Advanced Wazuh Decoder Builder – Complete User Guide

Author: Mariskarthick M

Website: https://decoder.mariskarthick.in

Date: April 04, 2025

What This Tool Does

The Advanced Wazuh Decoder Builder is an interactive tool that generates multi-layered XML decoders for Wazuh based on your log samples. It supports:
- Manual regex decoders
- Pure GROK pattern decoders
- Hybrid mode: GROK base + child decoders
- Smart spacing detection, timestamp handling, and PCRE2 support

Sample Log to Work With

Jan 24 11:01:28 5.195.107.202 0|Fortinet|FortiGate-300E|7.2.4,build1396 (GA)|0000000013|forward traffic close|5|start=Jan 18 2024 21:33:33 logid=0102201 deviceExternalId=FG2K0E12345W2924823

Mode 1: GROK Mode (ON)

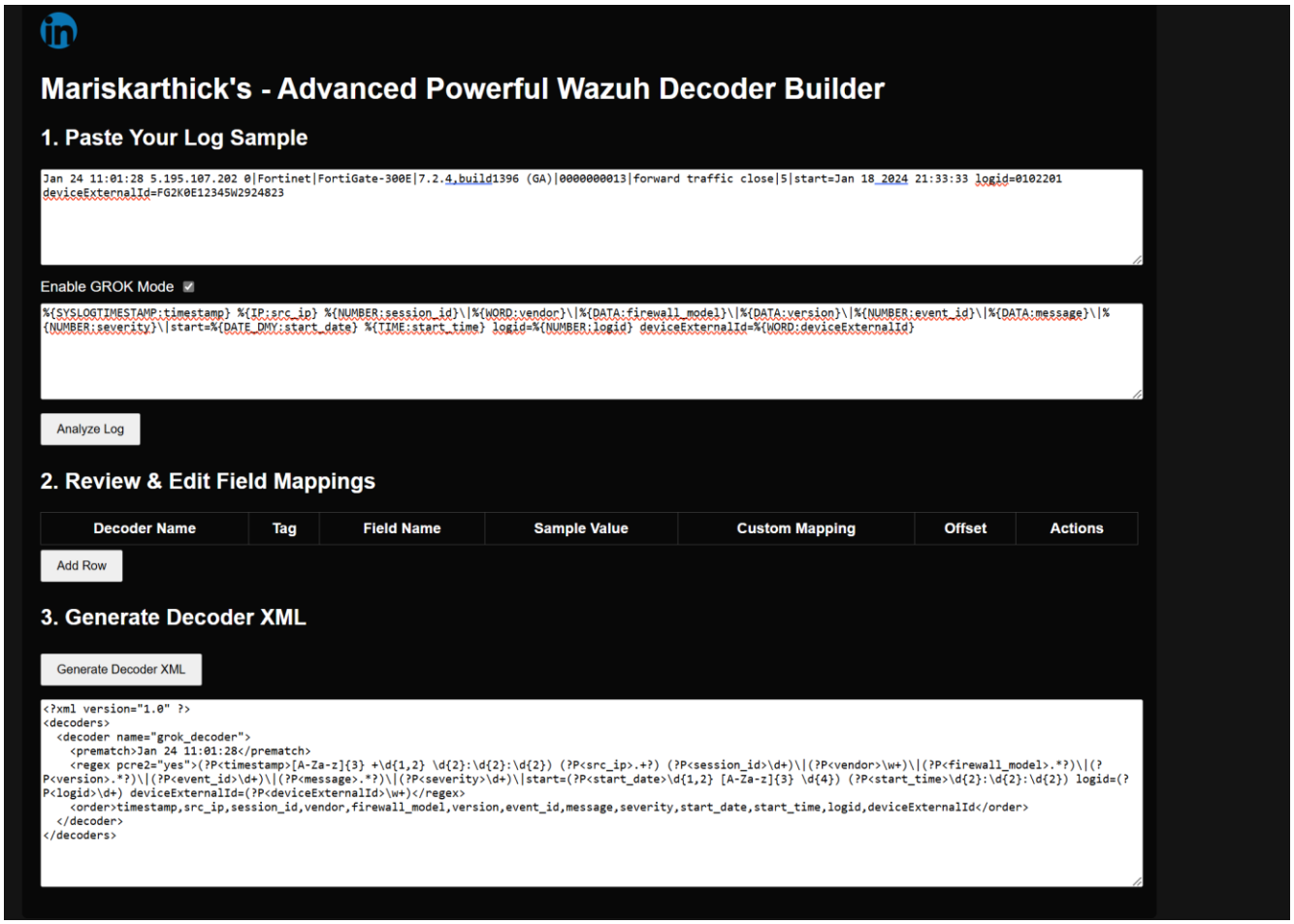
How to Use:
1. Enable GROK Mode in the UI (checkbox).
2. Paste the following GROK pattern:
%{SYSLOGTIMESTAMP:timestamp} %{IP:src_ip} %{NUMBER:session_id}\|%{WORD:vendor}\|%{DATA:firewall_model}\|%{DATA:version}\|%{NUMBER:event_id}\|%{DATA:message}\|%{NUMBER:severity}\|start=%{DATE_DMY:start_date} %{TIME:start_time} logid=%{NUMBER:logid}
deviceExternalId=%{WORD:deviceExternalId}
3. Paste the sample log.
4. (Optional) Add a row:
  - decoderName: grok_decoder
  - tag: prematch

- sampleValue: Jan 24 11:01:28

5. Click Generate Decoder XML.

Output for GROK Mode

```
<decoder name="grok_decoder">
 <prematch>Jan 24 11:01:28</prematch>
 <regex pcre2="yes">...converted pattern...</regex>
 <order>timestamp,src_ip,session_id,vendor,...</order>
</decoder>
```

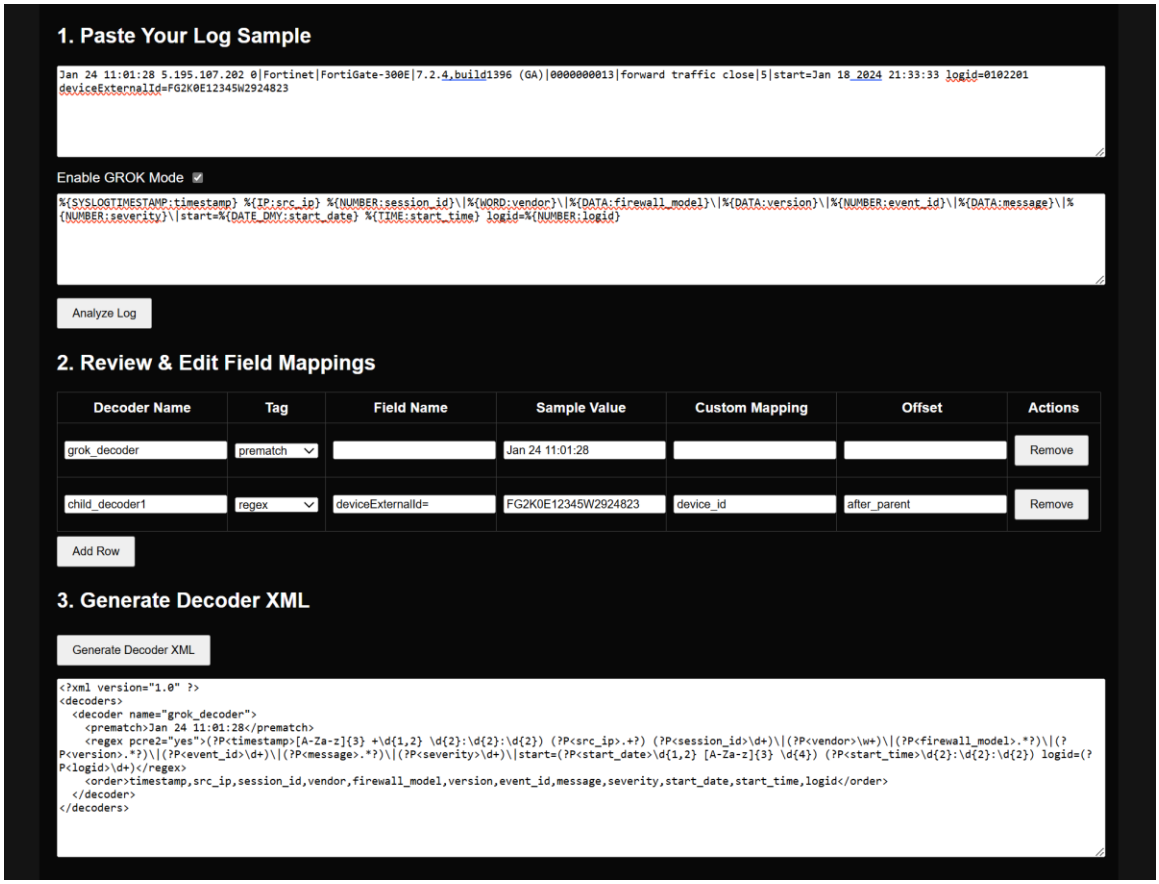


Mode 2: Hybrid Mode (GROK + Regex Rows)

Steps:

1. Enable GROK Mode.
2. Add GROK pattern and sample log.
3. Add rows:
   - Row 1: decoderName=grok_decoder, tag=prematch, sampleValue=Jan 24 11:01:28

- Row 2: decoderName=child_decoder1, tag=regex, fieldName=deviceExternalId=, sampleValue=FG2K0E12345W2924823, customMapping=device_id, offset=after_parent



Output for Hybrid Mode

```
<?xml version="1.0" ?>
<decoders>
 <decoder name="grok_decoder">
  <prematch>Jan 24 11:01:28</prematch>
  <regex pcre2="yes">(?P<timestamp>[A-Za-z]{3} +\d{1,2} \d{2}:\d{2}:\d{2})
(?P<src_ip>.+?)
(?P<session_id>\d+)\|(?P<vendor>\w+)\|(?P<firewall_model>.*?)\|(?P<version>.*?)\|(?P<event_id>\d+)\|(?P<message>.*?)\|(?P<severity>\d+)\|start=(?P<start_date>\d{1,2} [A-Za-z]{3} \d{4}) (?P<start_time>\d{2}:\d{2}:\d{2}) logid=(?P<logid>\d+)</regex>
<order>timestamp,src_ip,session_id,vendor,firewall_model,version,event_id,message,severity,start_date,start_time,logid</order>
 </decoder>
</decoders>
```

✍ Mode 3: Manual Regex Mode (GROK Mode OFF)

Steps:
1. Turn GROK Mode OFF.
2. Add sample log.
3. Add rows:
  - Row 1: decoderName=fortinet_root, tag=prematch, sampleValue=Jan 24 11:01:28
  - Row 2: decoderName=fortinet_child, tag=parent, sampleValue=fortinet_root
  - Row 3: decoderName=fortinet_child, tag=regex, fieldName=logid=, sampleValue=0102201, customMapping=logid, offset=after_parent
  - Row 4: decoderName=fortinet_child, tag=regex, fieldName=deviceExternalId=, sampleValue=FG2K0E12345W2924823, customMapping=device_id, offset=after_regex

📄 Output for Manual Regex

```
<decoder name="fortinet_root">
 <prematch>Jan 24 11:01:28</prematch>
</decoder>
<decoder name="fortinet_child">
 <parent>fortinet_root</parent>
 <regex offset="after_parent">logid=(?P<logid>\d+)</regex>
 <regex offset="after_regex">deviceExternalId=(?P<device_id>\S+)</regex>
 <order>logid,device_id</order>
</decoder>
```

🧠 Advanced Features Summary

Feature	How It Works
Spacing Detection	Field name like logid= auto-detects space gap: adds \s+ or \s{N}
PCRE2 Regex	All regexes use <regex pcre2="yes"> when GROK or dynamic
Offset Logic	Use after_parent after <prematch>, and after_regex for chaining
Timestamp Detection	Automatically matches known formats, e.g., SYSLOGTIMESTAMP, DATE_DMY + TIME
Multi-Decoder Support	Decoders are split into root + children based on <parent>
Field Mapping	customMapping → Wazuh field name (srcip, msg, logid, etc.)

☑ Deployment

1. Save decoder XML as .xml file in /var/ossec/decoders.d/
2. Restart Wazuh: systemctl restart wazuh-manager
3. Test: /var/ossec/bin/wazuh-logtest

Bonus Tips

- For complex nested logs, break into root decoder + child decoders.
- Always test your GROK patterns separately if unsure https://grokdebugger.com/
- Use <type> and <description> tags if needed.
- Avoid overlapping decoder names in multi-decoder builds.