

Advanced Mobile Location (AML) & Android Emergency Location Service (ELS)



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What is AML and why was it created?

A new, simple, and cost effective technology is now available that will help save lives all over Europe. This innovative system is called Advanced Mobile Location (AML).

In the UK, BT (Stage 1 PSAP), the mobile networks EE, O2 and Three, together with HTC and Sony handsets, have already successfully implemented AML, which is up to 4,000 times more accurate than the current system used, saving lives, time, and money. Emergency services, mobile networks and handset manufacturers should work together to extend the system to other mobile devices.

When an emergency call is made with a smartphone where AML is enabled, the phone automatically activates its location service during 20 seconds to establish its position and sends this information via a text message to the 112 and 999 service in the UK, with a radius of 50 meters or less for most calls (about 85% of locations). For that, the service uses GPS or Wifi – whichever is best at the given instance.

AML is not an App; rather it is a technology built into the operating system. An EENA publication in 2015 that explains what was done in the UK is available [here](#) for download.

Is the AML technology standardised by any of the Standardisation Bodies?

At the moment EMTEL / ETSI are looking at doing exactly that and in March 2016 they released a Technical Report (TR) on AML. The TR can be downloaded [here](#).

What about Telecom Regulators; what is their view on it?

In the UK, Ofcom is aware of AML and were supportive of the initiative. It is impossible to precisely say that each Telecom Regulator thinks but with such powerful results and support from many organisations such as ETSI / EMTEL and the emergency services, it is hard to see how any Telecom Regulator could block it.

What about the mobile phone operating system manufacturers; what have they done to support it?

In July 2016, Android announced that have made their version of AML called Emergency Location Service (ELS) available in their operating system and made it backward compatible all the way back to Ice Cream Sandwich, or ICS (version 4.0). You can read the Google announcement [here](#). All smartphones operating on Android have the technology built into them. Since spring 2018, AML is also supported by Apple iPhones with the iOS 11.3 update and later. You can read the Apple announcement [here](#). Other operating system manufacturers are evaluating it currently and hopefully they will bring it to their customers shortly.



What changes do Mobile Network Operators (MNOs) need to do implement it?

There are no hardware changes needed and only few minor changes may be needed on the software in some countries. The MNOs will likely want to make some changes for zero rating the SMS and data charges during emergency calls to make it free, but most already have a framework in place to do this.

In addition, MNOs will need to check that they allow an SMS to be sent during an emergency call.



What is the difference between the AML solution and ELS solution that Google implemented and why have some countries implemented both?

The AML solution relies on the handset manufacturer to program AML directly into their new handset. This means it will only work for people with new handsets. One of the limitations is that once these handsets are released, there is very little hope of ever being able to make changes to the solution.

The Google ELS solution however works on almost all existing Android handsets in addition to all future upgrades to the operating system. This permits greater flexibility.



Can I check if my Android smartphone is ELS ready?

You can check if your Android phone is enabled by doing the following:

Go to Settings > Applications Manager > Google Play Services (or equivalent in other languages).

If your phone runs the 9.0 version or higher, you have an AML-enabled smartphone.

This means that your phone is ready to send an AML message. However, this does not mean that it is activated. AML is activated country per country when the emergency services are able to receive the position.



Does the Citizen have to do anything to download ELS?

The citizen does not have to download any application as the capability is within the Android operating system. The message is sent as soon as the emergency call is made and he/she does not have to worry about sending their location to the emergency services; it is done automatically.

Where is it deployed right now?

AML is fully operational in the United Kingdom, Estonia, Lithuania, Austria (ELS only), Iceland, Belgium, Ireland, Finland, Slovenia and New Zealand on all mobile networks. It is also available in parts of the USA. The volume of emergency calls differs between the countries because of their size and scale but the UK are handling c12000 AML messages every day and Estonia are handling c500 per day. At the moment, 8 other European countries are about to start testing AML with the view of implementing it in the coming weeks/months.

Check happy stories thanks to AML [here](#).

What do I need to do to test ELS?

Android have a team available where you can register to be part of the Users Group. From there they will provide you with further details on the test application.

Here is the [link to the registration details](#).

Are there any technical Specification documents that I can study?

The technical specifications have been published and are available [here](#). These include the format of the AML message, the definition of the characters in each message etc.

Who must configure AML (end-point, emergency numbers...) in the smartphones before the deployment in a country?

The configuration of how AML will be implemented in one country is done by discussions between emergency services in the country and the OS-provider. This includes the definition of the end-point for the country, the transmission (SMS or HTTPS) and the emergency numbers for which AML will be activated.

Is it possible to configure the number to which the SMS will be routed?

Yes, the AML SMS can be routed to any number, be it 112, another short number or to a long number.

What is the difference between a Data SMS and an AML HTTPS message?

Locations can be sent via HTTPS POST and Data SMS request, to a specified endpoint. Despite its name the Data SMS does not need a data connection to be able to send the AML message. Android can provide the technical documentation and support to be able to implement either method.

Does it work with simcard-less handsets?

No. The handset needs to be registered with a mobile phone network and as a result will only work with handset with active sim cards inside. Many countries already do not allow simcard-less handsets to make emergency calls right now.

Is SMS reliable?

Yes, live deployments showed that 87% of AML locations were delivered in less than 30 seconds (including the 20 seconds of AML data collection).

Are there any further sources of information that I can use to help my understanding?

In June 2016, EENA held a Workshop with Google at their headquarters in Brussels and the material that was presented there can be downloaded [here](#).

Is AML/ELS expensive to deploy and what are the benefits?

The cost of implementing it is negligible and involves almost no capital expenditure from the mobile network operators. The PSAP needs to be able to receive the message by creating an endpoint to the send the message to and build it into their workflows. For many PSAPs this is a relatively small step. Many Member States already have an SMS to the emergency services available and this infrastructure can be utilised. Otherwise an HTTPS endpoint can be used (2 European countries are deploying AML with an HTTPS endpoint).

The benefits are hugely impressive and can save time and efforts when responding to emergencies with precise accuracy down to several metres and the elimination of guesswork by the emergency services.

Does AML/ELS work if I am roaming?

At this time, it does not work when the caller is roaming but there are steps underway to look into this. The [HELP112 project](#) is looking at this right now, with the help of Google, BT and EENA.



Are there any privacy risks?

No. The technology is dormant on the smartphone and the location sources (either GPS or Wi-Fi) is only activated when the emergency call is made. It is turned off directly afterwards and therefore is not active during normal times. Android do not store any location data and simply pass it through the mobile network operator to the PSAP.



Will it be here in the future?

Certainly. Given its mass appeal and positive societal impact this technology will be around for the future. As Android's Emergency Location gets adopted by more and more countries, the AML technology developed by the handset manufacturers will be removed.



Another question?

Feel free to contact Benoit Vivier from EENA at bv@eena.org.