



**tnc23**

DIGITAL GENERATIONS

TIRANA, ALBANIA | 5-9 JUNE 2023

# Log Management and Visualization of AMRES statistics using Open-source Tools

**Katarina Simonović**

TNC23, Tirana, Albania

7 June 2023



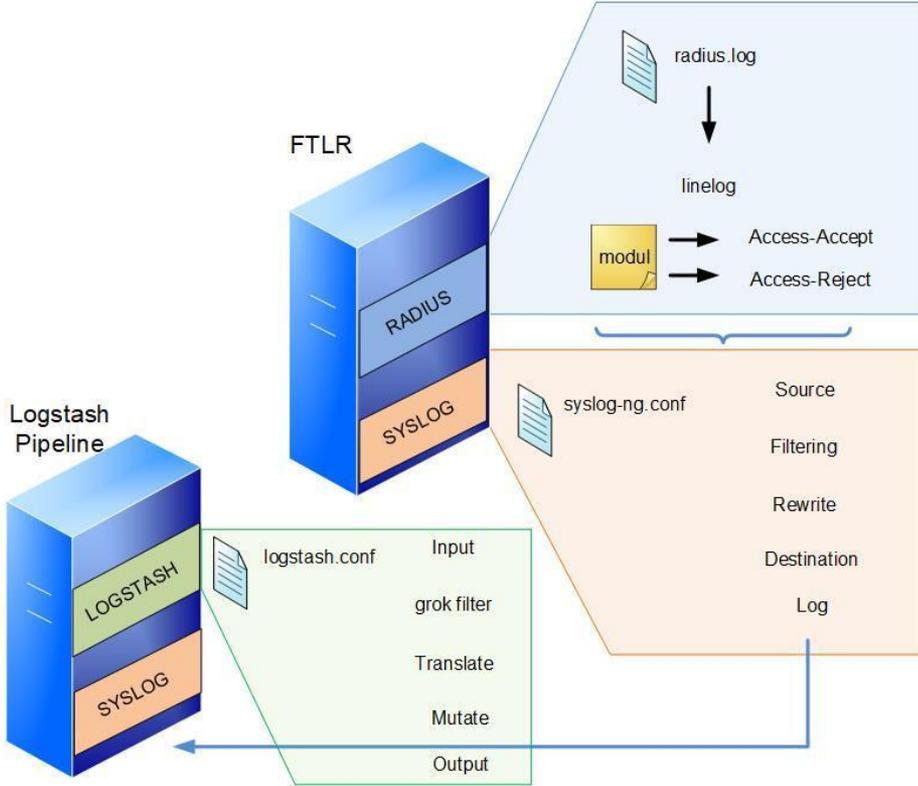
Co-funded by  
the European Union

# Tools used in the log management process

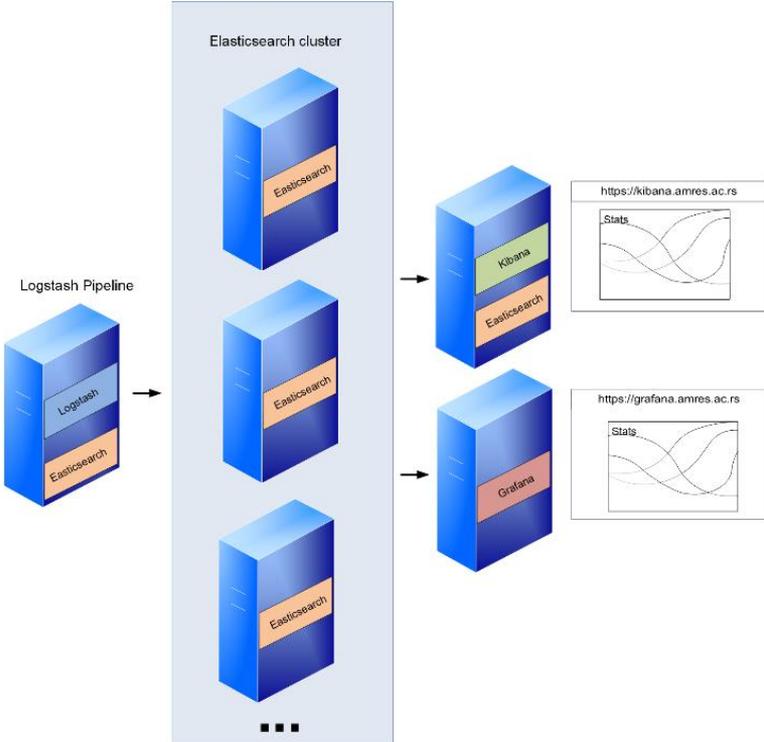
**NAME OF SOFTWARE    TYPE OF SOFTWARE    FUNCTION OF SOFTWARE**

<b>FREERADIUS</b>	Open-source tool	RADIUS server
<b>SYSLOG-NG</b>	Open-source tool	Generating and collecting log messages
<b>LOGSTASH</b>	Open-source tool	Collecting and processing log messages
<b>ELASTICSEARCH</b>	Open-source tool	Indexing, storing, searching and analyzing log messages
<b>KIBANA</b>	Open-source tool	Visualization, searching and analyzing log messages
<b>GRAFANA</b>	Open-source tool	Visualization of metrics and time series of log messages

# Generating and collecting log messages for eduroam (1/2)



# Generating and collecting log messages for eduroam (2/2)



# Log message transformation

```
2023-05-01T08:52:29+02:00 147.91.4.204 radiusd[14639]: Access-Accept: IdP=bfspc.bg.ac.rs MAC=xx-xx-xx-xx-xx-xx AP=xx-xx-xx-xx-xx-xx:eduroam RP=lamres.ac.rs
```



```
{
  "APAlias" => {
    "City" => "Beograd",
    "AP_name" => "cisco2702-amres-bg.bfspc7",
    "Latitude" => "44.815966",
    "Longitude" => "20.491846",
    "Location" => "Pravoslavno bogoslovski fakultet Univerziteta u Beogradu"
  },
  "time" => "2023-05-01T08:52:29+02:00",
  "MAC" => "xx-xx-xx-xx-xx-xx",
  "IdP" => "bfspc.bg.ac.rs",
  "access" => "Access-Accept",
  "RP" => "lamres.ac.rs"
}
```



# eduroam usage statistics (2/5)

Number of user devices (MAC address)			
Access		Count	
Access-Accept		4116	
Access-Reject		820	

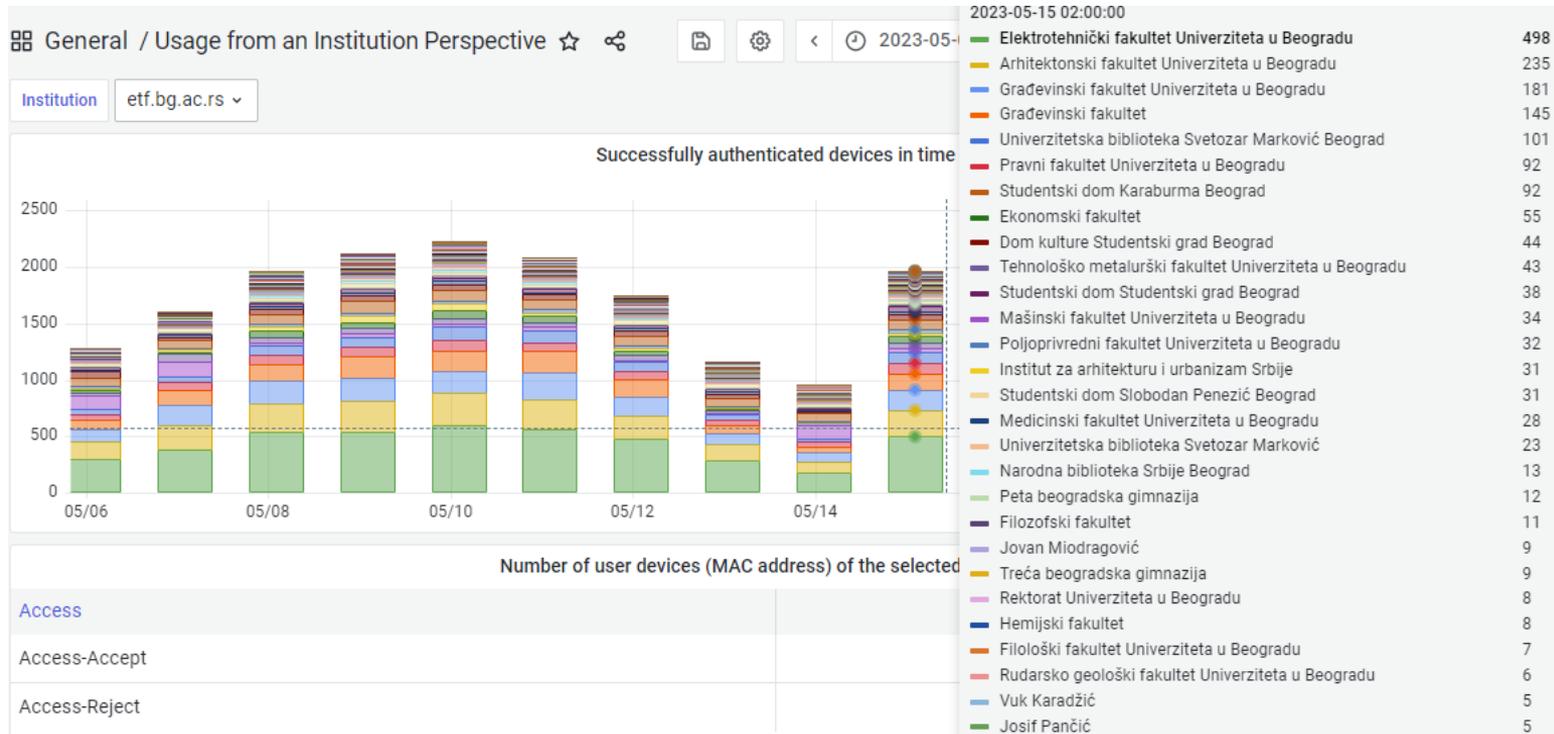
  

Number of MAC address successfully authenticated to APs from selected institution		Number of MAC address unsuccessfully authenticated to APs from selected institution	
Access_Point	Count	Access_Point	Count
cisco2702-amres-bg.etf19	2127	cisco2702-amres-bg.etf19	205
cisco2702-amres-bg.etf20	2047	cisco2702-amres-bg.etf5	178
cisco2702-amres-bg.etf30	1984	cisco2702-amres-bg.etf20	174
cisco2702-amres-bg.etf5	1948	cisco2702-amres-bg.etf30	128
AP0042.68fc.0924	1190	cisco2702-amres-bg.etf17	102
cisco2702-amres-bg.etf17	1145	AP0042.68fc.0924	96
cisco2702-amres-bg.etf9	1037	cisco2702-amres-bg.etf8	73

The number of successfully authenticated MAC addresses per IdP in the selected location	
Institution	Count
etf.bg.ac.rs	1726
edu.arh.bg.ac.rs	903
fil.bg.ac.rs	269
grf.bg.ac.rs	241
mfub.bg.ac.rs	169
arh.bg.ac.rs	108
mas.bg.ac.rs	104

# eduroam usage statistics (3/5)



## eduroam usage statistics (4/5)

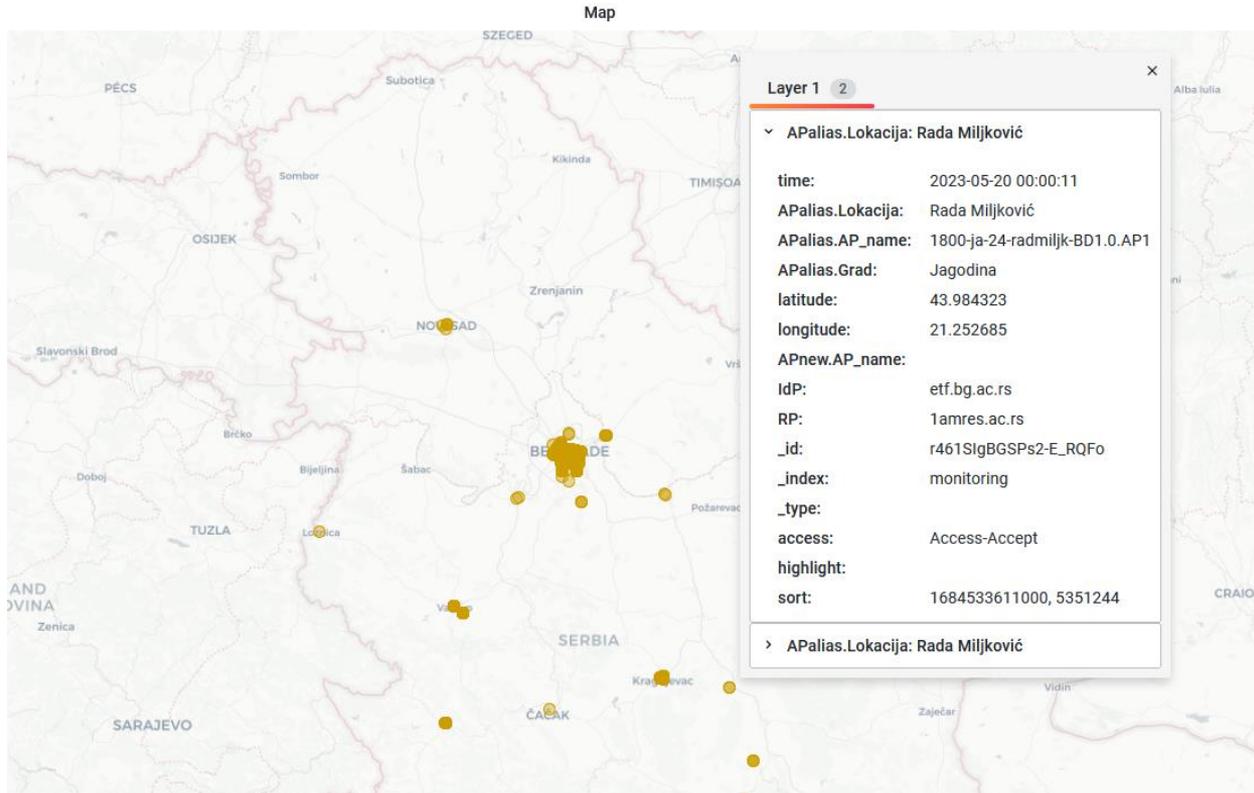
Number of user devices (MAC address) of the selected institution

Access	Count
Access-Accept	2427
Access-Reject	581

Total number of successfully authenticated user devices (MAC address) of the selected institution	
Elektrotehnički fakultet Univerziteta u Beogradu	1663
Arhitektonski fakultet Univerziteta u Beogradu	1091
Građevinski fakultet Univerziteta u Beogradu	937
Građevinski fakultet	826
Unknown	767
Pravni fakultet Univerziteta u Beogradu	589
Univerzitetska biblioteka Svetozar Marković Beograd	575
Mašinski fakultet Univerziteta u Beogradu	453
Tehnološko metalurški fakultet Univerziteta u Beogradu	357
Ekonomski fakultet	321
Institut za arhitekturu i urbanizam Srbije	275
Poljoprivredni fakultet Univerziteta u Beogradu	273

# eduroam usage statistics (5/5)



**tnc23**

DIGITAL GENERATIONS

TIRANA, ALBANIA | 5-9 JUNE 2023

# Thank you

## Any questions?

[katarina.simonovic@amres.ac.rs](mailto:katarina.simonovic@amres.ac.rs)



Co-funded by  
the European Union

