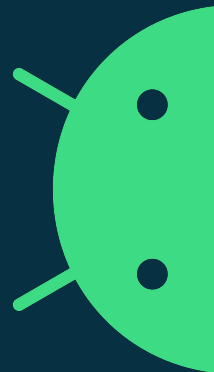# EENA - Android ELS Webinar

Matching emergency communication with ELS (AML)

Alastair Breeze, ELS Tech Lead
abreeze@google.com

android-emergency-location@google.com
android.com/els

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Understand how to *effectively* match ELS (AML) data to emergency calls

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Agenda

1. ELS in 2022

2. Methods of ELS Transmission

3. Challenges of HTTP

4. Case Study from Henning Schmidtpott (Germany ELS Partner)
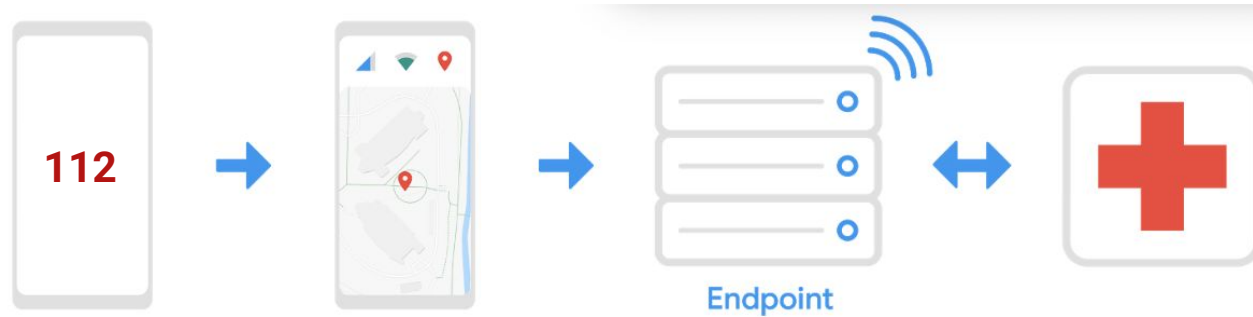
5. Getting Started

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ELS in 2022

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Enable Android users to get help from emergency responders more effectively *wherever* and *whenever* they need it.

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Recap: How ELS Works

Endpoint

Emergency call initiated by Android device

Using *FLP*, ELS computes location on-device; data *sent directly* to endpoint as Data SMS or HTTPS message

Endpoint is *set up and managed* by ELS Partner, who is responsible for making ELS data available to Emergency Services (push or pull).

AML - Advanced Mobile Location, open standard for sending emergency location *(supported by Android ELS)*

ELS Endpoint: a *SMSC or HTTPS server* maintained by partner that can receive ELS emergency location data

ELS Partner: carrier/MNO, government or public safety vendor that meets ELS partner requirements

PSAP/ECC (Public Safety Answering Point/Emergency Communications Center): call center & dispatch control for emergency services

Google's Responsibility

Partner's Responsibility

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ELS progress

ELS Launched

ELS transmission:
75%   SMS only
22%   SMS + HTTP
3%   HTTP only

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Methods of ELS Transmission

Why does it matter?

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	SMS	HTTP	
Basic Location Information	✓	✓	
Advanced Location (e.g. Altitude)	✗	✓	
Additional Data (e.g. language, car crash)	✗	✓	
Latency	8s	1.2s	*6x faster!*
Error Rates	Good	Great	*2x lower!*
Roaming Error Rates	Bad	Okay	*2.2x lower!*
Endpoint complexity / cost	Generally high	Low	
Device Network Requirements	Cellular	Cellular (data) or WiFi	
Contains Phone Number	Always	Sometimes	

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Richer Data: Altitude/Z-axis

| Key	Value	Units	Example
`location_altitude`	Altitude (WGS84)	meters	4
`location_vertical_accuracy`	Vertical accuracy	meters	2.5
`location_floor`	Floor label (as in elevator button floor label - may be non-numeric)	-	2
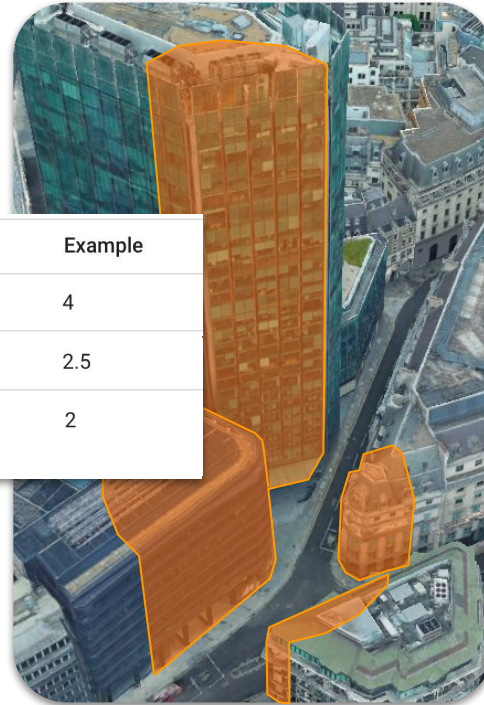
no elevation estimate

elevation estimate

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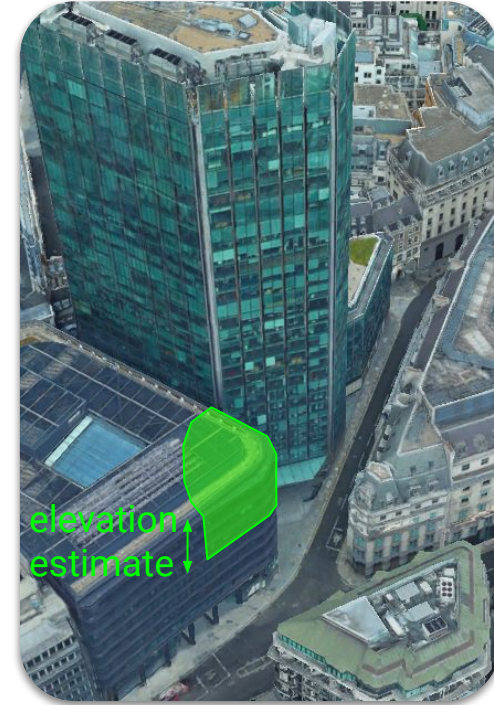
Richer data: Additional Emergency Information
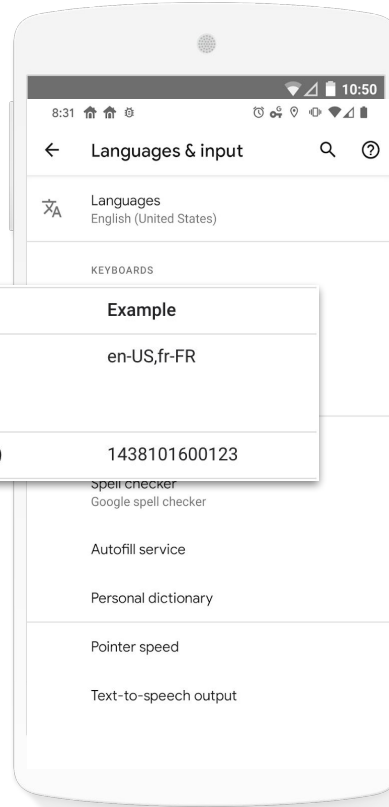
Key	Value	Units	Example
device_languages	BCP 47 language tags (comma separated), in order from highest priority to lowest	-	en-US,fr-FR
adr_carcrash_time	Car Crash Timestamp	ms (unix time)	1438101600123
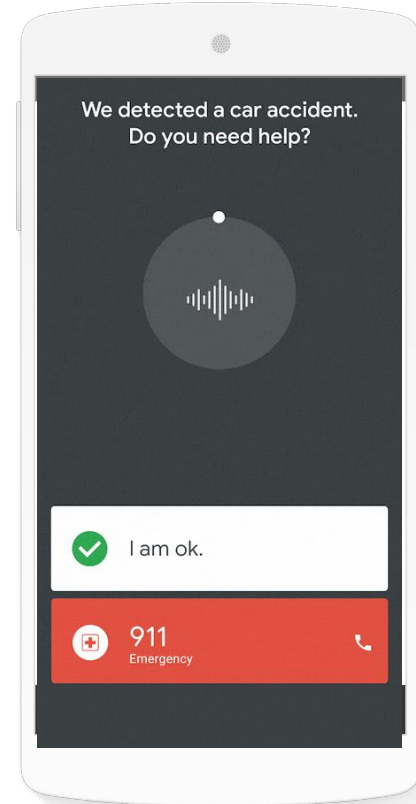
Device Language

Car Crash Detected

More coming soon!

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Challenges with HTTP

If HTTP is so great, why is adoption slow?

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Challenges with ELS over HTTP

Missing Phone Number

Sometimes the phone number field in HTTP is missing, making it hard to match to incoming calls.

This is because some SIM cards are unable to detect this.

We are working on improving this!

Connectivity

Requires internet connectivity. Harder to zero-rate URLs, however it does consume very tiny amounts of data!

Also works with WiFi!

Infrastructure

Might require some updates to your infrastructure to add HTTP to your existing endpoint.

However, HTTP servers are generally quite easy to stand up!

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The best solution is hybrid!

With matching on SMS & HTTP on IMEI

SMS	+	HTTP

SMS
- For limited data / connectivity use cases
- Shares phone number when missing from HTTP

HTTP
- Faster!
- Richer data (altitude, etc)
- Works with Wi-Fi
- Better roaming
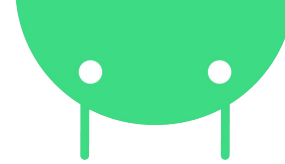
Henning is going to talk about how this can be done!

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Case study for Germany

with Henning Schmidtpott
henning.schmidtpott@ils-freiburg.de

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Getting Started

How Google can help you launch HTTP

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Takeaways

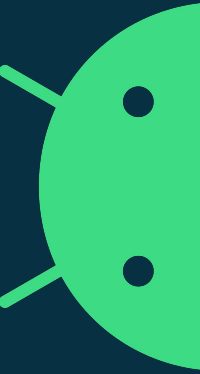## Summary

- Matching on IMEI can be done today: ***HTTP is ready!***
- Benefits include:
  - Faster
  - Easier to setup
  - Additional emergency information

Actions

1. Reach out to the Android ELS team at:
   android-emergency-location@google.com
   We can help discuss rollout plans, timelines and support your needs!

2. Read our devsite:
   developers.google.com/android/els on how implement your HTTP endpoint.
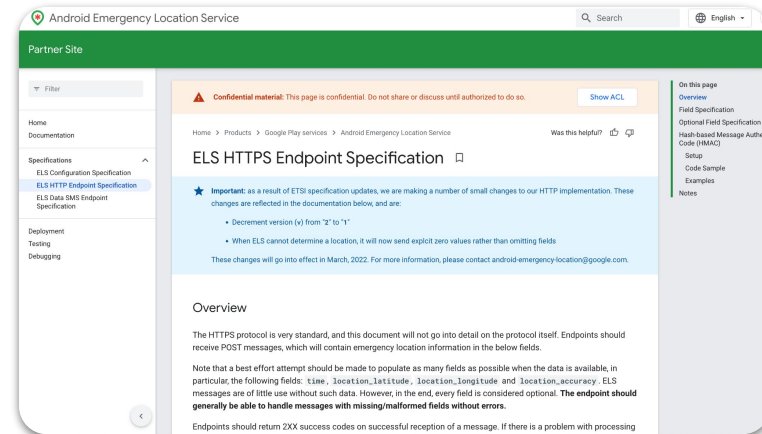
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Questions & discussion

android-emergency-location@google.com
android.com/els

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