

ISITEP

D5.4.1 - WORKFLOW MANAGER TEST REPORT

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Publishable extended abstract

This deliverable provides the test report of the Workflow Manager app (WFM), which is one of the applications of the ISITEP enhanced terminal.

It describes for every test case the actions to be executed and the associated expected results.

The tests described in this document were designed and executed by simulating the software components needed for proving the capabilities of the WFM.

The WFM app was deployed on a Galaxy Note pro (12.2, LTE) running Android 5.02s.

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1 Introduction and scope

The aim of WP5.4 is the design and implementation of the server and terminal side of the WFM (Work Flow Manager) application.

The design and requirements are in D5.4.2 while this document provides a report of the tests that have been implemented, with respect to the requirements, to verify the correct behaviour of the app.

As described in D5.4.2 the WFM application is composed by:

- WFM Core Server: Web Application based on a database, a user graphical interface, and a dashboard that enables the user of the Control Room to assess the situation and perform actions towards the teams operating on field. The software interface of the web application towards the ISITEP system is based on Web Services.
- WFM Android application: APK installed on the Enhanced terminals, both hand-held and vehicular, capable to interact with the ISITEP framework by means of the software interfaces defined in D5.2.2; it uses the TETRA and TETRAPOL communication channels to exchange messages. The WFM Android application enables the communication between the user on the field and the Control Room.

2 Abbreviations

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

Acronym	Definition
API	Application programming interface
HMI	Human Machine Interface
IET	ISITEP Enhanced Terminal
PIN	Personal Identification Number
IF	Interface
SDS	Short Data Service
TETRA	TErrestrial Trunked RAdio
URL	Uniform Resource Locator
WFM	Workflow Manager

3 Testing environment

The tests are performed on a Galaxy Note pro (12.2, LTE) running Android 5.02s.

During the tests of the WFM on the client side, no other application provided by the IET is available. To overcome this limitation, the applications are simulated with a test Application provided with a button that sends the expected intent on the Android Broadcast Bus and a receiver that shows the expected response.

Regarding the tests on the server side of the WFM, since the API providing access to TETRA/TETRAPOL networks were not available, they have been developed exploiting a sample webservice able to simulate them, according to the description of the deliverable [4].

4 Test cases

In the following, the analyzed test cases are listed on both server and client side.

4.1 Test server side core

4.1.1 WFM_SERVER_1 - Web dashboard

Workflow Manager Core		
WFM_SERVER_1		
The WFM shall run as a service using a Web dashboard.		
Objective(s)		
Verify that the WFM runs as a service and offers a web dashboard as UI for interaction		
Pre-Conditions		
<ul style="list-style-type: none"> • The ISITEP environment is up and running • WFM service is started • WFM credentials are provided 		
Test procedure		
	Action	Expected Result
1	Access to the URL of the WFM service	The login page is shown
2	Login with proper credential (Control Room operator)	The web dashboard of the WFM server is shown

4.1.2 WFM_SERVER_2 - Simple commands of user dashboard

Workflow Manager Core		
WFM_SERVER_2		
The WFM shall provide a set of simple commands on the main screen of the user dashboard.		
Objective(s)		
Verify that the WFM user is able to access to a set simple commands on the main screen		
Pre-Conditions		
<ul style="list-style-type: none"> • The ISITEP environment is up and running • WFM service is started • WFM credentials are provided 		
Test procedure		
Action		Expected Result
1	Access to the URL of the WFM service	The login page is shown
2	Login with proper credential (Control Room operator)	<ul style="list-style-type: none"> • The web dashboard of the WFM server is shown with all the available missions. • Some simple commands are available to create a new mission, and edit existing ones
3	Click on one of the available missions	A set of commands for each task of the mission is available to abort, create new one, as well as other ones to send, stop, and close the mission

4.1.3 WFM_SERVER_3 - Notification mechanism

Workflow Manager Core	
WFM_SERVER_3	
The WFM Server Application, through the Web Service, shall subscribe services for the asynchronous notification mechanism.	
Objective(s)	
Verify that the WFM Server Application is able to subscribe for asynchronous notification mechanism.	
Pre-Conditions	
<ul style="list-style-type: none"> • The ISITEP environment is up and running • The WFM server log is accessible 	
Test procedure	
Action	Expected Result
1 Start WFM service	<ul style="list-style-type: none"> • The login request and its response confirmation message appear on the log file. • The subscription request and its response confirmation message appear on the log file.

4.1.4 WFM_SERVER_4 - Receive Messages from TETRA/TETRAPOL terminals

Workflow Manager Core		
WFM_SERVER_4		
The WFM Server Application, through the Web Service, shall receive the messages from TETRA/TETRAPOL terminals.		
Objective(s)		
Verify that the WFM server is able to receive information from terminals in SDS format		
Pre-Conditions		
<ul style="list-style-type: none"> • The ISITEP environment is up and running • WFM service is started • WFM credentials are provided 		
Test procedure		
	Action	Expected Result
1	Access to the URL of the WFM service	The login page is shown
2	Login with proper credential (Control Room operator)	The web dashboard of the WFM server is shown with all the available missions
3	Create a new mission with some tasks	A form to insert mission and tasks details is shown
4	Send the mission to the terminal	The terminal is updated with mission details
5	Select one or more tasks on the terminal and click on "accept"	<ul style="list-style-type: none"> • The terminal sends update to the server through SDS messages (refresh page on server-side, if needed) • The task status on the server is updated

4.1.5 WFM_SERVER_5 - Send Messages from TETRA/TETRAPOL terminals

Workflow Manager Core		
WFM_SERVER_5		
The WFM Server Application, through the Web Service, shall send the messages from TETRA/TETRAPOL terminals.		
Objective(s)		
Verify that the WFM server is able to receive information from terminals in SDS format through the offered service		
Pre-Conditions		
<ul style="list-style-type: none"> • The ISITEP environment is up and running • WFM service is started • WFM credentials are provided 		
Test procedure		
Action		Expected Result
1	Access to the URL of the WFM service	The login page is shown
2	Login with proper credential (Control Room operator)	The web dashboard of the WFM server is shown with all the available missions
3	Create a new mission with some tasks	A form to insert mission and tasks details is shown
4	Send the mission to the terminal	<ul style="list-style-type: none"> • Server sends mission details through SDS messages to the terminal, which is updated with mission details • The terminal is updated with mission details

4.1.6 WFM_SERVER_6 - SDS Messages

Workflow Manager Core		
WFM_SERVER_6		
The WFM shall be able to exchange messages with the TETRA/TETRAPOL terminals using SDS messages.		
Objective(s)		
Verify that WFM is able to send and receive message from terminals		
Pre-Conditions		
<ul style="list-style-type: none"> • The ISITEP environment needs to be up and running • WFM service is started • WFM credentials need to be provided 		
Test procedure		
	Action	Expected Result
1	Access to the URL of the WFM service	The login page is shown
2	Login with proper credential (Control Room operator)	The web dashboard of the WFM server is shown with all the available missions
3	Create a new mission with some tasks	A form to insert mission and tasks details is shown
4	Send the mission to the terminal	The terminal is updated with mission details
5	Select one or more tasks on the terminal and click on "accept"	<ul style="list-style-type: none"> • The terminal sends update to the server through SDS messages (refresh page on server-side, if needed) • The task status on the server is updated
6	Select the previous task on the terminal and click on "done"	<ul style="list-style-type: none"> • The terminal sends update to the server through SDS messages (refresh page on server-side, if needed) • The task status on the server is updated

4.2 Test client side app

4.2.1 WFM_CLIENT_1 - WFM App run as a service on the mobile terminal

Workflow Manager App	
WFM_CLIENT_1	
The WFM App shall run as a service on the mobile terminal.	
Objective(s)	
Verify that Workflow Manager App runs as a Service	
Pre-Conditions	
<ul style="list-style-type: none"> The device needs to have developer option turned on and WFM Service needs to be launched 	
Test procedure	
Action	Expected Result
1 Tap on developer tools, developer options, and then running service.	WFM Service appears on the list of services running in the background

4.2.2 WFM_CLIENT_2 - Icon app

Workflow Manager App	
WFM_CLIENT_2	
The WFM App shall provide the “WFM” icon on the main screen of the ISITEP Application, in order to allow the user to interact with the Application itself.	
Objective(s)	
Verify that the WFM can be launched from the icon provided by the HMI ISITEP interface	
Pre-Conditions	
<ul style="list-style-type: none"> HMI ISITEP needs to be installed and running, and user needs to be authenticated 	
Test procedure	
Action	Expected Result
1 Launch ISITEP HMI Application, insert user PIN	WFM icon appears on the list of the available Added Value Apps

4.2.3 WFM_CLIENT_3 - PlatformIF

Workflow Manager App	
WFM_CLIENT_3	
The WFM App shall provide a PlatformIF implemented on Android Service Bus.	
Objective(s)	
Verify that the WFM offers an interface for communication intent based	
Pre-Conditions	
<ul style="list-style-type: none"> • Network is not available 	
Test procedure	
Action	Expected Result
1 CM sends an intent to the Android Bus with network unavailability information	WFM modifies the status of the application and locks HMI in case of network unavailability

4.2.4 WFM_CLIENT_4 - Service Registration

Workflow Manager App	
WFM_CLIENT_4	
The WFM App shall be able to register on the services exposed by the Communication Manager for exploiting the TETRA/TETRAPOL communication services.	
Objective(s)	
Verify that the Workflow Manager App is able to register to the Communication Manager	
Pre-Conditions	
<ul style="list-style-type: none"> • The ISITEP Enhanced Terminal must be switched off • The ISITEP Enhanced Terminal has been configured by the Administrator 	
Test procedure	
Action	Expected Result
1 Turn on the ISITEP Enhanced Terminal	A registerApplicationRequest is sent to the Android bus and a notification appears on the terminal

4.2.5 WFM_CLIENT_5 - Notification about Registration

Workflow Manager App	
WFM_CLIENT_5	
The WFM App, through the PlatformIF, shall be able to receive notifications about the registration status, and the availability of the services of TETRA/TETRAPOL networks.	
Objective(s)	
Verify that the WFM APP receives notifications	
Pre-Conditions	
<ul style="list-style-type: none"> • The ISITEP Enhanced Terminal must be switched off • The ISITEP Enhanced Terminal has been configured by the Administrator • The Network is available 	
Test procedure	
Action	Expected Result
1 CM sends an intent to the Android Bus with network unavailability information	WFM modifies the status of the application and makes the HMI available and a notification appears on terminal

4.2.6 WFM_CLIENT_6 - SDS Messages between App and Core

Workflow Manager App	
WFM_CLIENT_6	
The WFM App shall be able to exchange messages with the WFM Core using SDS messages.	
Objective(s)	
Verify the message exchange between WFM Core and WFM App	
Pre-Conditions	
<ul style="list-style-type: none"> o A mission with a list of pre-defined tasks is available on the WFM Core o The terminal needs to be registered to the WFM core 	
Test procedure	
Action	Expected Result
1 WFM Core: sends a mission from the web dashboard of the WFM core, changes the status of all task into <i>sent</i>	WFM App: the mission and its tasks area received through SDS and shown on display
2 WFM App: tap on a task	WFM App: the detail of the task is shown
3 WFM App: tap on the button <i>accept</i>	<p>WFM App: the button changes from <i>accept</i> to <i>accepted</i></p> <p>WFM Core: the chosen task of the mission changes the status from <i>sent</i> to <i>accepted</i></p>

5 Requirements mapping

In this section, all test cases are mapped, if possible, to project requirements. Each test suite is mapped over a requirement and contains several test cases.

5.1 Test Workflow Manager Server

REQUIREMENT ID	REQUIREMENT DESCRIPTION	TEST CASE ID
REQ#1	The WFM shall run as a service using a Web dashboard.	WFM_SERVER_1
REQ#2	The WFM shall provide a set of simple commands on the main screen of the user dashboard.	WFM_SERVER_2
REQ#3	The WFM Server Application, through the Web Service, shall subscribe services for the asynchronous notification mechanism.	WFM_SERVER_3
REQ#4	The WFM Server Application, through the Web Service, shall receive the messages from TETRA/TETRAPOL terminals.	WFM_SERVER_4
REQ#5	The WFM Server Application, through the Web Service, shall send the messages from TETRA/TETRAPOL terminals.	WFM_SERVER_5
REQ#6	The WFM shall be able to exchange messages with the TETRA/TETRAPOL terminals using SDS messages.	WFM_SERVER_6

5.2 Test Workflow Manager Client App

REQUIREMENT ID	REQUIREMENT DESCRIPTION	TEST CASE ID
REQ#7	The WFM App shall run as a service on the mobile terminal.	WFM_CLIENT_1
REQ#8	The WFM App shall provide the "WFM" icon on the main screen of the ISITEP Application, in order to allow the user to interact with the Application itself.	WFM_CLIENT_2
REQ#9	The WFM App shall provide a PlatformIF implemented on Android Service Bus.	WFM_CLIENT_3
REQ#10	The WFM App shall be able to register on the services exposed by the Communication Manager for exploiting the TETRA/TETRAPOL communication services.	WFM_CLIENT_4
REQ#11	The WFM App, through the PlatformIF, shall be able to receive notifications about the registration status, and the availability of the services of TETRA/TETRAPOL networks.	WFM_CLIENT_5
REQ#12	The WFM App shall be able to exchange messages with the WFM Core using SDS messages.	WFM_CLIENT_6

6 Test report

TEST ID	TEST TITLE	EXECUTION DATE	RESULT
WFM_SERVER_1	Web dashboard	04/04/2016	As expected
WFM_SERVER_2	Simple commands of user dashboard	04/04/2016	As expected
WFM_SERVER_3	Notification mechanism	04/04/2016	As expected
WFM_SERVER_4	Receive Messages from TETRA/TETRAPOL terminals	04/04/2016	As expected
WFM_SERVER_5	Send Messages from TETRA/TETRAPOL terminals	04/04/2016	As expected
WFM_SERVER_6	SDS Messages	04/04/2016	As expected
WFM_CLIENT_1	WFM App run as a service on the mobile terminal	05/04/2016	As expected
WFM_CLIENT_2	Icon app	05/04/2016	As expected
WFM_CLIENT_3	PlatformIF	05/04/2016	As expected
WFM_CLIENT_4	Service Registration	05/04/2016	As expected
WFM_CLIENT_5	Notification about Registration	05/04/2016	As expected
WFM_CLIENT_6	SDS Messages between App and Core	05/04/2016	As expected

7 References

- [1] ISITEP D5.4.2 – Workflow manager design description
- [2] ISITEP D5.3.2 – Security manager design description
- [3] ISITEP D5.2.2 - Adaptation / Communication manager design description
- [4] ISITEP D6.5.2 - PPDR Server applications design description