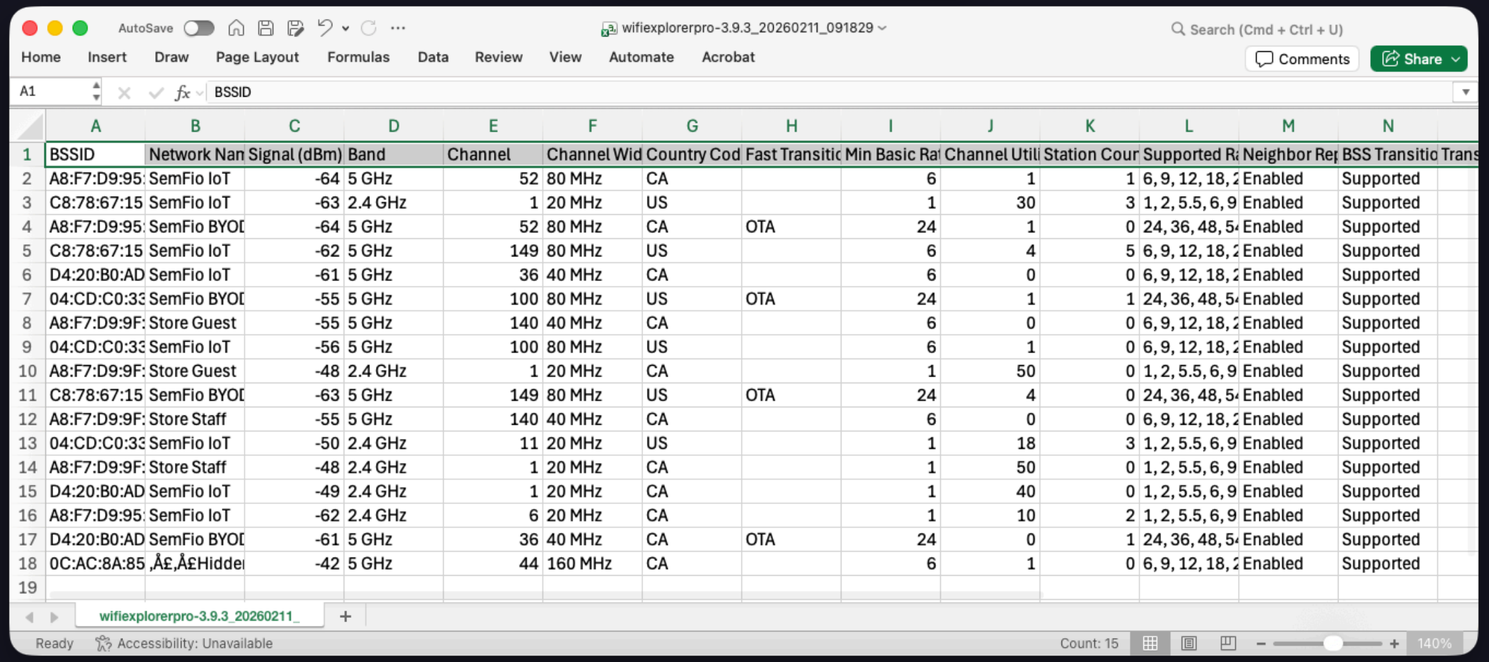
GATHER THE DATA

WIFI EXPLORER PRO

Custom Profile

CSV Export





wifiexplorerpro-3.9.3_20260211_091829

BSSID	Network Nan	Signal (dBm)	Band	Channel	Channel Wid	Country Cod	Fast Transitic	Min Basic Ra	Channel Utili	Station Cour	Supported R	Neighbor Rep	BSS Transitio	Trans
A8:F7:D9:95	SemFio IoT	-64	5 GHz	52	80 MHz	CA		6	1	1	6, 9, 12, 18, 2	Enabled	Supported	
C8:78:67:15	SemFio IoT	-63	2.4 GHz	1	20 MHz	US		1	30	3	1, 2, 5.5, 6, 9	Enabled	Supported	
A8:F7:D9:95	SemFio BYOI	-64	5 GHz	52	80 MHz	CA	OTA	24	1	0	24, 36, 48, 54	Enabled	Supported	
C8:78:67:15	SemFio IoT	-62	5 GHz	149	80 MHz	US		6	4	5	6, 9, 12, 18, 2	Enabled	Supported	
D4:20:B0:AD	SemFio IoT	-61	5 GHz	36	40 MHz	CA		6	0	0	6, 9, 12, 18, 2	Enabled	Supported	
04:CD:C0:33	SemFio BYOI	-55	5 GHz	100	80 MHz	US	OTA	24	1	1	24, 36, 48, 54	Enabled	Supported	
A8:F7:D9:9F	Store Guest	-55	5 GHz	140	40 MHz	CA		6	0	0	6, 9, 12, 18, 2	Enabled	Supported	
04:CD:C0:33	SemFio IoT	-56	5 GHz	100	80 MHz	US		6	1	0	6, 9, 12, 18, 2	Enabled	Supported	
A8:F7:D9:9F	Store Guest	-48	2.4 GHz	1	20 MHz	CA		1	50	0	1, 2, 5.5, 6, 9	Enabled	Supported	
C8:78:67:15	SemFio BYOI	-63	5 GHz	149	80 MHz	US	OTA	24	4	0	24, 36, 48, 54	Enabled	Supported	
A8:F7:D9:9F	Store Staff	-55	5 GHz	140	40 MHz	CA		6	0	0	6, 9, 12, 18, 2	Enabled	Supported	
04:CD:C0:33	SemFio IoT	-50	2.4 GHz	11	20 MHz	US		1	18	3	1, 2, 5.5, 6, 9	Enabled	Supported	
A8:F7:D9:9F	Store Staff	-48	2.4 GHz	1	20 MHz	CA		1	50	0	1, 2, 5.5, 6, 9	Enabled	Supported	
D4:20:B0:AD	SemFio IoT	-49	2.4 GHz	1	20 MHz	CA		1	40	0	1, 2, 5.5, 6, 9	Enabled	Supported	
A8:F7:D9:95	SemFio IoT	-62	2.4 GHz	6	20 MHz	CA		1	10	2	1, 2, 5.5, 6, 9	Enabled	Supported	
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0C:AC:8A:85	Â£,Â£Hidde	-42	5 GHz	44	160 MHz	CA		6	1	0	6, 9, 12, 18, 2	Enabled	Supported	

SemFio NETWORKS

VALIDATION PROCESS

with tools

STEP 1

ON-SITE SCAN

STEP 2

EXPORT AS CSV

STEP 3

IMPORT CSV IN N8N

STEP 4

N8N VALIDATIONS

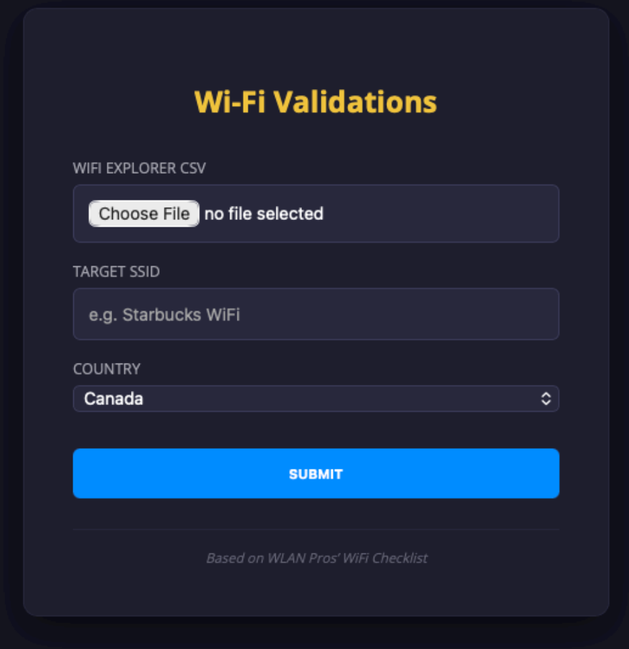
STEP 5

GET RESULTS

INPUT DATA TO N8N

HTML FORM

1. **Scan** results (csv)
2. **SSID** to validate
3. **Country**

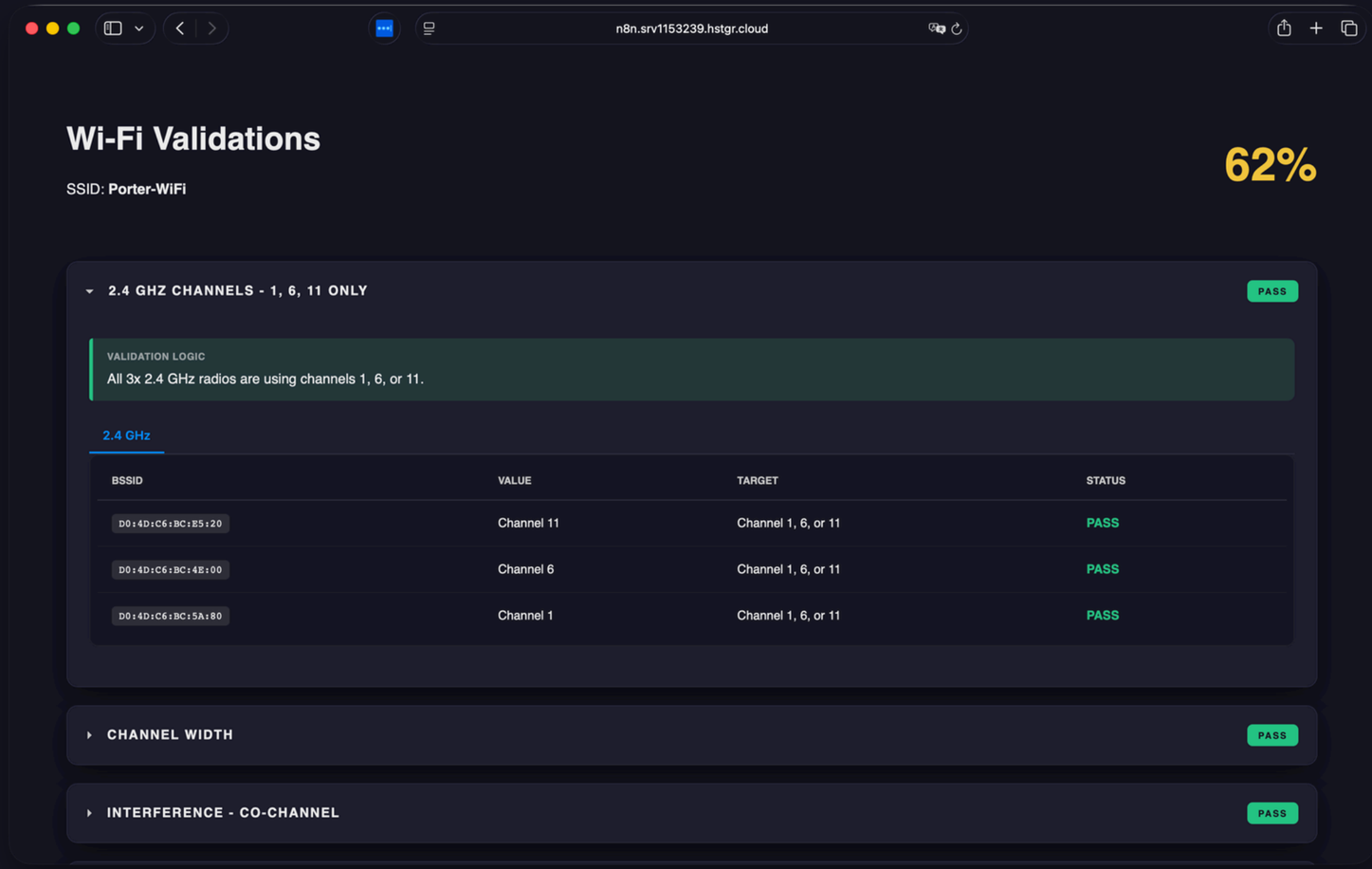


SemFio NETWORKS

RESULTS PRESENTATION

HTML PAGE

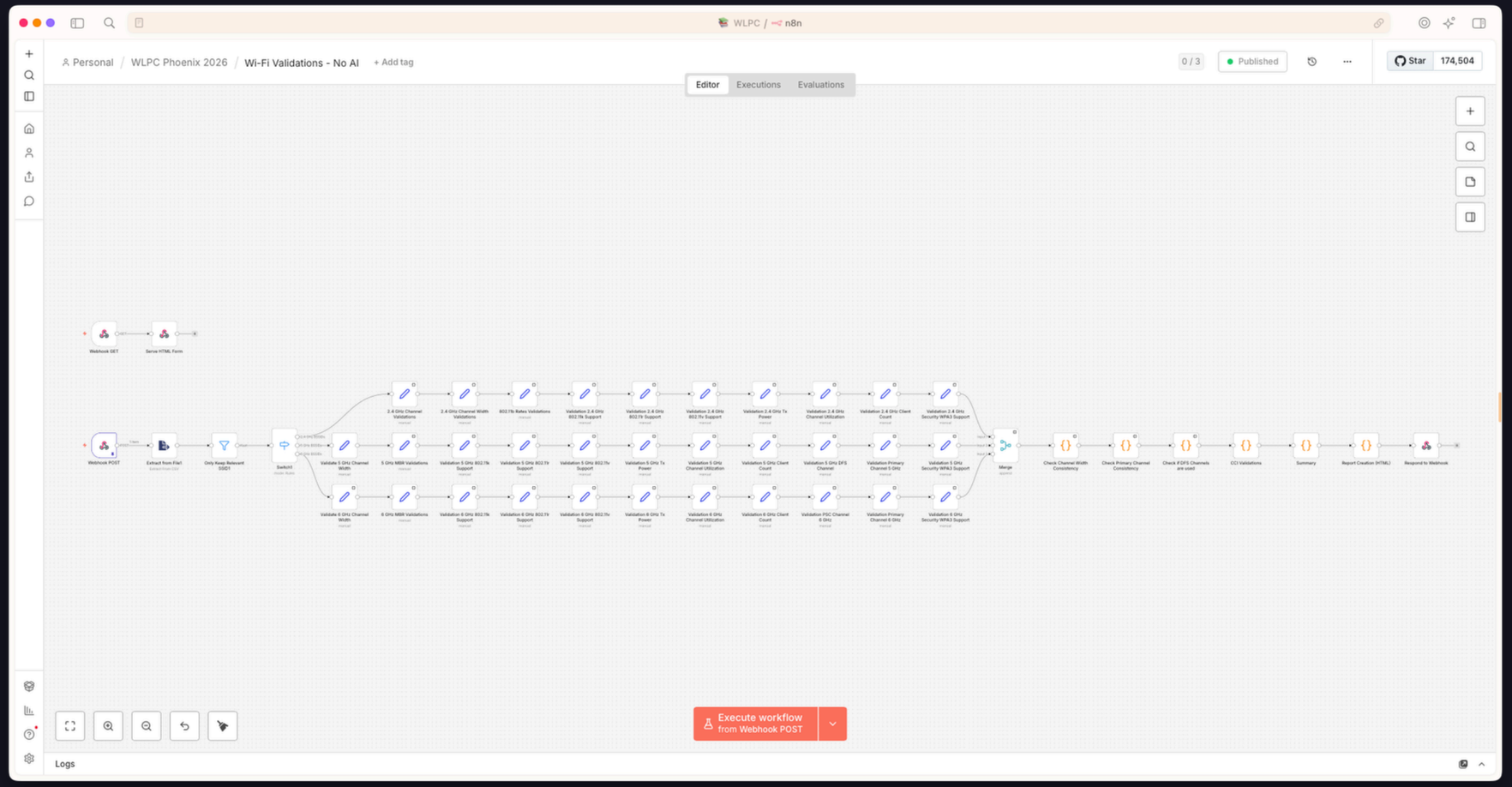
1. Overall Score
2. Detailed results



SemFio NETWORKS

N8N WORKFLOW

with NO AI



SemFio NETWORKS

N8N WORKFLOW

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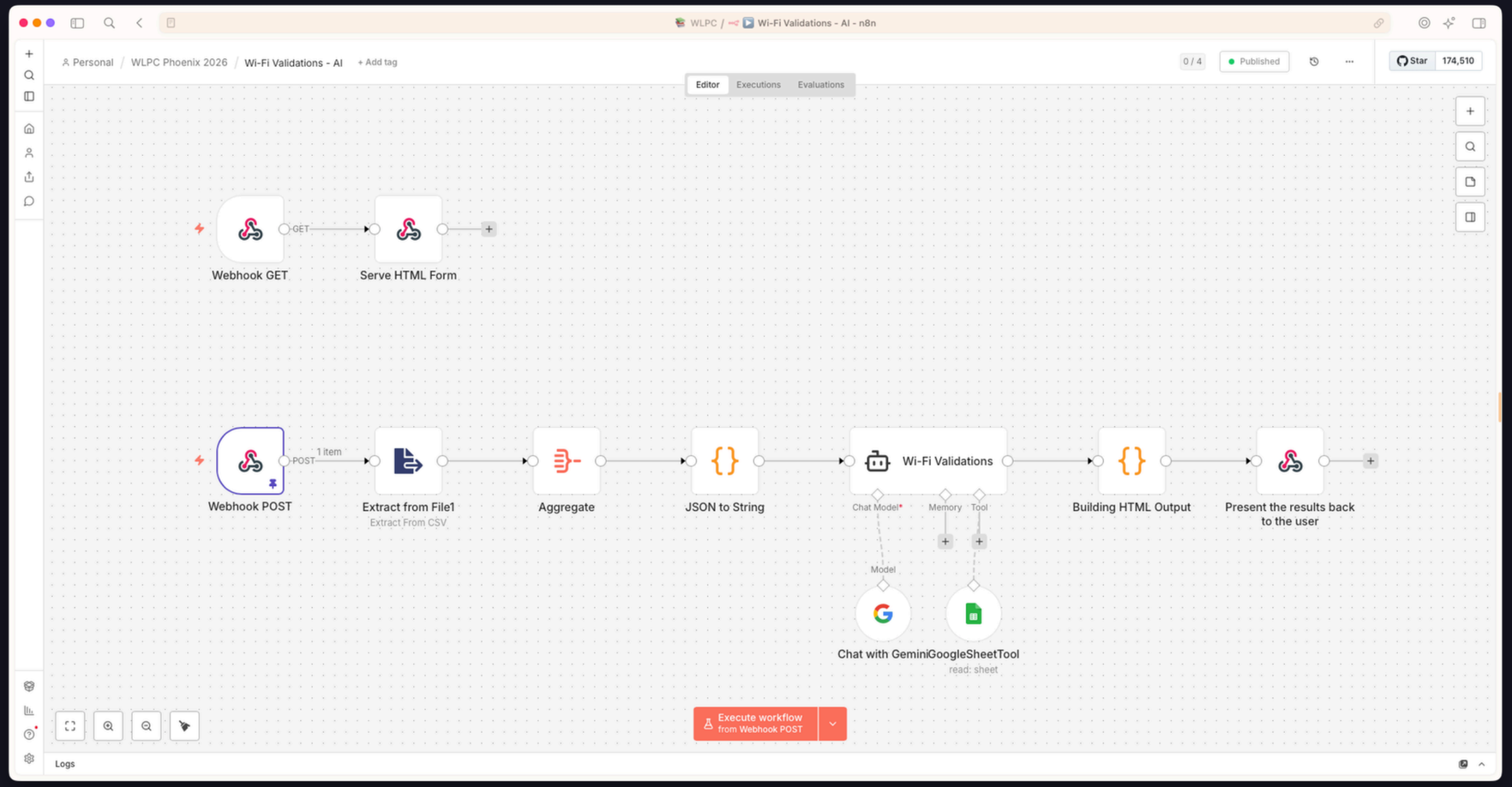

WHAT WORKS WELL

with n8n

SHARING	INTEGRATED UI	AI INTEGRATION	LOW-CODE
• JSON-base sharing • Easy to copy & modify • Free option	• Built-in webhooks • No need to setup additional UI	• Native AI Nodes • Contextual Summaries	• Flexibility to add code • Unlimited complexity

CHALLENGES

with n8n

STORAGE

n8n is an **orchestrator**, not a database!

- No history
- No context
- No settings

MULTI-SCANS

Harder to implement more advanced logic.

- Corrolation between multiple scans

CHALLENGES

with AI

PROMPTING

Challenging to find the perfect prompt.

I was faced with:

- Hallucinations
- Inconsistent results
- Assumptions

SPEED

Takes a few minutes for each analysis.

IMPROVEMENTS

for this Wi-Fi validation tool

N8N ENHANCEMENTS

- Integrations with your tools (slack, notion)
- Saving option
- Error management
- **Fine-tune the AI**

VIBE CODING

- Build web app based on the workflow
- Ability to build a more complete tool

SemFio NETWORKS

DEEPER LOOK 👇

https://github.com/francoisverges/n8n_wi-fi_validations

GITHUB