

INFORMATION TECHNOLOGIES FOR SHIFT TO RAIL

D4.6 – Trip Tracker Final Integration Report

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EXECUTIVE SUMMARY

This deliverable contains a complete report on Trip Tracker Final Release integration, including results of tests performed to verify the effectiveness of implemented functionality. Moreover, this document also describes the campaign strategy to facilitate understanding of the background of these tests. This also covers the complete description of the infrastructure and hardware configuration. At the end of the document, all the tests performed are listed along with a short description of preconditions as well as expected and observed results of each tested functionality.

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1. INTRODUCTION

This Integration Report describes the test cases identified for the Final Release of the Trip Tracker including differences to the previous A-REL testing campaign. This document shall contain a brief description of the following parts:

- the planned objectives of test cases,
- the description of the configuration needed for running all test cases,
- the system details (infrastructure & configuration) used for running the tests,
- expected and observed results of individual test cases,
- the possible links of results with other deliverables.

2. REFERENCED DOCUMENTS

2.1 APPLICABLE DOCUMENTS

This chapter lists the applicable documents for the current deliverable:

- D4.1 – Trip Tracker Ontology document,
- D4.2 – Trip Tracker Specifications document,
- D4.4 – Trip Tracker Core Integration Report,
- D4.5 – Trip Tracker Additional Integration Report.

2.2 NORMATIVE DOCUMENTS

Not Applicable.

3. CAMPAIGN STRATEGY

This document updates the D4.5 Trip Tracker Additional Integration Report, so it also includes the Test Category and Test Case identified for the Additional Release (A-REL) and also new ones related to the new components and functionalities developed for the Final Release. In particular, the test cases concern the functionality of all Trip Tracker components, i.e. TrackingActivation, EventsListening, EventsProcessing, UserInterface, AlternativesManager and BAinterface.

The main objective of these tests is to verify that all the partial activities of the Trip Tracker are carried out properly. Therefore the individual tests follow these partial goals:

- verify the interface and communication between the Travel Companion and the Trip Tracker focusing on:
 - triggering of journey tracking and retrieval of relevant data (user's preferences, itinerary content, userIdToken),
 - sending messages through the UserInterface component.
- verify the validation of the itinerary (functionality simulated, but deployed),
- check the outputs of Navitia decoder provided by the Interoperability Framework,
- instantiate Monitors responsible for listening to disruptive event sources,

- capture, translate and process disruptive events broadcasted by the Navitia platform¹,
- broadcast and process disruptive events from the Simulator, which is a specific Monitor that simulates the real events source,
- verify the proper operation of the entire Complex Event Processing (CEP), i.e. evaluation of conflicts, assessment of impacts and sending appropriate messages where applicable,
- propose the user an offer of alternative solutions in case of Alert,
- manage building of the offer of alternatives (including its verification before the offer is submitted) upon user's request,
- verify the logging services,
- check the interface with the Business Analytics through the BAinterface component and the outputs it provides.

The test campaign also examines the error conditions of the tested web services, e.g. the correctness of input parameters.

4. TEST MATERIAL DESCRIPTION

This chapter lists all the assets required to perform the test campaign. The testing is associated with the basic configuration of the tested system. The configuration itself, including its parameters and resources needed to conduct the tests, is described in the following subchapters.

4.1 CONFIGURATION OF TRIP TRACKER ENVIRONMENT

In order to conduct the tests successfully, the Trip Tracker environment must be configured properly. The configuration consists of infrastructure and hardware settings (minimum system requirements) and also the provided service settings (application setup needed to ensure its correct operation).

4.1.1 Infrastructure and hardware

The minimum system requirements (runtime environment) are Windows 7 operating system with .NET Framework 4.6.1 (or higher) installed. No further installation is needed. The distributable archive containing all necessary application files could be simply extracted to any selected folder.

4.1.2 Setup & configuration

The Trip Tracker module is installed and deployed at the following endpoint <http://213.235.156.9/>. The operating system is CentOS Linux 7 with the web server Apache 2.4.6 and the MySQL 5.5.52-MariaDB database.

¹ The Navitia platform (<https://www.navitia.io>) provides API for access to public transport data of approximately 1.600 networks in 25 countries who support an "open data" concept.

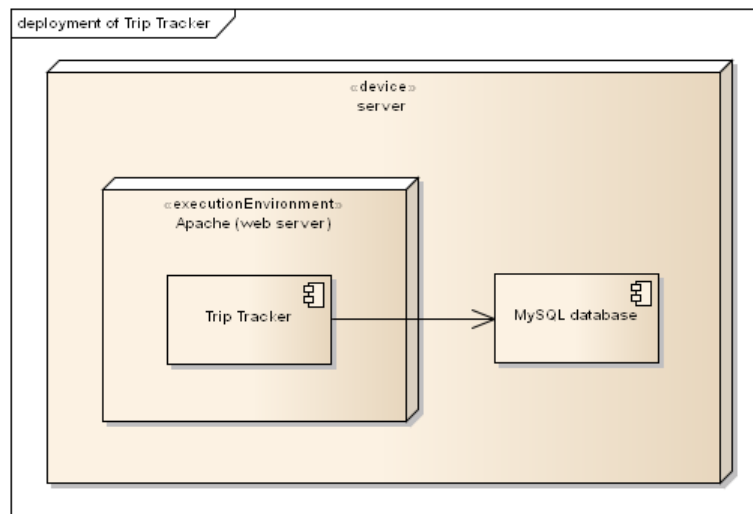


Figure 1: Trip Tracker deployment

The related configuration file is based on XML syntax and editable by any common text editor.

There are two custom settings:

1. Value at *AppLogDirectory* setting – absolute or relative path to folder where application log will be written.
2. Value at *Address* setting – IP address (or host name) and TCP port at local machine where the web service has to be hosted (listening).

The application must be run by the user with appropriate user rights for:

- launching executable files,
- writing to application log file,
- addressing registers.

Please mind also personal or local net firewall restrictions.

4.1.3 Tested system

This test campaign aims at testing of the functionality of all Trip Tracker components.

4.1.4 System data parameters

The parameters of Trip Tracker module are stored in the configuration file *config.adresaServeru.php*. It contains:

- DB_HOST – the address of the server with the database (e.g. *localhost*),
- DB_NAME – the name of the diagram/database (e.g. *it2rail_triptracker*),
- DB_USER – the user of the database (e.g. *user*),
- DB_PASSWORD – the password for DB_USER (e.g. *password*),
- ESPER_MESSAGE_API – the interface for receiving messages from Esper,
- ESPER_LOAD_DB_API – the interface for obtaining data from the database,
- ESPER_REDIRECT_API – INDRA's interface for sending messages to Travel Companion,
- FRAUNHOFER_API – Fraunhofer's interface for sending messages to Update patterns.

4.1.5 Simulators

The real communication between all the Trip Tracker components, as well as between the Trip Tracker and other IT2Rail modules, will be tested, thus all interfaces operation will be demonstrated by the tests.

4.1.6 Personnel

The personnel required to run this test campaign are qualified people with high professional knowledge and background on Information Technology and Computer Science.

5. TEST DESCRIPTION

This chapter describes the test cases that will be executed before the Final Release of the Trip Tracker.

5.1 TRACKINGACTIVATION

The aim of the TrackingActivation component is to reflect Traveller's decision on journey tracking. When triggered by the Traveller, Travel Companion sends a request for tracking of selected journey to the Trip Tracker. After that, Trip Tracker tries to gather user's preferences and the details of a given journey. Having all the necessary data collected, the journey tracking activation process may start. At the end, a set of Monitors capable of listening to various event sources is instantiated, and the user receives a confirmation, that requested tracking of a journey has just been successfully activated.

5.1.1 Activation of tracking

The following table shows the expected behaviour of each step of the Tracking activation process including possible consequences of this behaviour. Therefore, the expected behaviour is divided according to the possible result of each step.

Step	Name of the step	Status	Description
1	Request journey tracking	True	Upon successful receipt of the request for tracking activation from Travel Companion, the UserIDToken is stored.
		False	The receipt of the request has failed, so Trip Tracker sends back to Travel Companion a message that the request wasn't accepted.
2	Get preferences	True	User's preferences obtained from Travel Companion are stored locally.
		False	An attempt to obtain and store user's preferences has failed. Trip Tracker sends to Travel Companion a message that the request for tracking activation wasn't accepted.
3	Get itinerary	True	All the necessary details of the given itinerary are obtained from Travel Companion and stored locally.
		False	An attempt to obtain and store the itinerary details has failed. Trip Tracker sends to Travel Companion a message that the request for tracking activation wasn't accepted.

4	Respond to user's request for tracking activation	True	The response is sent to Travel Companion.
		False	The response is not sent to Travel Companion.
5	Validate itinerary (simulated – the True / False response is returned according to a certain algorithm)	True	Validation of the itinerary succeeded.
		False	Validation of the itinerary has failed and the relevant message is sent to user through the Travel Companion.
6	Update patterns	True	Patterns are updated and the request for activation of rules is sent to Evaluate conflicts function.
		False	Patterns are not updated and the request for activation of rules is not sent to Evaluate conflicts function. A message about the tracking activation failure is sent.
7	Identification of event source/s	True	Possible sources of events are identified and the information is sent to the Invoke/stop listening function.
		False	No sources of events were identified so no information is sent to the Invoke/stop listening function. A message about the tracking activation failure is sent.
8	Invoke/stop listening	True	At least one Monitor has been successfully instantiated.
		False	A message about the tracking activation failure is sent.
9	Confirm tracking activation	True	All the preceding steps were successfully completed and the confirmation of the successful tracking activation is sent to Travel Companion.
		False	No message is sent, only a notification is displayed in the Personal Application.

Table 1: Activation of tracking – test steps overview

The above listed steps will be performed to test the process of Tracking activation within individual test cases. The behaviour in case of failure will be tested too.

WP4-TA1-01 Activation of tracking				
ID of step	Step description	Expected result	Observed result	State
1	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
2	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
3	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
4	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
5	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
6	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
7	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
8	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
9	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed
10	Entire process	Activation of tracking is successful	Activation of tracking was successful	Passed

Table 2: Activation of tracking – test of the entire process

WP4-TA1-02 Request journey tracking				
ID of step	Step description	Expected result	Observed result	State
1	Correct parameters	OK	OK	Passed
2	Correct parameters	OK	OK	Passed
3	Wrong parameters	Bad request (unsuccessful activation of the tracking)	Bad request (unsuccessful activation of the tracking)	Passed
4	Wrong parameters	Bad request (unsuccessful activation of the tracking)	Bad request (unsuccessful activation of the tracking)	Passed
5	Correct parameters	OK	OK	Passed
6	Wrong parameters	Bad request (unsuccessful activation of the tracking)	Bad request (unsuccessful activation of the tracking)	Passed
7	Correct parameters	OK	OK	Passed
8	Correct parameters	OK	OK	Passed
9	Wrong parameters	Bad request (unsuccessful activation of the tracking)	Bad request (unsuccessful activation of the tracking)	Passed
10	Correct parameters	OK	OK	Passed

Table 3: Activation of tracking – Request journey tracking

WP4-TA1-03 Get preferences				
ID of step	Step description	Expected result	Observed result	State
1	Correct preferences	OK	OK	Passed
2	Wrong preferences	Preferences not received nor stored (unsuccessful activation of the tracking)	Preferences not received nor stored (unsuccessful activation of the tracking)	Passed
3	Correct preferences	OK	OK	Passed
4	Wrong preferences	Preferences not received nor stored (unsuccessful activation of the tracking)	Preferences not received nor stored (unsuccessful activation of the tracking)	Passed
5	Wrong preferences	Preferences not received nor stored (unsuccessful activation of the tracking)	Preferences not received nor stored (unsuccessful activation of the tracking)	Passed
6	Wrong parameters	Preferences not received nor stored (unsuccessful activation of the tracking)	Preferences not received nor stored (unsuccessful activation of the tracking)	Passed
7	Correct preferences	OK	OK	Passed
8	Correct preferences	OK	OK	Passed
9	Correct preferences	OK	OK	Passed
10	Correct preferences	OK	OK	Passed

Table 4: Activation of tracking – Get preferences

WP4-TA1-04 Get itinerary				
ID of step	Step description	Expected result	Observed result	State
1	Correct itinerary	OK	OK	Passed
2	Wrong itinerary	Itinerary not received nor stored (unsuccessful activation of the tracking)	Itinerary not received nor stored (unsuccessful activation of the tracking)	Passed
3	Wrong itinerary	Itinerary not received nor stored (unsuccessful activation of the tracking)	Itinerary not received nor stored (unsuccessful activation of the tracking)	Passed
4	Correct itinerary	OK	OK	Passed
5	Wrong itinerary	Itinerary not received nor stored (unsuccessful activation of the tracking)	Itinerary not received nor stored (unsuccessful activation of the tracking)	Passed
6	Correct itinerary	OK	OK	Passed
7	Correct itinerary	OK	OK	Passed
8	Correct itinerary	OK	OK	Passed
9	Wrong itinerary	Itinerary not received nor stored (unsuccessful activation of the tracking)	Itinerary not received nor stored (unsuccessful activation of the tracking)	Passed
10	Wrong itinerary	Itinerary not received nor stored (unsuccessful activation of the tracking)	Itinerary not received nor stored (unsuccessful activation of the tracking)	Passed

Table 5: Activation of tracking – Get itinerary

WP4-TA1-05 Validate itinerary				
ID of step	Step description	Expected result	Observed result	State
1	Call to validation	Response received	Response received	Passed
2	Call to validation	Response received	Response received	Passed
3	Call to validation	Response received	Response received	Passed
4	Call to validation	Response received	Response received	Passed
5	Call to validation	Response received	Response received	Passed
6	Call to validation	Response received	Response received	Passed
7	Call to validation	Response received	Response received	Passed
8	Call to validation	Response received	Response received	Passed
9	Call to validation	Response received	Response received	Passed
10	Call to validation	Response received	Response received	Passed

Table 6: Activation of tracking – Validate itinerary

WP4-TA1-06 Update patterns				
ID of step	Step description	Expected result	Observed result	State
1	Correct rules	Activation of rules	Activation of rules	Passed
2	Correct rules	Activation of rules	Activation of rules	Passed
3	Correct rules	Activation of rules	Activation of rules	Passed
4	Incorrect rules	Rules not activated (unsuccessful activation of the tracking)	Rules not activated (unsuccessful activation of the tracking)	Passed
5	Incorrect rules	Rules not activated (unsuccessful activation of the tracking)	Rules not activated (unsuccessful activation of the tracking)	Passed
6	Correct rules	Activation of rules	Activation of rules	Passed
7	Correct rules	Activation of rules	Activation of rules	Passed
8	Correct rules	Activation of rules	Activation of rules	Passed
9	Incorrect rules	Rules not activated (unsuccessful activation of the tracking)	Rules not activated (unsuccessful activation of the tracking)	Passed
10	Incorrect rules	Rules not activated (unsuccessful activation of the tracking)	Rules not activated (unsuccessful activation of the tracking)	Passed

Table 7: Activation of tracking – Update patterns

WP4-TA1-07 Identification of event sources				
ID of step	Step description	Expected result	Observed result	State
1	Event source/s are identified	Information about event source/s is sent to Invoke/stop listening function	Information about event source/s is sent to Invoke/stop listening function	Passed
2	Event source/s not identified	Information about event source/s not sent (tracking activation failed)	Information about event source/s not sent (tracking activation failed)	Passed
3	Event source/s are identified	Information about event source/s is sent to Invoke/stop listening function	Information about event source/s is sent to Invoke/stop listening function	Passed
4	Event source/s are identified	Information about event source/s is sent to Invoke/stop listening function	Information about event source/s is sent to Invoke/stop listening function	Passed
5	Event source/s are identified	Information about event source/s is sent to Invoke/stop listening function	Information about event source/s is sent to Invoke/stop listening function	Passed
6	Event source/s not identified	Information about event source/s not sent (tracking activation failed)	Information about event source/s not sent (tracking activation failed)	Passed
7	Event source/s are identified	Information about event source/s is sent to Invoke/stop listening function	Information about event source/s is sent to Invoke/stop listening function	Passed
8	Event source/s not identified	Information about event source/s not sent (tracking activation failed)	Information about event source/s not sent (tracking activation failed)	Passed
9	Event source/s not identified	Information about event source/s not sent (tracking activation failed)	Information about event source/s not sent (tracking activation failed)	Passed
10	Event source/s are identified	Information about event source/s is sent to Invoke/stop listening function	Information about event source/s is sent to Invoke/stop listening function	Passed

Table 8: Activation of tracking – Identification of event sources

WP4-TA1-08 Invoke/stop listening				
ID of step	Step description	Expected result	Observed result	State
1	Event source/s descriptor(s) provided	Monitor(s) successfully instantiated	Monitor(s) successfully instantiated	Passed
2	No event source identified	Sending of tracking activation failure message requested	Sending of tracking activation failure message requested	Passed
3	No event source identified	Sending of tracking activation failure message requested	Sending of tracking activation failure message requested	Passed
4	No event source identified	Sending of tracking activation failure message requested	Sending of tracking activation failure message requested	Passed
5	No event source identified	Sending of tracking activation failure message requested	Sending of tracking activation failure message requested	Passed
6	Event source/s descriptor(s) provided	Monitor(s) successfully instantiated	Monitor(s) successfully instantiated	Passed
7	Event source/s descriptor(s) provided	Monitor(s) successfully instantiated	Monitor(s) successfully instantiated	Passed
8	Event source/s descriptor(s) provided	Monitor(s) successfully instantiated	Monitor(s) successfully instantiated	Passed
9	Event source/s descriptor(s) provided	Monitor(s) successfully instantiated	Monitor(s) successfully instantiated	Passed
10	Event source/s descriptor(s) provided	Monitor(s) successfully instantiated	Monitor(s) successfully instantiated	Passed

Table 9: Activation of tracking – Invoke/stop listening

WP4-TA1-09 Confirm tracking activation				
ID of step	Step description	Expected result	Observed result	State
1	Tracking activation completed	Confirmation is sent to Travel Companion and displayed at user's device	Confirmation delivered and displayed at user's device	Passed
2	Tracking activation failed	No confirmation displayed	No confirmation displayed	Passed
3	Tracking activation completed	Confirmation is sent to Travel Companion and displayed at user's device	Confirmation delivered and displayed at user's device	Passed
4	Tracking activation failed	No confirmation displayed	No confirmation displayed	Passed
5	Tracking activation completed	Confirmation is sent to Travel Companion and displayed at user's device	Confirmation delivered and displayed at user's device	Passed
6	Tracking activation failed	No confirmation displayed	No confirmation displayed	Passed
7	Tracking activation completed	Confirmation is sent to Travel Companion and displayed at user's device	Confirmation delivered and displayed at user's device	Passed
8	Tracking activation failed	No confirmation displayed	No confirmation displayed	Passed
9	Tracking activation completed	Confirmation is sent to Travel Companion and displayed at user's device	Confirmation delivered and displayed at user's device	Passed
10	Tracking activation failed	No confirmation displayed	No confirmation displayed	Passed

Table 10: Activation of tracking – Confirm tracking activation

WP4TestCase1-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of the TrackingActivation component.
Description	The interface and communication between Travel Companion and Trip Tracker will be tested, focusing on triggering of journey tracking. The interface pertains to the TrackingActivation component and its testing will include error messages.
Status	OK
% passed	100%

WP4TestCase1-1	
Test Case Running Status	NA
Test Case Tester	OLTIS Group

Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: <ul style="list-style-type: none"> - Internet connection, - Travel Companion application installed on mobile device - User logged in 				

Id	Step description	Expected result	Observed result	State	Associated defect
1	The entire process of tracking activation	Activation of tracking is successful	Activation of tracking is successful	Passed	
2	Request journey tracking	Request for journey tracking activation received	Request for journey tracking activation received	Passed	
3	Get preferences	Preferences are received and stored	Preferences are received and stored	Passed	
4	Get itinerary	Itinerary details are received and stored	Itinerary details are received and stored	Passed	
5	Validate itinerary	Itinerary validated	Itinerary validated	Passed	
6	Update patterns	Rules are activated	Rules are activated	Passed	
7	Identification of event source/s	Event source/s are identified	Event source/s are identified	Passed	
8	Invoke/stop listening	Monitor(s) instantiated	Monitor(s) instantiated	Passed	
9	Confirm tracking activation	Confirmation message is sent to Travel Companion	Confirmation message is sent to Travel Companion	Passed	

5.1.2 Deactivation of tracking

The request for deactivation of tracking may occur in the following cases:

Step	Name of the step	Status	Description
1	User deactivates the journey tracking	True	The request for tracking deactivation is received by the Trip Tracker. The tracking is deactivated and a confirmation message is sent to Travel Companion.
		False	No request for tracking deactivation is received and so no confirmation message is sent to Travel Companion. The request for tracking deactivation is received but the confirmation is not sent to Travel Companion.
2	Automatic deactivation of journey tracking	True	Tracking of the invalid itinerary is deactivated.
		False	Tracking of the invalid itinerary is not deactivated (the itinerary remains being tracked).

Table 11: Deactivation of tracking – test steps overview

The above listed steps will be performed to test the process of tracking deactivation within individual test cases. The behaviour in case of failure will be tested too.

WP4-TA2-01 User deactivates the journey tracking				
ID of step	Step description	Expected result	Observed result	State
1	Request for the deactivation succeeded	Tracking of the itinerary is deactivated	Tracking of the itinerary is deactivated	Passed
2	Request for the deactivation failed	Tracking of the itinerary keeps activated	Tracking of the itinerary keeps activated	Passed
3	Request for the deactivation succeeded	Tracking of the itinerary is deactivated	Tracking of the itinerary is deactivated	Passed
4	Request for the deactivation succeeded	Tracking of the itinerary is deactivated	Tracking of the itinerary is deactivated	Passed
5	Request for the deactivation succeeded	Tracking of the itinerary is deactivated	Tracking of the itinerary is deactivated	Passed
6	Request for the deactivation failed	Tracking of the itinerary keeps activated	Tracking of the itinerary keeps activated	Passed
7	Request for the deactivation failed	Tracking of the itinerary keeps activated	Tracking of the itinerary keeps activated	Passed
8	Request for the deactivation succeeded	Tracking of the itinerary is deactivated	Tracking of the itinerary is deactivated	Passed
9	Request for the deactivation succeeded	Tracking of the itinerary is deactivated	Tracking of the itinerary is deactivated	Passed
10	Request for the deactivation failed	Tracking of the itinerary keeps activated	Tracking of the itinerary keeps activated	Passed

Table 12: Deactivation of tracking upon user's request

WP4-TA2-02 Automatic deactivation of journey tracking				
ID of step	Step description	Expected result	Observed result	State
1	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
2	Request for the deactivation of the invalid itinerary failed	Tracking of the invalid itinerary not deactivated	Tracking of the invalid itinerary not deactivated	Passed
3	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
4	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
5	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
6	Request for the deactivation of the invalid itinerary failed	Tracking of the invalid itinerary not deactivated	Tracking of the invalid itinerary not deactivated	Passed
7	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
8	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
9	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed
10	Request for the deactivation of the invalid itinerary succeeded	Tracking of the invalid itinerary deactivated	Tracking of the invalid itinerary deactivated	Passed

Table 13: Automatic deactivation of tracking

WP4TestCase1-2	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the functionality of the tracking deactivation.
Description	The functionality of the tracking deactivation will be tested in the corresponding situations where a request for deactivation may occur.
Status	OK
% passed	100%

WP4TestCase1-2	
Test Case Running Status	NA
Test Case Tester	OLTIS Group

Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: - Journey tracking activated				
1	User deactivates the tracking	The request for deactivation is received from the Travel Companion and the relevant tracking is deactivated	The request for deactivation is received from the Travel Companion and the relevant tracking is deactivated	Passed	
2	Automatic deactivation of tracking	The tracking for the invalid itinerary is deactivated	The tracking for the invalid itinerary is deactivated	Passed	

5.2 EVENTS PROCESSING

When an event broadcasted by the Travel Event Provider is captured by the Trip Tracker, it passes to a 2-step process of evaluation. During the evaluation, an impact of the event on user's travel plan is assessed and a message of corresponding type is sent to the Travel Companion in case that the journey is affected by the analysed event.

5.2.1 Real-time listening to the Navitia events source

The real-time listening to the Navitia events source consists of the following steps:

Step	Name of the step	Status	Description
1	Capture event from Navitia events source	True	Listening to the Navitia platform is started. When an event is broadcasted, it is captured by the appropriate Monitor.
		False	The connection to the event source failed and listening to the source is interrupted. Listening to the event source is active, but the event is not captured.
2	Translate event	True	Event's content is translated so the event progressed to further processing (filtering).
		False	The data format is incorrect so the event translation failed and its processing is stopped.
3	Filter event	True	A disruptive event is recognized and thus the event is submitted to Match patterns function (the T-Rex tool) for further processing.
		False	Another event type is recognized so the event is excluded from further processing.
4	Activation/deactivation of rules	True	The request for the activation/deactivation of rules is received from the Update patterns function and the rules are activated/deactivated accordingly.
		False	The request for the activation of rules is not received so the rules are not activated. The request is received but the rules are not activated.
5	Impact evaluation of the event (with impact)	True	The event is evaluated based on the activated rules. The impact is assessed and according to its level a message to the user is sent or not.
		False	The evaluation of the impact of the event failed so no message is sent.

6	Impact evaluation of the event (without impact)	True	Based on the activated rules, no impact was determined to the itinerary so no request to send a message to the UserInterface component is raised.
		False	The evaluation of the impact of the event failed.
7	Request for sending of the “WARNING” message to UserInterface component	True	A low impact to the itinerary was determined so the Evaluate conflicts function sends the request for sending a “WARNING” message to UserInterface component.
		False	The request for sending a message is not sent to UserInterface component.
8	Send the “WARNING” message	True	A “WARNING” message is displayed at user’s device.
		False	No message is sent to Travel Companion.
9	Request for sending of the “ALERT” message to UserInterface component	True	A high impact to the itinerary was determined so the Evaluate conflicts function sends the request for sending an “ALERT” message to UserInterface component.
		False	The request for sending a message is not sent to UserInterface component.
10	Send the “ALERT” message	True	An “ALERT” message is displayed at user’s device, including a proposal of alternatives calculation.
		False	No message is sent to Travel Companion.
		False	Logging failed.

Table 14: Navitia events processing – test steps overview

The above listed steps will be performed to test the processing of real-time events broadcasted by the Navitia platform.

WP4-CEP1-01 Capture event from Navitia events source				
ID of step	Step description	Expected result	Observed result	State
1	The event is broadcasted	The event is captured by the Monitor.	The event is captured by the Monitor.	Passed
2	The event is not broadcasted	Capturing of events failed.	Capturing of events failed.	Passed
3	The event is not broadcasted	Capturing of events failed.	Capturing of events failed.	Passed
4	The event is broadcasted	The event is captured by the Monitor.	The event is captured by the Monitor.	Passed
5	The event is broadcasted	The event is captured by the Monitor.	The event is captured by the Monitor.	Passed
6	The event is broadcasted	The event is captured by the Monitor.	The event is captured by the Monitor.	Passed
7	The event is not broadcasted	Capturing of events failed.	Capturing of events failed.	Passed
8	The event is not broadcasted	Capturing of events failed.	Capturing of events failed.	Passed
9	The event is not broadcasted	Capturing of events failed.	Capturing of events failed.	Passed
10	The event is broadcasted	The event is captured by the Monitor.	The event is captured by the Monitor.	Passed

Table 15: Navitia events processing – Capture events

WP4-CEP1-02 Translate event				
ID of step	Step description	Expected result	Observed result	State
1	Event is successfully translated	After successful translation of the event its processing continues.	After successful translation of the event its processing continues.	Passed
2	Event translation failed	Processing of the event is stopped.	Processing of the event is stopped.	Passed
3	Event translation failed	Processing of the event is stopped.	Processing of the event is stopped.	Passed
4	Event is successfully translated	After successful translation of the event its processing continues.	After successful translation of the event its processing continues.	Passed
5	Event is successfully translated	After successful translation of the event its processing continues.	After successful translation of the event its processing continues.	Passed
6	Event is successfully translated	After successful translation of the event its processing continues.	After successful translation of the event its processing continues.	Passed
7	Event is successfully translated	After successful translation of the event its processing continues.	After successful translation of the event its processing continues.	Passed
8	Event is successfully translated	After successful translation of the event its processing continues.	After successful translation of the event its processing continues.	Passed
9	Event translation failed	Processing of the event is stopped.	Processing of the event is stopped.	Passed
10	Event translation failed	Processing of the event is stopped.	Processing of the event is stopped.	Passed

Table 16: Navitia events processing – Translate events

WP4-CEP1-03 Filter event				
ID of step	Step description	Expected result	Observed result	State
1	A disruptive event is not recognized	Event is excluded from further processing.	Event is excluded from further processing.	Passed
2	A disruptive event is recognized	Event is sent for further processing.	Event is sent for further processing.	Passed
3	A disruptive event is not recognized	Event is excluded from further processing.	Event is excluded from further processing.	Passed
4	A disruptive event is recognized	Event is sent for further processing.	Event is sent for further processing.	Passed
5	A disruptive event is not recognized	Event is excluded from further processing.	Event is excluded from further processing.	Passed
6	A disruptive event is recognized	Event is sent for further processing.	Event is sent for further processing.	Passed
7	A disruptive event is not recognized	Event is excluded from further processing.	Event is excluded from further processing.	Passed
8	A disruptive event is recognized	Event is sent for further processing.	Event is sent for further processing.	Passed
9	A disruptive event is recognized	Event is sent for further processing.	Event is sent for further processing.	Passed
10	A disruptive event is recognized	Event is sent for further processing.	Event is sent for further processing.	Passed

Table 17: Navitia events processing – Filter events

WP4-CEP1-04 Activation/deactivation of rules				
ID of step	Step description	Expected result	Observed result	State
1	Activation of the rule "ArrivalDelayEvent" with 10 minutes	The request is received and the rule "ArrivalDelayEvent" with 10 minutes is activated.	The request is received and the rule "ArrivalDelayEvent" with 10 minutes is activated.	Passed
2	Activation of the rule "ArrivalDelayEvent" with 15 minutes	The request is received and the rule "ArrivalDelayEvent" with 15 minutes is activated.	The request is received and the rule "ArrivalDelayEvent" with 15 minutes is activated.	Passed
3	Deactivation of rules	The request for deactivation of rules is received, all rules are deleted.	The request for deactivation of rules is received, all rules are deleted.	Passed
4	Deactivation of rules	The request for deactivation of rules is received, all rules remain deleted.	The request for deactivation of rules is received, all rules remain deleted.	Passed
5	Activation of the rule "DepartureDelayEvent" with 10 minutes	The request is received and the rule "DepartureDelayEvent" with 10 minutes is activated.	The request is received and the rule "DepartureDelayEvent" with 10 minutes is activated.	Passed
6	Activation of the rule "DepartureDelayEvent" with 15 minutes	The request is received and the rule "DepartureDelayEvent" with 15 minutes is activated.	The request is received and the rule "DepartureDelayEvent" with 15 minutes is activated.	Passed
7	Activation of the rule "ArrivalDelayEvent" with 3 minutes	The request is not received and the rule "ArrivalDelayEvent" is not activated.	The request is not received and the rule "ArrivalDelayEvent" is not activated.	Passed
8	Deactivation of rules	The request for deactivation of rules is received, all rules are deleted.	The request for deactivation of rules is received, all rules are deleted.	Passed
9	Activation of the rule "DepartureDelayEvent" with 2 minutes	The request is not received and the rule "DepartureDelayEvent" is not activated.	The request is not received and the rule "DepartureDelayEvent" is not activated.	Passed

10	Activation of the rules “DepartureDelayEvent” with 10 and 15 minutes	The request is received and the rules “DepartureDelayEvent” with 10 and 15 minutes are activated.	The request is received and the rules “DepartureDelayEvent” with 10 and 15 minutes are activated.	Passed
11	Activation of the rules “ArrivalDelayEvent” with 10 and 15 minutes	The request is received and the rules “ArrivalDelayEvent” with 10 and 15 minutes are activated.	The request is received and the rules “ArrivalDelayEvent” with 10 and 15 minutes are activated.	Passed

Table 18: Navitia events processing – Activation/deactivation of rules

WP4-CEP1-05 Impact evaluation of the event (with impact)				
ID of step	Step description	Expected result	Observed result	State
1	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
2	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
3	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
4	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
5	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
6	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
7	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
8	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
9	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
10	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed

Table 19: Navitia events processing – Impact evaluation (with impact)

WP4-CEP1-06 Impact evaluation of the event (without impact)				
ID of step	Step description	Expected result	Observed result	State
1	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
2	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
3	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
4	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
5	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
6	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
7	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
8	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
9	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
10	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed

Table 20: Navitia events processing – Impact evaluation (without impact)

WP4-CEP1-07 Request for sending of the “WARNING” message				
ID of step	Step description	Expected result	Observed result	State
1	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
2	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
3	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
4	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
5	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
6	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
7	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
8	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
9	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
10	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed

Table 21: Navitia events processing – Request for sending of the “WARNING” message

WP4-CEP1-08 Send the “WARNING” message				
ID of step	Step description	Expected result	Observed result	State
1	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
2	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
3	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
4	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
5	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
6	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
7	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
8	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
9	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
10	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed

Table 22: Navitia events processing – Send the “WARNING” message

WP4-CEP1-09 Request for sending of the “ALERT” message				
ID of step	Step description	Expected result	Observed result	State
1	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message was received by the UserInterface component.	Passed
2	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message was received by the UserInterface component.	Passed
3	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message was received by the UserInterface component.	Passed
4	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message was received by the UserInterface component.	Passed
5	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message was received by the UserInterface component.	Passed
6	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message was received by the UserInterface component.	Passed
7	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed
8	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed
9	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed
10	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed

Table 23: Navitia events processing – Request for sending of the “ALERT” message

WP4-CEP1-10 Send the “ALERT” message				
ID of step	Step description	Expected result	Observed result	State
1	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
2	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
3	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
4	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
5	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
6	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
7	“ALERT” message sending failed	No message is received by the Travel Companion.	No message received by the Travel Companion.	Passed
8	“ALERT” message sending failed	No message is received by the Travel Companion.	No message received by the Travel Companion.	Passed
9	“ALERT” message sending failed	No message is received by the Travel Companion.	No message received by the Travel Companion.	Passed
10	“ALERT” message sending failed	No message is received by the Travel Companion.	No message received by the Travel Companion.	Passed

Table 24: Navitia events processing – Send the “ALERT” message

WP4TestCase2-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of the EventsProcessing component.
Description	<p>All the services belonging to the EventsProcessing component will be tested, including:</p> <ul style="list-style-type: none"> the internal interfaces to the TrackingActivation component (Update patterns) and the UserInterface component (sending messages) real-time listening to the Navitia events source
Status	OK
% passed	100%

WP4TestCase2-1	
Test Case Running Status	NA
Test Case Tester	OLTIS Group

Id	Step description	Expected result	Observed result	State	Associated defect
	<p>Preconditions:</p> <ul style="list-style-type: none"> Journey tracking activated Monitor(s) instantiated and connection to Navitia platform established 				

1	Capture event from Navitia events source	Event is captured	Event is captured	Passed	
2	Translate event	Event's content is translated and the event is sent for further processing	Event's content is translated and the event is sent for further processing	Passed	
3	Filter event	A disruptive event is recognized and sent for further processing	A disruptive event is recognized and sent for further processing	Passed	
4	Activation/deactivation of rules	The request for activation/deactivation of rules is received and the rules are activated/deleted accordingly	The request for activation/deactivation of rules is received and the rules are activated/deleted accordingly	Passed	
5	Impact evaluation of the event (with impact)	The event is evaluated, the impact is assessed and according to its level a message to the user is sent or not	The event is evaluated, the impact is assessed and according to its level a message to the user is sent or not	Passed	
6	Impact evaluation of the event (without impact)	Based on the activated rules, no impact was determined to the itinerary so no request to send a message is raised	Based on the activated rules, no impact was determined to the itinerary so no request to send a message is raised	Passed	
7	Request for sending of the "WARNING" message	A low impact to the itinerary was determined so the request for sending the "WARNING" message is sent	A low impact to the itinerary was determined so the request for sending the "WARNING" message is sent	Passed	
8	Send the "WARNING" message	"WARNING" message is displayed at user's device	"WARNING" message is displayed at user's device	Passed	
9	Request for sending of the "ALERT" message	A high impact to the itinerary was determined so the request for sending the "ALERT" message is sent	A high impact to the itinerary was determined so the request for sending the "ALERT" message is sent	Passed	
10	Send the "ALERT" message	"ALERT" message is displayed at user's device	"ALERT" message is displayed at user's device	Passed	

5.2.2 Simulation of listening to the Navitia events source

The simulation of listening to the Navitia events source consists of the following steps:

Step	Name of the step	Status	Description
1	Subscribe to the T-Rex tool	True	Subscribe to the T-Rex tool (Match patterns function) by specifying the channel (Event code).
		False	An attempt to subscribe to the T-Rex tool failed (no subscribed channel confirmed from T-Rex).
2	Broadcast the fake event (disruption) from the Simulator	True	A fake event (disruption) is created and submitted to T-Rex.
		False	A fake event (disruption) is created but its submission failed.
3	Verification of the fake event delivery to the T-Rex tool	True	The fake event is displayed in T-Rex.
		False	The fake event not displayed in T-Rex.
4	Fake event processing by the T-Rex tool	True	A new T-Rex event appears in the subscribed channel - the disruption is sent to Esper tool for the impact evaluation.
		False	No new event in the subscribed channel.
5	Activation of rules	True	The request for the activation of rules is received from the Update patterns function and the rules are activated.
		False	The request for the activation of rules is not received so the rules are not activated. The request is received but the rules are not activated.
6	Impact evaluation of the fake event (with impact)	True	The event is evaluated based on the activated rules. The impact is assessed and according to its level a message to the user is sent or not.
		False	The evaluation of the impact of the event failed so no message is sent.
7	Impact evaluation of the fake event (without impact)	True	Based on the activated rules, no impact was determined to the itinerary so no request to send a message to the UserInterface component is raised.
		False	The evaluation of the impact of the event failed.

8	Request for sending of the “WARNING” message to UserInterface component	True	A low impact to the itinerary was determined so the Evaluate conflicts function sends the request for sending a “WARNING” message to UserInterface component.
		False	The request for sending a message is not sent to UserInterface component.
9	Send the “WARNING” message	True	A “WARNING” message is displayed at user’s device.
		False	No message is sent to Travel Companion.
10	Request for sending of the “ALERT” message to UserInterface component	True	A high impact to the itinerary was determined so the Evaluate conflicts function sends the request for sending an “ALERT” message to UserInterface component.
		False	The request for sending a message is not sent to UserInterface component.
11	Send the “ALERT” message	True	An “ALERT” message is displayed at user’s device, including a proposal of alternatives calculation.
		False	No message is sent to Travel Companion.
		False	Logging failed.

Table 25: Navitia events simulation – test steps overview

The above listed steps will be performed to test the processing of fake events broadcasted by the Simulator.

WP4-CEP2-01 Subscribe to the T-Rex tool				
ID of step	Step description	Expected result	Observed result	State
1	Subscribe to the T-Rex tool by specifying the channel	Subscription confirmed by the T-Rex tool.	Subscription confirmed by the T-Rex tool.	Passed
2	Subscribe to the T-Rex tool failed	No subscribed channel confirmed from the T-Rex tool.	No subscribed channel confirmed from the T-Rex tool.	Passed
3	Subscribe to the T-Rex tool failed	No subscribed channel confirmed from the T-Rex tool.	No subscribed channel confirmed from the T-Rex tool.	Passed
4	Subscribe to the T-Rex tool by specifying the channel	Subscription confirmed by the T-Rex tool.	Subscription confirmed by the T-Rex tool.	Passed
5	Subscribe to the T-Rex tool by specifying the channel	Subscription confirmed by the T-Rex tool.	Subscription confirmed by the T-Rex tool.	Passed
6	Subscribe to the T-Rex tool by specifying the channel	Subscription confirmed by the T-Rex tool.	Subscription confirmed by the T-Rex tool.	Passed
7	Subscribe to the T-Rex tool by specifying the channel	Subscription confirmed by the T-Rex tool.	Subscription confirmed by the T-Rex tool.	Passed
8	Subscribe to the T-Rex tool by specifying the channel	Subscription confirmed by the T-Rex tool.	Subscription confirmed by the T-Rex tool.	Passed
9	Subscribe to the T-Rex tool failed	No subscribed channel confirmed from the T-Rex tool.	No subscribed channel confirmed from the T-Rex tool.	Passed
10	Subscribe to the T-Rex tool failed	No subscribed channel confirmed from the T-Rex tool.	No subscribed channel confirmed from the T-Rex tool.	Passed

Table 26: Navitia events simulation – Subscribe to the T-Rex tool

WP4-CEP2-02 Broadcast the fake event (disruption) from the Simulator				
ID of step	Step description	Expected result	Observed result	State
1	Broadcast the fake event from the Simulator failed	A fake event is created but its submission failed.	A fake event is created but its submission failed.	Passed
2	Broadcast the fake event from the Simulator failed	A fake event is created but its submission failed.	A fake event is created but its submission failed.	Passed
3	Broadcast the fake event from the Simulator failed	A fake event is created but its submission failed.	A fake event is created but its submission failed.	Passed
4	Broadcast the fake event from the Simulator failed	A fake event is created but its submission failed.	A fake event is created but its submission failed.	Passed
5	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool.	A fake event is created and submitted to the T-Rex tool.	Passed
6	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool.	A fake event is created and submitted to the T-Rex tool.	Passed
7	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool.	A fake event is created and submitted to the T-Rex tool.	Passed
8	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool.	A fake event is created and submitted to the T-Rex tool.	Passed
9	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool.	A fake event is created and submitted to the T-Rex tool.	Passed
10	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool.	A fake event is created and submitted to the T-Rex tool.	Passed

Table 27: Navitia events simulation – Broadcast the fake event

WP4-CEP2-03 Verification of the fake event delivery to the T-Rex tool				
ID of step	Step description	Expected result	Observed result	State
1	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed
2	Verification of the fake event delivery failed	The fake event not displayed in the T-Rex tool	The fake event not displayed in the T-Rex tool	Passed
3	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed
4	Verification of the fake event delivery failed	The fake event not displayed in the T-Rex tool	The fake event not displayed in the T-Rex tool	Passed
5	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed
6	Verification of the fake event delivery failed	The fake event not displayed in the T-Rex tool	The fake event not displayed in the T-Rex tool	Passed
7	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed
8	Verification of the fake event delivery failed	The fake event not displayed in the T-Rex tool	The fake event not displayed in the T-Rex tool	Passed
9	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed
10	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed

Table 28: Navitia events simulation – Verification of the fake event delivery

WP4-CEP2-04 Fake event processing by the T-Rex tool				
ID of step	Step description	Expected result	Observed result	State
1	Fake event processing by the T-Rex tool failed	No new event in the subscribed channel.	No new event in the subscribed channel.	Passed
2	Fake event processing by the T-Rex tool failed	No new event in the subscribed channel.	No new event in the subscribed channel.	Passed
3	Fake event processing by the T-Rex tool	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	Passed
4	Fake event processing by the T-Rex tool	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	Passed
5	Fake event processing by the T-Rex tool failed	No new event in the subscribed channel.	No new event in the subscribed channel.	Passed
6	Fake event processing by the T-Rex tool failed	No new event in the subscribed channel.	No new event in the subscribed channel.	Passed
7	Fake event processing by the T-Rex tool	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	Passed
8	Fake event processing by the T-Rex tool	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	Passed
9	Fake event processing by the T-Rex tool	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	Passed
10	Fake event processing by the T-Rex tool	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	A new T-Rex event appeared in the subscribed channel and sent for the impact evaluation.	Passed

Table 29: Navitia events simulation – Fake event processing

WP4-CEP2-05 Activation of rules				
ID of step	Step description	Expected result	Observed result	State
1	Activation of rules is successful	The request for the activation of rules is received and the rules are activated.	The request for the activation of rules is received and the rules are activated.	Passed
2	Activation of rules not successful	The request for the activation of rules not received so the rules are not activated.	The request for the activation of rules not received so the rules are not activated.	Passed
3	Activation of rules not successful	The request for the activation of rules not received so the rules are not activated.	The request for the activation of rules not received so the rules are not activated.	Passed
4	Activation of rules not successful	The request for the activation of rules is received but the rules are not activated.	The request for the activation of rules is received but the rules are not activated.	Passed
5	Activation of rules is successful	The request for the activation of rules is received and the rules are activated.	The request for the activation of rules is received and the rules are activated.	Passed
6	Activation of rules is successful	The request for the activation of rules is received and the rules are activated.	The request for the activation of rules is received and the rules are activated.	Passed
7	Activation of rules is successful	The request for the activation of rules is received and the rules are activated.	The request for the activation of rules is received and the rules are activated.	Passed
8	Activation of rules is successful	The request for the activation of rules is received and the rules are activated.	The request for the activation of rules is received and the rules are activated.	Passed
9	Activation of rules is successful	The request for the activation of rules is received and the rules are activated.	The request for the activation of rules is received and the rules are activated.	Passed
10	Activation of rules not successful	The request for the activation of rules is received but the rules are not activated.	The request for the activation of rules is received but the rules are not activated.	Passed

Table 30: Navitia events simulation – Activation of rules

WP4-CEP2-06 Impact evaluation of the fake event (with impact)				
ID of step	Step description	Expected result	Observed result	State
1	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
2	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
3	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
4	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
5	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
6	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
7	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
8	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
9	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed
10	The event is evaluated	The event's impact is assessed and according to its level a message is sent or not.	The event's impact is assessed and according to its level a message is sent or not.	Passed

Table 31: Navitia events simulation – Impact evaluation of the fake event (with impact)

WP4-CEP2-07 Impact evaluation of the fake event (without impact)				
ID of step	Step description	Expected result	Observed result	State
1	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
2	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
3	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
4	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
5	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
6	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed
7	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
8	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
9	Impact evaluation failed	The evaluation of the event's impact failed.	The evaluation of the event's impact failed.	Passed
10	No impact is determined	No impact is determined so no request to send a message is raised.	No impact is determined so no request to send a message is raised.	Passed

Table 32: Navitia events simulation – Impact evaluation of the fake event (without impact)

WP4-CEP2-08 Request for sending of the “WARNING” message				
ID of step	Step description	Expected result	Observed result	State
1	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
2	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
3	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
4	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
5	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
6	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
7	Request for sending of the “WARNING” message failed	The request is not received by the UserInterface component.	The request was not received by the UserInterface component.	Passed
8	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
9	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed
10	Sending of the “WARNING” message requested	The request is received by the UserInterface component.	The request was received by the UserInterface component.	Passed

Table 33: Navitia events simulation – Request for sending of the “WARNING” message

WP4-CEP2-09 Send the “WARNING” message				
ID of step	Step description	Expected result	Observed result	State
1	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
2	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
3	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
4	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
5	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
6	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
7	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
8	“WARNING” message is sent	The “WARNING” message is displayed at user’s device.	The “WARNING” message is displayed at user’s device.	Passed
9	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
10	“WARNING” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed

Table 34: Navitia events simulation – Send the “WARNING” message

WP4-CEP2-10 Request for sending of the “ALERT” message				
ID of step	Step description	Expected result	Observed result	State
1	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message is received by the UserInterface component.	Passed
2	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message is received by the UserInterface component.	Passed
3	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message is received by the UserInterface component.	Passed
4	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message is received by the UserInterface component.	Passed
5	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message is received by the UserInterface component.	Passed
6	Sending of the “ALERT” message requested	The request is received by the UserInterface component.	The request for sending of the “ALERT” message is received by the UserInterface component.	Passed
7	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed
8	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed
9	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed
10	Request for sending of the “ALERT” message failed	The request is not received by the UserInterface component.	The request for sending of the “ALERT” message not received by the UserInterface component.	Passed

Table 35: Navitia events simulation – Request for sending of the “ALERT” message

WP4-CEP2-11 Send the “ALERT” message				
ID of step	Step description	Expected result	Observed result	State
1	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
2	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
3	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
4	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
5	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
6	“ALERT” message is sent	The “ALERT” message with a proposal of alternatives calculation is displayed at user’s device.	The “ALERT” message with a proposal of alternatives calculation displayed at user’s device.	Passed
7	“ALERT” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
8	“ALERT” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
9	“ALERT” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed
10	“ALERT” message sending failed	No message is received by the Travel Companion.	No message is received by the Travel Companion.	Passed

Table 36: Navitia events simulation – Send the “ALERT” message

WP4TestCase2-2	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of the EventsProcessing component.
Description	All the services belonging to the EventsProcessing component will be tested, including the internal interfaces to the TrackingActivation component (Update patterns) and the UserInterface component (sending messages), making use of fake Navitia events provided by the Simulator.
Status	OK
% passed	100%

WP4TestCase2-2					
Test Case Running Status		NA			
Test Case Tester		OLTIS Group			
Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: <ul style="list-style-type: none"> - Journey tracking activated - Simulator ready for use 				
1	Subscribe to the T-Rex tool	Subscribe to the T-Rex tool by specifying the channel	Subscribe to the T-Rex tool by specifying the channel	Passed	
2	Broadcast the fake event from the Simulator	A fake event is created and submitted to the T-Rex tool	A fake event was created and submitted to the T-Rex tool	Passed	

WP4TestCase2-2					
3	Verification of the fake event delivery to the T-Rex tool	The fake event is displayed in the T-Rex tool	The fake event is displayed in the T-Rex tool	Passed	
4	Fake event processing by the T-Rex tool	A new T-Rex event appears in the subscribed channel and is sent for the impact evaluation	A new T-Rex event appeared in the subscribed channel and was sent for the impact evaluation	Passed	
5	Activation of rules	The request for the activation of rules is received and the rules are activated	The request for the activation of rules was received and the rules were activated	Passed	
6	Impact evaluation of the fake event (with impact)	The event is evaluated, the impact is assessed and according to its level a message to the user is sent or not	The event is evaluated, the impact is assessed and according to its level a message to the user is sent or not	Passed	
7	Impact evaluation of the fake event (without impact)	No impact was determined to the itinerary so no request to send a message is raised	No impact was determined to the itinerary so no request to send a message is raised	Passed	
8	Request for sending of the "WARNING" message	A low impact to the itinerary was determined so the request for sending the "WARNING" message is sent	A low impact to the itinerary was determined so the request for sending the "WARNING" message is sent	Passed	
9	Send the "WARNING" message	"WARNING" message is displayed at user's device	"WARNING" message is displayed at user's device	Passed	
10	Request for sending of the "ALERT" message	A high impact to the itinerary was determined so the request for sending the "ALERT" message, including a proposal of alternatives calculation, is sent	A high impact to the itinerary was determined so the request for sending the "ALERT" message, including a proposal of alternatives calculation, is sent	Passed	
11	Send the "ALERT" message	"ALERT" message is displayed at user's device	"ALERT" message is displayed at user's device	Passed	

5.3 ALTERNATIVESMANAGEMENT

When a disruption with the highest impact on Traveller's journey has been identified, the original travel plan is not applicable anymore. In such cases, a recalculation of the original journey, i.e. an offer of alternatives, is proposed to the user. If the user accepts the proposal, i.e. requests alternatives, the offer of alternatives is retrieved from the Travel Shopper. Before it is submitted to the user, it's necessary to check its content and correct it, if it is found inconvenient. At the end, either the correct offer of alternatives is submitted or a report of failure with some suggestions is sent to the Traveller (through the Travel Companion).

The following table shows the expected behaviour of each step of the Alternatives management (AM) process including possible consequences of this behaviour. Therefore, the expected behaviour is divided according to the possible result of each step.

Step	Name of the step	Status	Description
1	Request alternatives	True	The request for alternatives calculation received from the Travel Companion, the necessary parameters stored locally.
		False	The receipt of the request has failed, so the AlternativesManagement component gives the control back to Travel Companion.
2	Get alternatives	True	The request for alternatives is sent to the Travel Shopper. In response to the request, the offer of alternatives is provided by the Travel Shopper.
		False	The request for alternatives is sent but no alternatives are provided.
3	Check alternatives	True	The content of the offer of alternatives has been successfully checked and approved for submission to the user (through the Travel Companion).
		False	The content of the offer of alternatives was checked, wrong alternatives (that didn't take into account the disruptive event, which originally caused the request for alternatives) were excluded from the list and the updated offer of alternatives is approved for submission to the user.
4	Submit alternatives	True	When it successfully passes through the Check alternatives step, the offer of alternatives is sent to the user and displayed in the Personal Application.
		False	The submission of the offer of alternatives has failed.

Table 37: Alternatives management – test steps overview

The above listed steps will be performed to test the process of the Alternatives management within individual test cases. The behaviour in case of failure will be tested too.

WP4-AM1-01 Request alternatives				
ID of step	Step description	Expected result	Observed result	State
1	Correct parameters	Successful activation of alternatives calculation	Successful activation of alternatives calculation	Passed
2	Wrong parameters	Activation of alternatives calculation failed	Activation of alternatives calculation failed	Passed
3	Correct parameters	Successful activation of alternatives calculation	Successful activation of alternatives calculation	Passed
4	Wrong parameters	Activation of alternatives calculation failed	Activation of alternatives calculation failed	Passed
5	Correct parameters	Successful activation of alternatives calculation	Successful activation of alternatives calculation	Passed
6	Wrong parameters	Activation of alternatives calculation failed	Activation of alternatives calculation failed	Passed
7	Correct parameters	Successful activation of alternatives calculation	Successful activation of alternatives calculation	Passed
8	Wrong parameters	Activation of alternatives calculation failed	Activation of alternatives calculation failed	Passed
9	Correct parameters	Successful activation of alternatives calculation	Successful activation of alternatives calculation	Passed
10	Correct parameters	Successful activation of alternatives calculation	Successful activation of alternatives calculation	Passed

Table 38: Alternatives management – Request alternatives

WP4-AM1-02 Get alternatives				
ID of step	Step description	Expected result	Observed result	State
1	Call to GetAlternatives succeeded	An offer of alternatives is received from the Travel Shopper.	An offer of alternatives is received from the Travel Shopper.	Passed
2	Call to GetAlternatives failed	The request for alternatives was sent but no alternatives were provided.	The request for alternatives was sent but no alternatives were provided.	Passed
3	Call to GetAlternatives succeeded	An offer of alternatives is received from the Travel Shopper.	An offer of alternatives is received from the Travel Shopper.	Passed
4	Call to GetAlternatives failed	The request for alternatives was sent but no alternatives were provided.	The request for alternatives was sent but no alternatives were provided.	Passed
5	Call to GetAlternatives succeeded	An offer of alternatives is received from the Travel Shopper.	An offer of alternatives is received from the Travel Shopper.	Passed
6	Call to GetAlternatives failed	The request for alternatives was sent but no alternatives were provided.	The request for alternatives was sent but no alternatives were provided.	Passed
7	Call to GetAlternatives succeeded	An offer of alternatives is received from the Travel Shopper.	An offer of alternatives is received from the Travel Shopper.	Passed
8	Call to GetAlternatives failed	The request for alternatives was sent but no alternatives were provided.	The request for alternatives was sent but no alternatives were provided.	Passed
9	Call to GetAlternatives succeeded	An offer of alternatives is received from the Travel Shopper.	An offer of alternatives is received from the Travel Shopper.	Passed
10	Call to GetAlternatives succeeded	An offer of alternatives is received from the Travel Shopper.	An offer of alternatives is received from the Travel Shopper.	Passed

Table 39: Alternatives management – Get alternatives

WP4-AM1-03 Check alternatives				
ID of step	Step description	Expected result	Observed result	State
1	Check alternatives is successful	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed
2	Check alternatives is successful	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed
3	Check alternatives is successful	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed
4	Check alternatives is successful	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed
5	Check alternatives is successful	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed
6	Check alternatives is successful	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed
7	Check alternatives is unsuccessful	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	Passed
8	Check alternatives is unsuccessful	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	Passed
9	Check alternatives is unsuccessful	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	Passed
10	Check alternatives is unsuccessful	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	The offer of alternatives was found to be incorrect. Wrong alternatives are excluded from the list. The updated offer is approved for submission.	Passed

Table 40: Alternatives management – Check alternatives

WP4-AM1-04 Submit alternatives				
ID of step	Step description	Expected result	Observed result	State
1	Offer of alternatives successfully submitted	The offer of alternatives is sent and displayed in the Personal Application.	The offer of alternatives is sent and displayed in the Personal Application.	Passed
2	Offer of alternatives successfully submitted	The offer of alternatives is sent and displayed in the Personal Application.	The offer of alternatives is sent and displayed in the Personal Application.	Passed
3	Offer of alternatives successfully submitted	The offer of alternatives is sent and displayed in the Personal Application.	The offer of alternatives is sent and displayed in the Personal Application.	Passed
4	Offer of alternatives successfully submitted	The offer of alternatives is sent and displayed in the Personal Application.	The offer of alternatives is sent and displayed in the Personal Application.	Passed
5	Offer of alternatives successfully submitted	The offer of alternatives is sent and displayed in the Personal Application.	The offer of alternatives is sent and displayed in the Personal Application.	Passed
6	Offer of alternatives successfully submitted	The offer of alternatives is sent and displayed in the Personal Application.	The offer of alternatives is sent and displayed in the Personal Application.	Passed
7	Submit alternatives failed	The submission of the offer of alternatives failed, no offer is displayed.	The submission of the offer of alternatives failed, no offer is displayed.	Passed
8	Submit alternatives failed	The submission of the offer of alternatives failed, no offer is displayed.	The submission of the offer of alternatives failed, no offer is displayed.	Passed
9	Submit alternatives failed	The submission of the offer of alternatives failed, no offer is displayed.	The submission of the offer of alternatives failed, no offer is displayed.	Passed
10	Submit alternatives failed	The submission of the offer of alternatives failed, no offer is displayed.	The submission of the offer of alternatives failed, no offer is displayed.	Passed

Table 41: Alternatives management – Submit alternatives

Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of the AlternativesManager component
Description	All the steps of alternatives management will be tested, as well as the interface and communication (including error messages) between the AlternativesManager component and the Travel Shopper.
Status	OK
% passed	100%

WP4TestCase3-1	
Test Case Running Status	NA
Test Case Tester	OLTIS Group

Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: <ul style="list-style-type: none"> - Journey tracking activated - Disruption determined - An alert including the offer of alternatives received 				

1	Request alternatives	The request for alternatives calculation is received from the Travel Companion and the parameters are stored.	The request for alternatives calculation is received from the Travel Companion and the parameters are stored.	Passed	
2	Get alternatives	The request for alternatives is sent and the offer of alternatives is returned.	The request for alternatives is sent and the offer of alternatives is returned.	Passed	
3	Check alternatives	The offer of alternatives is checked and approved for submission to the user.	The offer of alternatives is checked and approved for submission to the user.	Passed	
4	Submit alternatives	The offer of alternatives is sent to the user and displayed in the Personal Application (the Travel Companion).	The offer of alternatives is sent to the user and displayed in the Personal Application (the Travel Companion).	Passed	

5.4 BAINTERFACE

The aim of the BAinterface component is to support the Business Analytics module. During its operation, Trip Tracker collects data, which may be used by Business Analytics to compute various statistics and KPIs. The Business Analytics module obtains data about Trip Tracker's performance by analysing the content of appropriate logs.

The support for the Business Analytics module comprises the following functionality:

Step	Name of the step	Status	Description
1	Log CEP	True	Records of events evaluation in the EventsProcessing component are logged.
		False	Logging failed.
2	ProvideBAdataCEP	True	Records of events evaluation were successfully retrieved from the repository and provided to Business Analytics for computation of statistics.
		False	Data mining from the repository failed. Records were successfully retrieved from the repository, but not provided to Business Analytics for further processing.

3	Log messages	True	A record of each message sent by the UserInterface component is logged.
		False	Logging failed.
4	ProvideBAdataMessages	True	Records of messages were successfully retrieved from the repository and provided to Business Analytics for computation of statistics.
		False	Data mining from the repository failed. Records were successfully retrieved from the repository, but not provided to Business Analytics for further processing.
5	Log alternatives	True	Records of suggested alternatives are logged.
		False	Logging failed.
6	ProvideBAdataAlternatives	True	Records of suggested alternatives were successfully retrieved from the repository and provided to Business Analytics for computation of statistics.
		False	Data mining from the repository failed. Records were successfully retrieved from the repository, but not provided to Business Analytics for further processing.

Table 42: BAinterface – test steps overview

The above listed steps will be performed to test the operation of BAinterface component within individual test cases. The behaviour in case of failure will be tested too.

WP4-BA1-01 Log CEP				
ID of step	Step description	Expected result	Observed result	State
1	Call to LogCEP succeeded	Record of events evaluation is logged.	Record of events evaluation is logged.	Passed
2	Call to LogCEP succeeded	Record of events evaluation is logged.	Record of events evaluation is logged.	Passed
3	Call to LogCEP succeeded	Record of events evaluation is logged.	Record of events evaluation is logged.	Passed
4	Call to LogCEP succeeded	Record of events evaluation is logged.	Record of events evaluation is logged.	Passed
5	Call to LogCEP succeeded	Record of events evaluation is logged.	Record of events evaluation is logged.	Passed
6	Call to LogCEP succeeded	Record of events evaluation is logged.	Record of events evaluation is logged.	Passed
7	Call to LogCEP failed	Record of events evaluation not logged.	Record of events evaluation is logged.	Passed
8	Call to LogCEP failed	Record of events evaluation not logged.	Record of events evaluation is logged.	Passed
9	Call to LogCEP failed	Record of events evaluation not logged.	Record of events evaluation is logged.	Passed
10	Call to LogCEP failed	Record of events evaluation not logged.	Record of events evaluation is logged.	Passed

Table 43: BAinterface – Log CEP

WP4-BA1-02 ProvideBAdataCEP				
ID of step	Step description	Expected result	Observed result	State
1	Call to ProvideBAdataCEP succeeded	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
2	Call to ProvideBAdataCEP succeeded	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
3	Call to ProvideBAdataCEP succeeded	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
4	Call to ProvideBAdataCEP succeeded	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
5	Call to ProvideBAdataCEP succeeded	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
6	Call to ProvideBAdataCEP succeeded	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Records of events evaluation are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
7	Call to ProvideBAdataCEP failed	Data mining from the repository failed, no records provided to the Business Analytics.	Data mining from the repository failed, no records provided to the Business Analytics.	Passed
8	Call to ProvideBAdataCEP failed	Records of events evaluation are retrieved but not provided to the Business Analytics for further processing.	Records of events evaluation are retrieved but not provided to the Business Analytics for further processing.	Passed

9	Call to ProvideBAdataCEP failed	Records of events evaluation are retrieved but not provided to the Business Analytics for further processing.	Records of events evaluation are retrieved but not provided to the Business Analytics for further processing.	Passed
10	Call to ProvideBAdataCEP failed	Records of events evaluation are retrieved but not provided to the Business Analytics for further processing.	Records of events evaluation are retrieved but not provided to the Business Analytics for further processing.	Passed

Table 44: BAinterface – ProvideBAdataCEP

WP4-BA1-03 Log messages				
ID of step	Step description	Expected result	Observed result	State
1	Call to LogMessages succeeded	Record of a message is logged.	Record of a message is logged.	Passed
2	Call to LogMessages failed	Record of a message not logged.	Record of a message not logged.	Passed
3	Call to LogMessages succeeded	Record of a message is logged.	Record of a message is logged.	Passed
4	Call to LogMessages failed	Record of a message not logged.	Record of a message not logged.	Passed
5	Call to LogMessages succeeded	Record of a message is logged.	Record of a message is logged.	Passed
6	Call to LogMessages failed	Record of a message not logged.	Record of a message not logged.	Passed
7	Call to LogMessages succeeded	Record of a message is logged.	Record of a message is logged.	Passed
8	Call to LogMessages failed	Record of a message not logged.	Record of a message not logged.	Passed
9	Call to LogMessages succeeded	Record of a message is logged.	Record of a message is logged.	Passed
10	Call to LogMessages succeeded	Record of a message is logged.	Record of a message is logged.	Passed

Table 45: BAinterface – Log messages

WP4-BA1-04 ProvideBAdataMessages				
ID of step	Step description	Expected result	Observed result	State
1	Call to ProvideBAdataMessages succeeded	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
2	Call to ProvideBAdataMessages failed	Data mining from the repository failed, no records provided to the Business Analytics.	Data mining from the repository failed, no records provided to the Business Analytics.	Passed
3	Call to ProvideBAdataMessages succeeded	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
4	Call to ProvideBAdataMessages failed	Records of messages are retrieved but not provided to the Business Analytics for further processing.	Records of messages are retrieved but not provided to the Business Analytics for further processing.	Passed
5	Call to ProvideBAdataMessages succeeded	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
6	Call to ProvideBAdataMessages failed	Records of messages are retrieved but not provided to the Business Analytics for further processing.	Records of messages are retrieved but not provided to the Business Analytics for further processing.	Passed
7	Call to ProvideBAdataMessages succeeded	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
8	Call to ProvideBAdataMessages failed	Records of messages are retrieved but not provided to the Business Analytics for further processing.	Records of messages are retrieved but not provided to the Business Analytics for further processing.	Passed

9	Call to ProvideBAdataMessages succeeded	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Passed
10	Call to ProvideBAdataMessages succeeded	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Records of messages are retrieved from the repository and provided to the Business Analytics for further processing.	Passed

Table 46: BAinterface – ProvideBAdataMessages

WP4-BA1-05 Log alternatives				
ID of step	Step description	Expected result	Observed result	State
1	Call to LogAlternatives failed	Record of suggested alternatives not logged.	Record of suggested alternatives not logged.	Passed
2	Call to LogAlternatives failed	Record of suggested alternatives not logged.	Record of suggested alternatives not logged.	Passed
3	Call to LogAlternatives failed	Record of suggested alternatives not logged.	Record of suggested alternatives not logged.	Passed
4	Call to LogAlternatives failed	Record of suggested alternatives not logged.	Record of suggested alternatives not logged.	Passed
5	Call to LogAlternatives succeeded	Record of suggested alternatives is logged.	Record of suggested alternatives is logged.	Passed
6	Call to LogAlternatives succeeded	Record of suggested alternatives is logged.	Record of suggested alternatives is logged.	Passed
7	Call to LogAlternatives succeeded	Record of suggested alternatives is logged.	Record of suggested alternatives is logged.	Passed
8	Call to LogAlternatives succeeded	Record of suggested alternatives is logged.	Record of suggested alternatives is logged.	Passed
9	Call to LogAlternatives succeeded	Record of suggested alternatives is logged.	Record of suggested alternatives is logged.	Passed
10	Call to LogAlternatives succeeded	Record of suggested alternatives is logged.	Record of suggested alternatives is logged.	Passed

Table 47: BAinterface – Log alternatives

WP4-BA1-06 ProvideBAdataAlternatives				
ID of step	Step description	Expected result	Observed result	State
1	Call to ProvideBAdataAlternatives failed	Data mining from the repository failed, no records provided to the Business Analytics.	Data mining from the repository failed, no records provided to the Business Analytics.	Passed
2	Call to ProvideBAdataAlternatives failed	Records of suggested alternatives are retrieved but not provided to the Business Analytics.	Records of suggested alternatives are retrieved but not provided to the Business Analytics.	Passed
3	Call to ProvideBAdataAlternatives failed	Records of suggested alternatives are retrieved but not provided to the Business Analytics.	Records of suggested alternatives are retrieved but not provided to the Business Analytics.	Passed
4	Call to ProvideBAdataAlternatives failed	Records of suggested alternatives are retrieved but not provided to the Business Analytics.	Records of suggested alternatives are retrieved but not provided to the Business Analytics.	Passed
5	Call to ProvideBAdataAlternatives succeeded	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Passed
6	Call to ProvideBAdataAlternatives succeeded	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Passed
7	Call to ProvideBAdataAlternatives succeeded	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Passed
8	Call to ProvideBAdataAlternatives succeeded	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Passed

9	Call to ProvideBAdatAlternatives succeeded	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Passed
10	Call to ProvideBAdatAlternatives succeeded	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Records of suggested alternatives are retrieved from the repository and provided to the Business Analytics.	Passed

Table 48: BAinterface – ProvideBAdatAlternatives

WP4TestCase4-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of the BAinterface component
Description	All the services belonging to the BAinterface component, i.e. the repository of logs, as well as the interface and communication with the Business Analytics module, will be tested.
Status	OK
% passed	100%

WP4TestCase4-1	
Test Case Running Status	NA
Test Case Tester	OLTIS Group

Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: <ul style="list-style-type: none"> - Repository available - Data to be logged available 				
1	Log CEP	Records of events evaluation are logged	Records of events evaluation are logged	Passed	
2	ProvideBAdataCEP	Records of events evaluation are successfully retrieved from the repository and provided to the Business Analytics for computation of statistics	Records of events evaluation are successfully retrieved from the repository and provided to the Business Analytics for computation of statistics	Passed	
3	Log messages	Records of messages are logged	Records of messages are logged	Passed	
4	ProvideBAdataMessages	Records of messages are successfully retrieved from the repository and provided to the Business Analytics for computation of statistics	Records of messages are successfully retrieved from the repository and provided to the Business Analytics for computation of statistics	Passed	
5	Log alternatives	Records of suggested alternatives are logged	Records of suggested alternatives are logged	Passed	
6	ProvideBAdataAlternatives	Records of suggested alternatives are successfully retrieved from the repository and provided to the Business Analytics for computation of statistics	Records of suggested alternatives are successfully retrieved from the repository and provided to the Business Analytics for computation of statistics	Passed	

6. TEST EXECUTION

The following chapter presents the test results of the previously defined test cases.

The results of all the performed tests are summarized in this chapter.

6.1 SINGLE TESTS PERFORMED

The following table resumes the tests performed at WP4 level.

Test Category	Test Case ID	Test Case Name	Status	% Passed
Tracking Activation	WP4-TA1-01	The entire process of tracking activation	Passed	100%
	WP4-TA1-02	Request journey tracking	Passed	100%
	WP4-TA1-03	Get preferences	Passed	100%
	WP4-TA1-04	Get itinerary	Passed	100%
	WP4-TA1-05	Validate itinerary	Passed	100%
	WP4-TA1-06	Update patterns	Passed	100%
	WP4-TA1-07	Identification of event sources	Passed	100%
	WP4-TA1-08	Invoke/stop listening	Passed	100%
	WP4-TA1-09	Confirm tracking activation	Passed	100%
	WP4-TA2-01	User deactivates the journey tracking	Passed	100%
	WP4-TA2-02	Automatic deactivation of journey tracking	Passed	100%

Events Processing	WP4-CEP1-01	Capture event from Navitia events source	Passed	100%
	WP4-CEP1-02	Translate event	Passed	100%
	WP4-CEP1-03	Filter event	Passed	100%
	WP4-CEP1-04	Activation/deactivation of rules	Passed	100%
	WP4-CEP1-05	Impact evaluation of the event (with impact)	Passed	100%
	WP4-CEP1-06	Impact evaluation of the event (without impact)	Passed	100%
	WP4-CEP1-07	Request for sending of the “WARNING” message	Passed	100%
	WP4-CEP1-08	Send the “WARNING” message	Passed	100%
	WP4-CEP1-09	Request for sending of the “ALERT” message	Passed	100%
	WP4-CEP1-10	Send the “ALERT” message	Passed	100%
	WP4-CEP2-01	Subscribe to the T-Rex tool	Passed	100%
	WP4-CEP2-02	Broadcast the fake event (disruption) from the Simulator	Passed	100%
	WP4-CEP2-03	Verification of the fake event delivery to the T-Rex tool	Passed	100%
	WP4-CEP2-04	Fake event processing by the T-Rex tool	Passed	100%
	WP4-CEP2-05	Activation of rules	Passed	100%
	WP4-CEP2-06	Impact evaluation of the fake event (with impact)	Passed	100%
	WP4-CEP2-07	Impact evaluation of the fake event (without impact)	Passed	100%
	WP4-CEP2-08	Request for sending of the “WARNING” message	Passed	100%
	WP4-CEP2-09	Send the “WARNING” message	Passed	100%
	WP4-CEP2-10	Request for sending of the “ALERT” message	Passed	100%

	WP4-CEP2-11	Send the “ALERT” message	Passed	100%
Alternatives Manager	WP4-AM1-01	Request alternatives	Passed	100%
	WP4-AM1-02	Get alternatives	Passed	100%
	WP4-AM1-03	Check alternatives	Passed	100%
	WP4-AM1-04	Submit alternatives	Passed	100%
BA interface	WP4-BA1-01	Log CEP	Passed	100%
	WP4-BA1-02	ProvideBAdataCEP	Passed	100%
	WP4-BA1-03	Log messages	Passed	100%
	WP4-BA1-04	ProvideBAdataMessages	Passed	100%
	WP4-BA1-05	Log alternatives	Passed	100%
	WP4-BA1-06	ProvideBAdataAlternatives	Passed	100%

Table 49: Summary of the tests performed at WP4 level

6.2 FAILED TEST CASES

There were no failed test cases in the Final Release.