EENA - Android ELS Webinar

Matching emergency communication with ELS (AML)

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Understand how to **effectively** match ELS (AML) data to emergency calls
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
ELS in 2022
Enable Android users to get help from emergency responders more effectively wherever and whenever they need it.
Recap: How ELS Works

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
ELS progress

ELS Launched

ELS transmission:
75% SMS only
22% SMS + HTTP
3% HTTP only
Methods of ELS Transmission

Why does it matter?
<table>
<thead>
<tr>
<th>Feature</th>
<th>SMS</th>
<th>HTTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Location Information</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Advanced Location (e.g. Altitude)</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td>Additional Data (e.g. language, car crash)</td>
<td>✗</td>
<td>✔️</td>
</tr>
<tr>
<td>Latency</td>
<td>8s</td>
<td>1.2s</td>
</tr>
<tr>
<td>Error Rates</td>
<td>Good</td>
<td>Great</td>
</tr>
<tr>
<td>Roaming Error Rates</td>
<td>Bad</td>
<td>Okay</td>
</tr>
<tr>
<td>Endpoint complexity / cost</td>
<td>Generally high</td>
<td>Low</td>
</tr>
<tr>
<td>Device Network Requirements</td>
<td>Cellular</td>
<td>Cellular (data) or WiFi</td>
</tr>
<tr>
<td>Contains Phone Number</td>
<td>Always</td>
<td>Sometimes</td>
</tr>
</tbody>
</table>
Richer Data: Altitude/Z-axis

<table>
<thead>
<tr>
<th>Key</th>
<th>Value</th>
<th>Units</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>location_altitude</td>
<td>Altitude (WGS84)</td>
<td>meters</td>
<td>4</td>
</tr>
<tr>
<td>location_vertical_accuracy</td>
<td>Vertical accuracy</td>
<td>meters</td>
<td>2.5</td>
</tr>
<tr>
<td>location_floor</td>
<td>Floor label (as in elevator button floor label - may be non-numeric)</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

*no elevation estimate*
Richer data: Additional Emergency Information

<table>
<thead>
<tr>
<th>Key</th>
<th>Value</th>
<th>Units</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>device_languages</td>
<td>BCP 47 language tags (comma separated), in order from highest</td>
<td>-</td>
<td>en-US, fr-FR</td>
</tr>
<tr>
<td></td>
<td>priority to lowest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>adr_carcrash_time</td>
<td>Car Crash Timestamp</td>
<td>ms (unix</td>
<td>1438101600123</td>
</tr>
<tr>
<td></td>
<td>time)</td>
<td>time)</td>
<td></td>
</tr>
</tbody>
</table>
Challenges with HTTP

If HTTP is so great, why is adoption slow?
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!
The best solution is hybrid!

With matching on SMS & HTTP on IMEI

**SMS** + **HTTP**

- For limited data / connectivity use cases
- Shares phone number when missing from HTTP
- Faster!
- Richer data (altitude, etc)
- Works with Wi-Fi
- Better roaming

Henning is going to talk about how this can be done!
Case study for Germany

with Henning Schmidtpott

henning.schmidtpott@ils-freiburg.de
Getting Started

How Google can help you launch HTTP
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](mailto: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](https://developers.google.com/android/els) on how to implement your HTTP endpoint.
Questions & discussion

android-emergency-location@google.com
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