

PEMEA Project Phase I

Project Report



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1 | Executive Summary

The main objective of the PEMEA project is to launch the deployment of PEMEA and promote the PEMEA architecture throughout Europe.

The focus is on actual real-world deployments: real applications making real emergency calls delivered with additional data to real PSAPs across a range of regions and countries throughout Europe.

In this first phase, the PEMEA network elements have been deployed by two providers:

- Beta 80
- Deveryware

In addition, the emergency Apps and PSAPs having tested the connection to the PEMEA network are:

- 112 Basque Country – Spain: SOS Deiak App
- 112 Eslovenia: 5G SPIN App
- 112 Finland: Suomi App
- 112 Italy: Where Are U App
- 112 Murcia - Spain: 112 Murcia App
- Smart 112 mobile

Phase I of the PEMEA project was conducted from mid-June 2018 until the end of March 2019.

The PEMEA network implementations participating in the project are compliant with the ETSI PEMEA specification TS 103 478 and most of them were present at the ETSI Plug Test in January of 2019 and completed all executed test cases successfully, including all security tests.

RESULTS

The testing performed as part of Phase I of this project have been conducted thoroughly with test logs preserved for each of the tests performed. The outcomes of the project clearly demonstrate the power of PEMEA regarding:

- Its ability to provide the citizens access to emergency services any place in Europe: using their local apps in roaming
- Its ability to provide the PSAPs with the App information (accurate location, caller language, ICE contacts, etc) regardless the App the person is using: so that PSAPs can provide the person in need the help they need as fast as possible.

As result, while there are still some final developments underway within the PEMEA network related to an automated PEMEA Registration Authority and a formal GDPR statement, which will be forthcoming in the next few weeks, the outcomes of Phase I of the PEMEA project are a success and mark the **readiness of PEMEA for European deployment.**

NEXT STEPS:

- Finalise Phase I with PEMEA in a life environment
- Start Phase II of the project to begin in September 2019 timeframe.

2 | About the PEMEA project

During the 2018 EENA conference in Ljubljana an initiative was announced inviting emergency application providers and PSAPs to participate in a two-phases PEMEA project which would enable interoperability between PSAPs and roaming emergency applications for the first time. At the conclusion of the EENA conference the project was opened for expressions of interest. The project received 28 expressions of interest, including application providers and PSAPs. The project selected the 12 organisations listed below to participate in the first phase:

- 112 Suomi, **Finland**
- 112 Where Are U, **Italy**
- 5G Spin, **Slovenia**
- SOS Deiak, Basque Country, **Spain**
- 112 Región de Murcia, Murcia, **Spain**
- My 112, **Spain**
- Omnitor App, **Sweden**
- SOS Alarm, **Sweden**
- 112 App NL, **the Netherlands**
- The Zachranka App, **Czech Republic**
- mySTART+ Systel, **France**
- Smart 112 Mobile

The selected participants met in Madrid for a formal kick off meeting in September 2018. During this kick off meeting the architecture of the project was detailed and how the applications and PSAP would be linked together through one of the two PEMEA service providers, Beta 80 and Deveryware. At then end of the kick off meeting plans were made between each of the participants and one or both of the PEMEA service providers for follow up discussions and integration testing. The first phase was to run until the end of March 2019 and the results of this phase are presented in this report.

During the project, some of the participants decided to postpone their integration with the PEMEA network for several reasons.

Phase 1 of the PEMEA project worked to deliver PEMEA not only core services comprising of accurate location, but also location updates and user information including in case of emergency (ICE) contacts for 7 apps.

3 | PEMEA Project Participants

As it will be described in the Section 4 | the architecture used for the project consisted of a "Core PEMEA" network being provided by two "PEMEA Service Providers". Beta 80 and Deveryware (GHALE) provided the APs, PSPs and PEMEA-PSAP functional elements.

The participating organisations had to select either Beta 80 or Deveryware (GHALE) to operate as their PEMEA service provider. Finland chose to conduct interoperability testing with both PEMEA-providers to assist them in making their final selection of PEMEA-provider once the project is completed.

Application	Country	Region	PEMEA provider
112 Murcia	Spain	Murcia	GHALE
SOS Deiak	Spain	Euskadi (Basque Country)	GHALE
WhereAreU	Italy	Italy	Beta 80
5G SPIN	Slovenia	Slovenia	GHALE
112 Suomi	Finland	Finland	Beta 80/GHALE
Smart 112 Mobile	n/a	n/a	Beta 80
Omnitor	n/a	n/a	GHALE

4 | PEMEA Project Architecture

The PEMEA project architecture used all of the PEMEA elements described in the ETSI specification TS 103 478. In order to simplify the overall testing of the network, participants were classified as either PEMEA-users or PEMEA-providers. Organisations that implement the PEMEA entities (AP, PSP, ASP), as described in TS 103 478, are classified as PEMEA-providers. While entities providing Applications, Application servers and PSAP-CPE are classified as PEMEA-users. For the PEMEA project Beta 80 and Deveryware are operating as the PEMEA-providers.

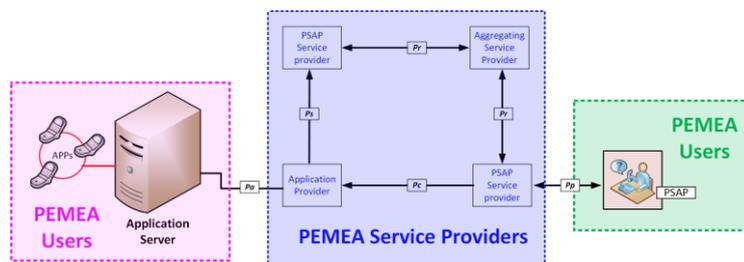


Figure 1 PEMEA Project participant classifications

The applications included in the project are either pre-existing applications or applications near completion, consequently they are already connecting to an Application Server. Connectivity was there therefore extended from that Application Server to an AP provided by one of the PEMEA-providers.

Countries and regions indicated that they required survivability in the event that communications to other parts of the network were unavailable. This was addressed by providing each participating PSAP with its own PSP rather than having a shared PSP operated by a PEMEA-provider.

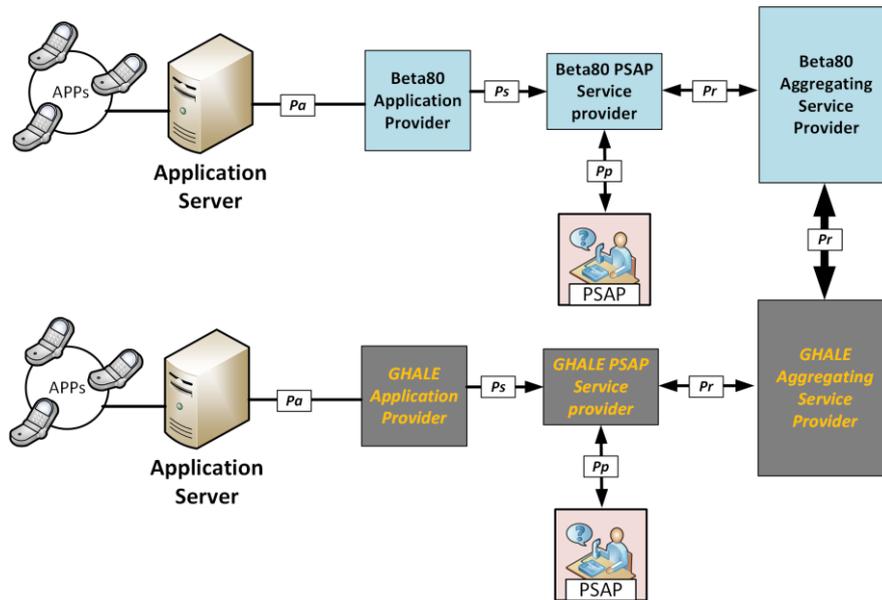


Figure 2 PEMEA-provider high-level interconnection

PEMEA-users are connected (at any point in time) to a single PEMEA-provider and PEMEA-providers exchange PEMEA EDS messages via two Appregating Service Provider (ASP) nodes. All connectivity between nodes in the PEMEA network are fully secured with TLS 1.2 and each node has its own unique certificate. The valid PEMEA entity list was managed manually for the purpose of Phase I of the project with each node having information about each other node. In the near future a fully functioning PEMEA Registration Authority (PRA) node will be introduced to manage the entity lists and allow PEMEA entities to automatically update their internal entity lists.

Phase 1 covered not only PEMEA "core services" comprising of accurate location, but also location updates and user information. Secure access to information was enforced by the PEMEA providers.

NOTE: onCapSupportPost attributes were included in their EDS messages. The attribute ensures that message termination is acknowledged to the AP, so the AP knows which PSP or PSAP has received the EDS. User information can then be retrieved by the terminating-PSPs and PSAPs using a reference included in the EDS message and the AP from which this information is retrieved is able to verify that the requesting node is the terminating PSP or PSAP.

5 | PEMEA Project Testing

The overall connectivity diagram is shown in Figure 3. Though 112 Suomi (Finland) is shown to be connected to both GHALE and Beta 80 they were only connected to one of the PEMEA-providers at any one time during the testing process.

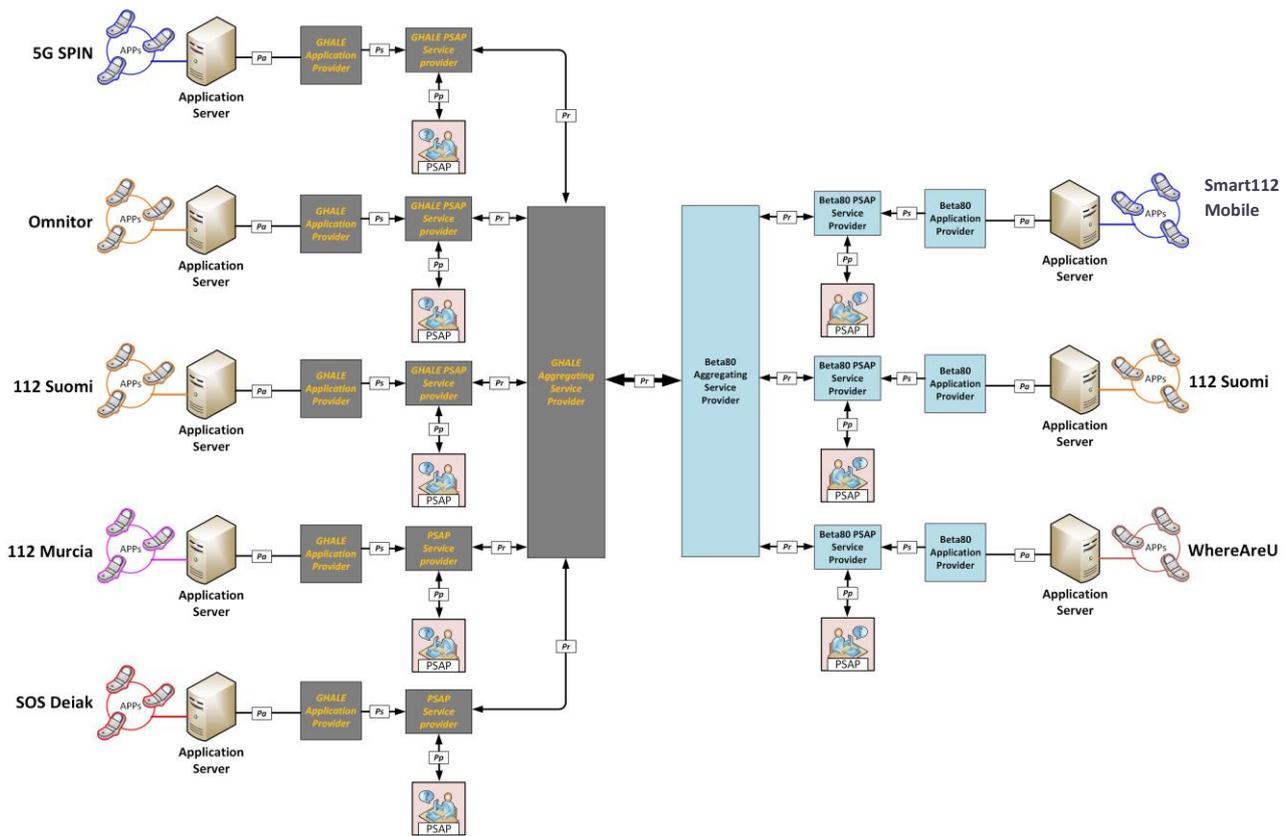


Figure 3 PEMEA project connectivity

Each application was tested in its home region as well as in roaming, into at least one of the other PSAP regions. The results for each application are shown in the tables below.

Table 1:- 112 Suomi (Finland) testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Finland	112 Suomi tested in its home region using both PEMA providers	Beta 80	Beta 80				112 Finland	OK
		GHALE	GHALE					OK
Italy	112 Suomi tested in Italy using both providers	Beta 80	Beta 80	Beta 80		Beta 80	112 Italy	OK
		GHALE	GHALE	GHALE	Beta 80	Beta 80		OK
Spain/Euskadi	112 Suomi tested in the Basque Country using both providers	GHALE	GHALE	GHALE		GHALE	112 Euskadi	OK
Spain/Murcia	112 Suomi tested in the Region of Murcia using both providers	GHALE	GHALE	GHALE		GHALE	112 Murcia	OK
Spain/Ghale simulated destination	112 Suomi tested in Spain	Beta 80	Beta 80	Beta 80	GHALE	GHALE	Ghale simulated destination	OK
		GHALE	GHALE	GHALE		GHALE		OK
Slovenia	112 Suomi tested in Slovenia using both providers	GHALE	GHALE	GHALE		GHALE	112 Slovenia	OK

Table 2:- WhereAreU testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Finland	Where Are U app tested in Finland. 112 Finland connected to Beta 80	Beta 80	Beta 80	Beta 80		Beta 80	112 Finland	OK
	Where Are U app tested in Finland. 112 Finland connected to GHALE	Beta 80	Beta 80	Beta 80	GHALE	GHALE		OK
Italy	Where Are U app tested in its home region	Beta 80	Beta 80				112 Italy	OK
Spain/ Ghale simulated destination		Beta 80	Beta 80	Beta 80	GHALE	GHALE	Ghale simulated destination	OK

Table 3:- 5G SPIN testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Finland	5G SPIN app connected to Ghale tested in Finland.	GHALE	GHALE	GHALE		GHALE	112 Finland	OK
Spain/ Euskadi	5G SPIN app connected to Ghale tested in the Basque Country.	GHALE	GHALE	GHALE		GHALE	112 Spain/ Euskadi	OK
Spain/ Murcia	5G SPIN app connected to Ghale tested in the Region of Murcia.	GHALE	GHALE	GHALE		GHALE	112 Spain/ Murcia	OK
Spain/ Ghale simulated destination	5G SPIN app connected to Ghale tested in Spain	GHALE	GHALE	GHALE		GHALE	Spain/ Ghale simulated destination	OK
Slovenia	5G SPIN app connected to Ghale tested in their home country.	GHALE	GHALE				112 Slovenia	OK

Table 4:- 112 Deiak testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Spain/ Euskadi	SOS Deiak app tested in its home region.	GHALE	GHALE				112 Euskadi	OK
Spain/ Murcia	SOS Deiak app tested in the Region of Murcia.	GHALE	GHALE	GHALE		GHALE	112 Murcia	OK
Spain/ Ghale simulated destination	SOS Deiak app connected to Ghale tested in Spain	GHALE	GHALE	GHALE		GHALE	Ghale simulated destination	OK

Table 5:- 112 Murcia testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Finland	112 Murcia app tested in Finland.	GHALE	GHALE	GHALE		GHALE	112 Finland	OK
Spain/ <i>Euskadi</i>	112 Murcia app tested in the Region of Euskadi	GHALE	GHALE	GHALE		GHALE	112 Euskadi	OK
Spain/Murcia	112 Murcia app tested in its home region.	GHALE	GHALE				112 Murcia	OK
Spain/ <i>Ghale simulated destination</i>	112 Murcia app connected to Ghale tested in Spain	GHALE	GHALE	GHALE		GHALE	<i>Ghale simulated destination</i>	OK
Slovenia	112 Murcia app tested in Slovenia.	GHALE	GHALE	GHALE		GHALE	112 Slovenia	OK

Table 6:- Omnitro App (Sweden) testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Sofia Antipolis (ETSI-Plugtest)	Omnitro App tested in Sofia Antipolis using both providers	GHALE	GHALE	GHALE	Beta 80	Beta 80	<i>Beta 80 simulated destination</i>	OK
Spain/ <i>Ghale simulated destination</i>	Omnitro app connected to Ghale tested in Spain	GHALE	GHALE	GHALE		GHALE	<i>Spain/Ghale simulated destination</i>	OK

Table 7:- Smart 112 Mobile App (Monaco) testing results

Country Call originating from	Test description	AP	PSP-1	ASP-1	ASP-2	PSP-2	PSAP	Result
Sofia Antipolis (ETSI-Plugtest)	Smart 112 Mobile App tested in Sofia Antipolis using Beta80	Beta 80	Beta 80				<i>Beta 80 simulated destination</i>	OK

6 | Next Steps

As Phase I of the PEMEA project draws to a close there are number of items that must still be wrapped. The first is a formal GDPR statement that needs to be agreed by all PEMEA providers. Work on this statement has already begun and agreed text is anticipated in the coming weeks.

The limited number of participants in Phase I has allowed the manual management and exchange of the PEMEA entity list. Even with this small number of participants the list consists of quite a number of rows and this number is anticipated to grow sharply as PEMEA is opened up to more applications and PSAPs. To combat this work is underway for a centralise PEMEA entity list management function to which registered PEMEA entities may connect and retrieve the current list of valid PEMEA entities. Through the coming months it is anticipated that EENA will publish and updated PEMEA operations document that will include a range of information about joining the PEMEA network as well as retrieving and processing the PEMEA entities file.

As part of the ETSI Plug Test in January of 2019 an extensive PEMEA test plan was created with detailed test cases that need to be passed by each kind of PEMEA node in order to be considered to be conforming to the PEMEA standard. PEMEA stakeholders will continue to work together with ETSI.

Phase II of the project will introduce advanced services beginning with a Chat or Instant Message service. The PEMEA-providers will work to provide an interoperable implementation that can subsequently be published in a PEMEA extensions document in ETSI.