

ISITEP

D6.4.1 - PPDR TERMINAL APPLICATIONS TEST REPORT

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Publishable extended abstract

In this deliverable, the results of the test set used for assessing the effectiveness of the set of applications designed for enabling interoperability for mobile terminals in the ISITEP project are reported.

Abbreviations

For the purposes of the present document, the following abbreviations apply:

Acronym	Definition
API	Application Program Interface
CM	Communication Manager
DFN	Dynamic Functional Numbering
GUI	Graphic User Interface
EME	Enhanced Message Exchange
LDA	Location Dependent Addressing
MCC	Mobile Country Code
MNC	Mobile Network Code
PPDR	Public Protection and Disaster Relief
REQ	Requirement
SDS	Short Data Service
SM	Security Manager
SST	Semantic Syntactic Translator
TETRA	TErrestrial Trunked Radio

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1. INTRODUCTION

The aim of WP6.4 is the definition of the minimum set of applications enabling an effective interoperability between the TETRA and the TETRAPOL networks (as described in D6.4.2[1]):

- Dynamic Functional Numbering to communicate with PPDR resources in charge in a specific operational area;
- Location Assisted Numbering to call PPDR resources of a specific type in a specific area;
- Enhanced Message Exchange application to allow exchange of orders through short messages.

In this document, the test set used for assessing the effectiveness of these applications is described.

2. TESTING ENVIRONMENT

2.1. Test Environment Architecture

The test reported in this document have been performed on two terminals: a Galaxy S4 (Android 5.0.1, API 21) and a Nexus 4 (Android 5.1.1, API 22).

The tests involving a communication with other applications of the ISITEP framework, through Android Broadcast Bus, and that were not available were simulated. In more details, the application behavior has been simulated through a test Application (sending expected intent on the broadcast bus) and a receiver (showing the expected response).

3. TEST CASE

3.1. Test DFN Dynamic Functional Numbering

In the following the test performed for evaluating the effectiveness of the DFN application are reported.

3.1.1. DFN_1 – Launch on boot

Dynamic Functional Numbering	
DFN_1	
DFN runs as service	
Objective(s)	
Verify that DFN runs as Service starting at the device boot	
Pre-Conditions	
<ul style="list-style-type: none"> ○ The administrator password has been set (this condition ensures that the SM GUI has been previously launched) 	
Test procedure	
Action	Expected Result
1 Reboot device	When the boot procedure is completed a notification appears with DFN service status

3.1.2. DFN_2 – DFN receives notification about network availability – MCC and MNC are not set

Dynamic Functional Numbering	
DFN_2	
DFN receives notification about network availability	
Objective(s)	
DFN updates its status based on network availability and it registers the current MCC and MNC	
Pre-Conditions	
<ul style="list-style-type: none"> ○ End-User was logged in ○ MCC and MNC are not set 	
Test procedure	
Action	Expected Result
1 A “commServiceAvailIndication” message is sent on bus by CM	<p>DFN receives the “commServiceAvailIndication” message from bus and updates its status</p> <p>If the network is available, it verifies in the configuration file the groupList associated with the pair MCC-MNC</p> <p>It sends on bus a “changeGroupListRequest” message</p> <p>It waits for “changeGroupListConfirm” message.</p> <p>Register the current MCC and MNC</p>

3.1.3. DFN_3 – DFN receives notification about network availability – MCC and MNC are set

Dynamic Functional Numbering	
DFN_3	
DFN receives notification about network availability	
Objective(s)	
DFN updates its status based on network availability, and it verifies changes on MCC and MNC	
Pre-Conditions	
<ul style="list-style-type: none"> ○ End-User is logged in ○ Current MCC and MNC are set 	
Test procedure	
Action	Expected Result
1 A “commServiceAvailIndication” message is sent on bus from CM.	<p>DFN receives the “commServiceAvailIndication” message from bus and updates its status</p> <p>If the network is available and the pair MCC-MNC is changed, it checks the groupList associated with the new MCC-MNC pair on the configuration file</p> <p>If groupList is modified, a “changeGroupListRequest” message is sent on the bus. The app waits for “changeGroupListConfirm” message and registers current MCC and MNC</p>

3.2. Test LDA Location Dependent Addressing

3.2.1. LDA_1 – Launch on boot

Location Dependent Addressing	
LDA_1	
LDA runs as service	
Objective(s)	
Verify that LDA runs as Service starting on boot device	
Pre-Conditions	
<ul style="list-style-type: none"> ○ The administrator password was set (to guarantee that SM GUI was launched) 	
Test procedure	
Action	Expected Result
1 Reboot device	When the boot procedure is completed a notification appears with LDA service status

3.2.2. LDA_2 – LDA receives notification about network availability

Location Dependent Addressing	
LDA_2	
LDA receives notification about network availability	
Objective(s)	
LDA updates its status base on network availability	
Pre-Conditions	
<ul style="list-style-type: none"> ○ End-User was logged in 	
Test procedure	
Action	Expected Result
1 A “commServiceAvailIndication” message is sent on the bus from CM	LDA receives message “commServiceAvailIndication” from bus and updates its status

3.2.3. LDA_3 – LDA receives a “LDA-SDS update number” message from LDA Server

Location Dependent Addressing	
LDA_3	
LDA receives a “LDA-SDS update number” message	
Objective(s)	
LDA sends the request to modify Group Number on bus and updates its status	
Pre-Conditions	
<ul style="list-style-type: none"> o End-User was logged in 	
Test procedure	
Action	Expected Result
1 A “LDA-SDS update number” message is sent on bus from TETRA/TETRAPOL app (sent on network from LDA Server Application)	<p>LDA verifies the structure of the SDS</p> <p>LDA sends on bus a “modifyGroupNumberRequest” message</p> <p>LDA waits for “changeGroupNumberConfirm” message, updates its status and notifies the End-User</p>

3.3. Test Enhanced Message Exchange Client GUI

3.3.1. ISITEP_EME_CLIENT_GUI_1 – Launch

Enhanced Message Exchange	
ISITEP_ EME_CLIENT_GUI_1	
Launch operation	
Objective(s)	
Access to EME Clie GUIt	
Pre-Conditions	
<ul style="list-style-type: none"> ○ The End-User was logged in ○ The HMI is open and the list of ISITEP Applications is shown ○ Network is available 	
Test procedure	
Action	Expected Result
1 Tap on EME icon	<p>The language preference sent on intent from HMI is stored</p> <p>A table with the list of stored SDSs (on first column the received SDS, in second column the sent SDS) is shown.</p>

3.3.2. ISITEP_EME_CLIENT_GUI_2 – Send new SDS

Enhanced Message Exchange	
ISITEP_EME_CLIENT_GUI_2	
Send new SDS	
Objective(s)	
Access to ISITEP EME Client GUI	
Pre-Conditions	
<ul style="list-style-type: none"> ○ EME GUI is open ○ List of stored SDSs (received or sent) is shown ○ The user is authorized to send SDSs ○ Network is available 	
Test procedure	
Action	Expected Result
1 Tap on “New SDS” icon	“New SDS” activity is shown
2 Go to field “Destination number” and type a number	
3 Tap on Address Book icon	A request is sent to system (through intent) to access Address Book The list of Contact is shown On user selection, the number of contact selected is reported on field “Destination number”
4 Go to field “Text Message” and type a text	
5 Tap on Predefined Messages icon	A list of predefined messages is shown On user selection, the message selected is reported on field “Text Message” The user can modify the text
6 Tap on Send Message icon	EME sends on bus a “sendMessageRequest” message with EME-SDS-TextSent structure EME sends on bus a “archiveData” message EME waits for “storeEncryptedData” message and then locally stores the encrypted message EME waits for “requestACK” message and updates message status EME waits for “sendConfirm” message and updates message status

3.3.3. ISITEP_EME_CLIENT_GUI_3 – Read a stored SDS

Enhanced Message Exchange	
ISITEP_EME_CLIENT_GUI_3	
Read a stored SDS	
Objective(s)	
Access to ISITEP EME Client GUI	
Pre-Conditions	
<ul style="list-style-type: none"> ○ EME GUI is open ○ List of stored SDS (received or sent) is shown 	
Test procedure	
Action	Expected Result
1 Tap on a message on list	LDA sends on bus a “retrieveArchive” message LDA waits for “decryptedData” message and shows the original message on message detail activity

3.4. Test Enhanced Message Exchange Client Service

3.4.1. EME_SERVICE_1 – Launch on boot

Enhanced Message Exchange	
EME_SERV_1	
EME runs as service	
Objective(s)	
Verify that EME runs as Service at the device start up	
Pre-Conditions	
<ul style="list-style-type: none"> ○ The administrator password was set (this ensure that SM GUI was launched) 	
Test procedure	
Action	Expected Result
1 Reboot device	When boot is completed, a notification appears with EME service status

3.4.2. EME_SERVICE_2 – EME receives notification about network availability

Enhanced Message Exchange		
EME_SERVICE_2		
EME receives notification about network availability		
Objective(s)		
EME updates network status based on network availability		
Pre-Conditions		
<ul style="list-style-type: none"> ○ End-User was logged in 		
Test procedure		
Action	Expected Result	
1	A “commServiceAvailIndication” message is sent on bus from CM	EME receives “commServiceAvailIndication” message from bus and updates network status

3.4.3. EME_SERVICE_3 – EME receives SDS

Enanced Message Exchange	
EME_SERVICE_3	
EME receives SDS	
Objective(s)	
EME receives a SDS and shows its contents to End-User	
Pre-Conditions	
<ul style="list-style-type: none"> ○ End-User was logged in 	
Test procedure	
Action	Expected Result
1 A “messageIndication” is sent on bus from TETRA/TETRAPOL app	EME verifies the structure of the SDS EME shows the message detail activity with message content
2 The message detail activity is closed or is in the background	EME sends on bus an “archiveData” message EME waits for “storeEncryptedData” message and then stores locally the encrypted message

3.4.4. EME_SERVICE_4 – EME receives SDS to be translated

Enhanced Message Exchange	
EME_SERVICE_3	
EME receives SDS	
Objective(s)	
EME receives a SDS, requests its translation from the native language to the one selected by the user, and shows to End-User	
Pre-Conditions	
<ul style="list-style-type: none"> o End-User was logged in 	
Test procedure	
Action	Expected Result
1 A “messageIndication” is sent on bus from TETRA/TETRAPOL app	<p>EME verifies the structure of that SDS is well formed and that the original language of message is different from preferred language of End-User</p> <p>EME sends on bus a “SSTTranslationReq” message</p> <p>EME waits for “SSTTranslationResult” message and shows the message detail activity with content of translated message</p>
2 The message detail activity is closed or go to background	<p>EME sends on bus a “archiveData” message</p> <p>EME waits for “storeEncryptedData” message and then locally stores the encrypted message</p>

4. REQUIREMENT MAPPING

In this section, the test cases are mapped to the project requirements. Each test suite is mapped over a requirement and contains several test cases. The requirements are defined in [1].

4.1. Test Dynamic Functional Numbering

REQUIREMENT ID	REQUIREMENT DESCRIPTION	TEST CASE ID
REQ#2	The ISITEP added-value application shall be able to detect if the network service is available exploiting the Control If	DFN_2 DFN_3
REQ#3	The ISITEP added-value application can be in two possible state based on network availability	DFN_2 DFN_3

4.2. Test Location Dependent Addressing

REQUIREMENT ID	REQUIREMENT DESCRIPTION	TEST CASE ID
REQ#1	The ISITEP added-value application shall be able to exploit the SDS App If	LDA_3
REQ#2	The ISITEP added-value application shall be able to detect if the network service is available exploiting the Control If	LDA_2
REQ#3	The ISITEP added-value application can be in two possible states based on network availability	LDA_2

4.3. Test EME Client Service

REQUIREMENT ID	REQUIREMENT DESCRIPTION	TEST CASE ID
REQ#1	The ISITEP added-value application shall be able to exploit the SDS App If	EME_SERV_3 EME_SERV_4
REQ#2	The ISITEP added-value application shall be able to detect if the network service is available exploiting the Control If	EME_SERV_2
REQ#3	The ISITEP added-value application can be in two possible state based on network availability	EME_SERV_2

5. TEST REPORT

TEST ID	EXECUTION DATE	RESULT	BUG ID	NOTE
DFN_1	28/03/2016	Passed		
DFN_2	28/03/2016	Passed		
DFN_3	28/03/2016	Passed		
LDA_1	13/04/2016	Passed		
LDA_2	13/04/2016	Passed		
EME_CLIENT_GUI_1	31/03/2016	Passed		
EME_CLIENT_GUI_2	31/03/2016	Passed		
EME_CLIENT_GUI_3	31/03/2016	Passed		
EME_CLIENT_SERVICE_1	31/03/2016	Passed		
EME_CLIENT_SERVICE_2	31/03/2016	Passed		
EME_CLIENT_SERVICE_3	31/03/2016	Passed		
EME_CLIENT_SERVICE_4	31/03/2016	Passed		

6. Reference

- [1] ISITEP D6.4.2 PPDR terminal applications design description