

INFORMATION TECHNOLOGIES FOR SHIFT TO RAIL

D4.5 – Trip Tracker Additional Integration Report

Due date of deliverable: 28/02/2017

Actual submission date: 23/07/2018

Leader of this Deliverable: OLTIS Group

Reviewed: Y

Document status		
Revision	Date	Description
0	27.01.2017	Template creation
0.1	27.02.2017	First draft
0.2	16.03.2017	Infrastructure, HW, configuration
0.3	31.08.2017	Internal review
1	11.07.2018	Final release
2	23.07.2018	Final version after TMC approval and quality check

Project funded from the European Union's Horizon 2020 research and innovation programme		
Dissemination Level		
PU	Public	X
CO	Confidential, restricted under conditions set out in Model Grant Agreement	
CI	Classified, information as referred to in Commission Decision 2001/844/EC	

Start date of project: 01/05/2015

Duration: 36 months

REPORT CONTRIBUTORS

Name	Company	Details of Contribution
Petra Juránková	OLTIS Group	All chapters
Guido Mariotta	Leonardo	Configuration, Test Description and Execution
Viktor Patras	OLTIS Group	Infrastructure, HW, configuration
Matteo Rossi	PoliMi	Configuration, Test Description and Execution
Sebastian Pretzsch	Fraunhofer	Configuration, Test Description and Execution
Petr Buchníček	OLTIS Group	All chapters
Maria Laura Trifiletti	RINA-C BE	Quality check

EXECUTIVE SUMMARY

This deliverable contains a complete report on Trip Tracker Additional 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.

TABLE OF CONTENTS

Report Contributors.....	2
Executive Summary	3
List of Figures	5
1. Introduction	6
2. Referenced Documents	6
2.1 Applicable Documents.....	6
2.2 Normative Documents.....	6
3. Campaign Strategy	6
4. Test Material Description	7
4.1 Configuration of RequestJourneyTracking.....	7
4.1.1 Infrastructure and hardware.....	7
4.1.2 Setup & configuration	7
4.1.3 Tested system	8
4.1.4 System data parameters.....	8
4.1.5 Simulators.....	8
4.1.6 Personnel	8
4.2 Configuration of Trip Tracker module	8
4.2.1 Infrastructure and hardware.....	8
4.2.2 Setup & configuration	8
4.2.2.1 T-Rex.....	10
4.2.2.2 Esper	10
4.2.2.3 Update patterns	11
4.2.3 Tested system	11
4.2.4 System data parameters.....	11
4.2.4.1 Interface ESPER_MESSAGE_API	11
4.2.4.2 Interface ESPER_LOAD_DB_API	11
4.2.4.3 Interface ESPER_REDIRECT_API.....	12
4.2.4.4 Interface FRAUNHOFER_API	12
4.2.5 Simulator of Esper	12
4.2.6 Personnel	13
5. Test Description	14
5.1 TrackingActivation.....	14
5.1.1 RequestJourneyTracking	14
5.2 Complex Event Processing	15

5.2.1	Event creation, processing and evaluation.....	15
5.2.2	Rules activation and processing, event's impact evaluation.....	19
6.	Test Execution	21
6.1	TrackingActivation.....	21
6.1.1	Request journey tracking	21
6.2	Complex Event Processing	22
6.2.1	Event creation, processing and evaluation.....	22
6.2.2	Rules activation and processing, event's impact evaluation.....	26
7.	Test Summary.....	28
7.1	Test performed.....	28
7.2	Failed test cases	28

LIST OF FIGURES

Figure 1.	Trip Tracker infrastructure.....	9
Figure 2.	Trip Tracker deployment	10

1. INTRODUCTION

This Integration Report describes the test cases identified for the Additional Release of the Trip Tracker including the previous C-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.

2.2 NORMATIVE DOCUMENTS

Not Applicable.

3. CAMPAIGN STRATEGY

This document updates the D4.4 Trip Tracker Core Integration Report, so it also includes the Test Category and Test Case identified for the Core Release (C-REL) and also new ones related to the new component and functionalities developed for the Additional Release. In particular, the test cases concern the functionality of the request for journey tracking and the functionality of the Complex Event Processing. The objectives of these tests are:

- verify the interface and communication between the Travel Companion and the Trip Tracker focusing on triggering of journey tracking through the Personal Application,
- update of user's patterns,
- publish events which simulate the real events incoming from an existing events source,
- submit events for further processing from the Monitor to the T-Rex tool,
- test retrieving and publishing of events (the T-Rex tool),
- verify the evaluation of conflicts (the Esper tool),
- displaying of identified conflicts.

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 REQUESTJOURNEYTRACKING

In order to process the journey tracking requests successfully, the TrackingActivation component requires to 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). The description does not include specification of any other components on which the TrackingActivation component may rely during its future use.

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.

The TrackingActivation component is represented by a standalone console application implementing HTTP/JSON web service with RequestJourneyTracking remote method.

4.1.2 Setup & configuration

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.

If the console application is set to listening at localhost machine at port 8080, remote method is available at URI: `http://localhost:8080/api/RequestJourneyTracking`

The following request to activate tracking is formatted in JSON and will be used for the test campaign.

```
{
  "trip2track": "journey",
  "userID": "123456",
  "activationType": "activate"
}
```

Returned JSON object example:

```
{"activationResponseMessage":"OK"}
```

```
{"activationResponseMessage":"input parametr trip2track is missing or empty"}
```

4.1.3 Tested system

This test campaign aims at testing of the journey tracking request functionality, provided as a web service, exposed by the TrackingActivation component of the Trip Tracker module.

4.1.4 System data parameters

The RequestJourneyTracking remote method accepts JSON object passed by HTTP POST request with three string values as input parameters called:

- *userID*,
- *trip2track*,
- *activationType*.

HTTP request header value Content-Type has to be "application/json".

The method returns JSON object with one string value called *activationResponseMessage*. HTTP response header value Content-Type is "application/json; charset=utf-8".

String "OK" is returned when the method call is successful, otherwise an error message is returned.

4.1.5 Simulators

The real communication between Travel Companion and Trip Tracker will be tested, thus the interface operation will be demonstrated by the test.

4.1.6 Personnel

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

4.2 CONFIGURATION OF TRIP TRACKER MODULE

In order to process the event requests successfully, the EventsProcessing component requires to 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).

4.2.1 Infrastructure and hardware

This section contains the setup and the configuration for performing the test campaign of Trip Tracker envisaged for the Additional Release.

4.2.2 Setup & configuration

The Trip Tracker module is a testing environment which communicates with following tools:

- T-Rex,
- Esper,
- Update patterns,
- Travel Companion.

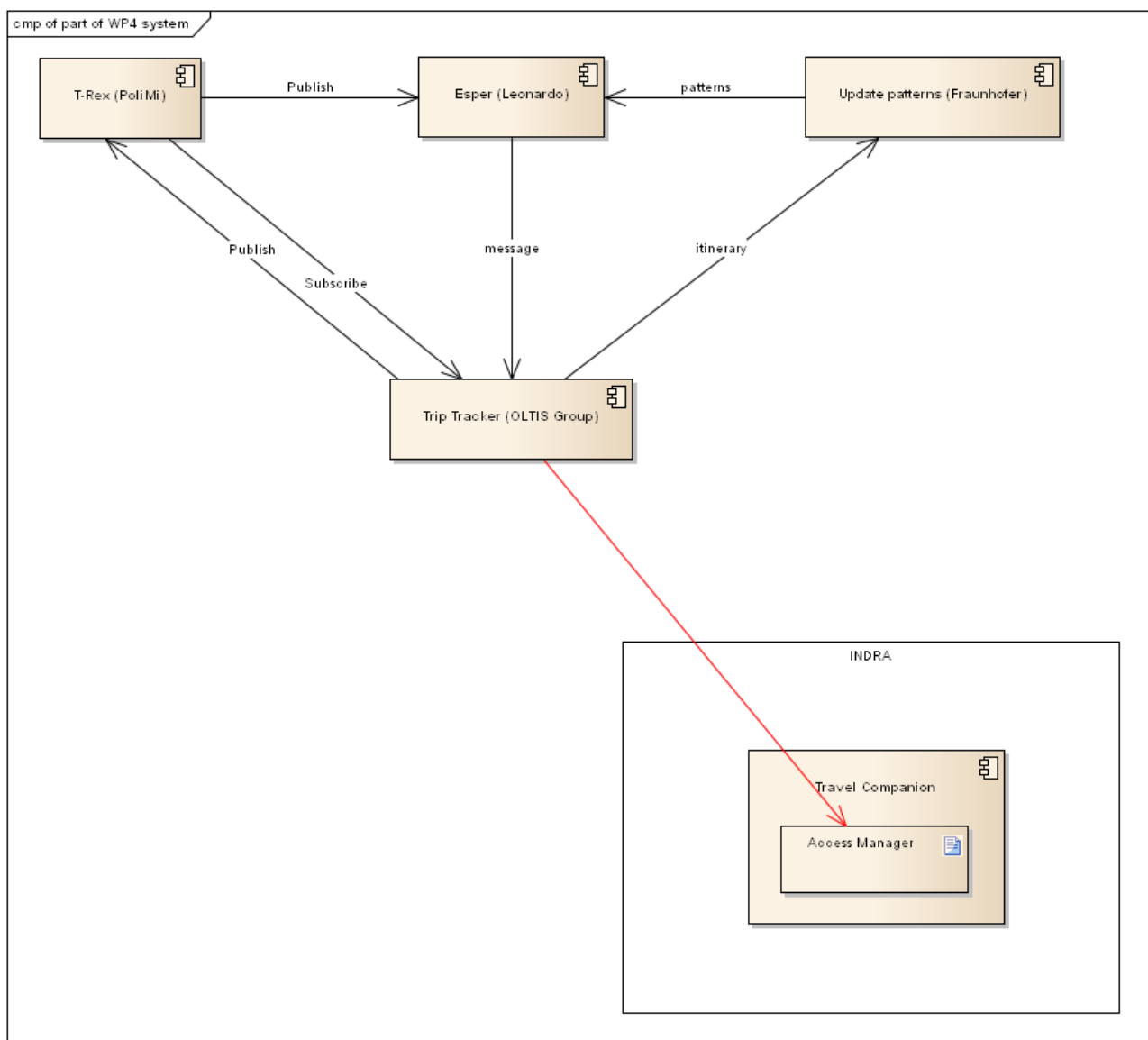


Figure 1. Trip Tracker infrastructure

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.

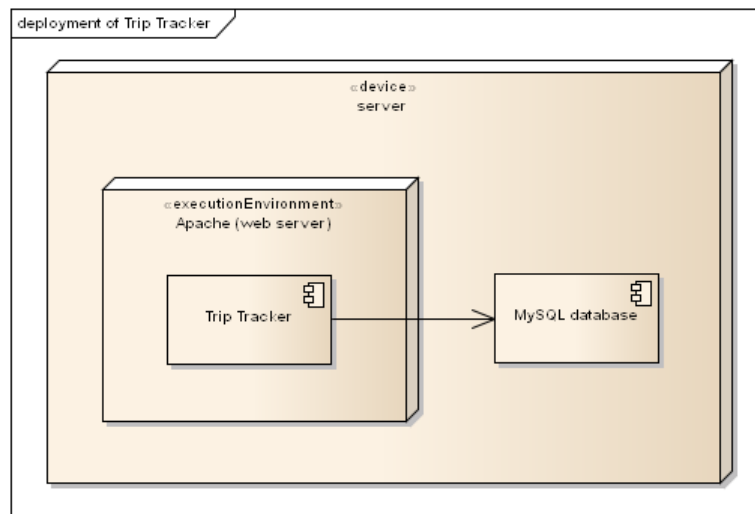


Figure 2. Trip Tracker deployment

Incoming messages from Esper and responses from Travel Companion are stored in the database:

- Id – INT (autoincrement),
- Timestamp – DATETIME,
- Message – VARCHAR (1023) – the message from Esper,
- Forward response – VARCHAR (1023) – the response from Travel Companion.

4.2.2.1 T-Rex

The application contains an interface-form for a sending messages (publish) to the T-Rex and a functionality representing a client which receives messages from the system (subscribe). The communication runs via REST web service by calling feature with methods POST and GET.

T-Rex PUBLISH

Own JSON object corresponding to the specification of T-Rex.

T-Rex PUBLISH TRAIN DELAY

The fulfilment of a test message about a train delay. This message is generated and sent as JSON object. The example of this message is following:

```
{ "idV": "25465", "countryCode": "CZ", "locationCode": "53673", "locationName": "Moravany", "dd": "5", "cause": "52", "ndt": "13:05", "dsp": "Moravany" }
```

T-Rex SUBSCRIBE

It is possible to subscribe to receiving messages from the selected channel. After that messages gradually appear on the page as plain text.

4.2.2.2 Esper

The Trip Tracker module exposes REST interface for receiving messages from Esper via POST method. The content of the message is plain text. This text, after the receipt, is stored in the database

and after that forwarded into Travel Companion. The return value from Travel Companion is stored in the database and takes values:

- HOST UNREACHABLE – the server is not available,
- Unexpected HTTP code: 201 – successfully sent into the system (not implemented a method for a return value).

4.2.2.3 Update patterns

The communication is carried out by calling the appropriate web service provided by Fraunhofer.

4.2.3 Tested system

This test campaign aims at testing of the event processing functionality, provided as a web service, exposed by the EventsProcessing component of the Trip Tracker module.

4.2.4 System data parameters

The parameters of Trip Tracker module are stored in the configuration file *config.adresaServeru.php*. This file 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 database's user (e.g. *user*),
- DB_PASSWORD – the password of the database's user (e.g. *password*),
- ESPER_MESSAGE_API – the interface for the 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 into Travel Companion,
- FRAUNHOFER_API – Fraunhofer's inter interface for sending messages into Update patterns.

4.2.4.1 Interface ESPER_MESSAGE_API

- Protocol: *http*
- Address of server: *213.235.156.9*
- Port: *80*
- Name of interface: *restApi.php*
- Parameter: *action*
 - Value: *newEsperMessage*

http://213.235.156.9/restApi.php?action=newEsperMessage

4.2.4.2 Interface ESPER_LOAD_DB_API

- Parameter: *action*
 - Value: *loadEsperMessage*

http://213.235.156.9/restApi.php?action=loadEsperMessage

4.2.4.3 Interface ESPER_REDIRECT_API

REST interface for sending messages from Trip Tracker module to Travel Companion via POST method.

- Protocol: *https (no authentication of the certificate)*
- Address of server: *173.27.0.5*
- Port: *8443*
- Name of interface: *AccessManagerWP5/tc/cwallet/AccessManager/messages/userId*
- Parameter: *user*
 - Value: *Petr*

https://173.27.0.5:8443/AccessManagerWP5/tc/cwallet/AccessManager/messages/userId?user=Petr

4.2.4.4 Interface FRAUNHOFER_API

SOAP interface for sending messages from Trip Tracker module to Update patterns.

- Protocol: *http*
- Address of server: *smartway-e.ivi.fraunhofer.de*
- Port: *8090*
- Name of interface: *IT2Rail.ActivateRules/activate*

http://smartway-e.ivi.fraunhofer.de:8090/IT2Rail.ActivateRules/activate

4.2.5 Simulator of Esper

The Esper tool supports to following 6 rules:

ArrivalDelayEvents

Name **arrivalDelay**

Statement: select * from ArrivalDelayEvent where ad > 5

Name: **arrivalDelay2**

Statement: select * from ArrivalDelayEvent where ad > 10

Name: **arrivalDelay3**

Statement: select * from ArrivalDelayEvent where ad > 15

DepartureDelayEvents

Name: **departureDelay**

Statement: select * from DepartureDelayEvent where dd > 10

Name: **departureDelay2**

Statement select * from DepartureDelayEvent where dd > 20

Name: **departureDelay3**

Statement select * from DepartureDelayEvent where dd > 30

At the first stage of testing, the rules are activated as follows:

Send an HTTP Request by using POST Method in SoapUI:

Endpoint: <http://185.54.152.72:8096/it2rail-wp4/pattern>

Resource: /it2rail-wp4/pattern

Put the following in the HEADER:

Accept: application/json

Content-Type: application/json

Put the following JSON message in the BODY in order to activate **arrivalDelay** and **departureDelay** rules only (combinations may be more).

```
{
  "patterns": [
    {"rule": "arrivalDelay"},
    {"rule": "departureDelay"}
  ]
}
```

The deactivation of the rules is done by sending an empty array:

```
{
  "patterns": []
}
```

4.2.6 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 case that will be executed before the Additional Release of the Trip Tracker.

5.1 TRACKINGACTIVATION

The aim of this Activate Tracking module is to reflect Traveler's decision to tracking of journey. After that the Travel Companion sends a request to the Trip Tracker to activate tracking of selected journey. Activate Tracking implements an interface to the Travel Companion, which is designed to retrieve all necessary information required to enable tracking activation. For the itself activation it is necessarily to enter the necessary input parameters into the application.

5.1.1 RequestJourneyTracking

This test verifies the interface and communication between the Travel Companion and the Trip Tracker. The precondition of this test is the dependence with WP5 (Travel Companion) because the Travel Companion must be able to call the exposed service through the installed application.

WP4TestCase1-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of RequestJourneyTracking method
Description	The interface and communication between Travel Companion and Trip Tracker will be tested, focusing on triggering of journey tracking
Status C-REL	OK
% passed C-REL	100%
Updated A-REL Description	User will ask to start tracking his trip in its application, by pressing the dedicated button "START TRACKING" at the end of a successful booking of a trip. The request is sent into Trip Tracker where the request is accepted with correct parameters.
Status A-REL	NA
% passed	NA

WP4TestCase1-1					
Test Case Running Status		NA			
Test Case Tester		NA			
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 - VPN to Indra configured on the device, - User logged in 				
1	Press the Start Tracking button	The acceptance of the request in Trip Tracker application.		NA	

5.2 COMPLEX EVENT PROCESSING

The aim of this chapter is to describe the individual functionalities of the component EventsProcessing together with the Update patterns function which pertains to theTrackingActivation component. The patterns (rules) are automatically activated for each itinerary. These patterns are based on the arrival and the departure times.

5.2.1 Event creation, processing and evaluation

The events with the fixed structure are sent from Monitor within the component EventsProcesing. First of all, it's necessary to fill in the parameters in the Monitor, particularly the parameters Event code and Train delay against scheduled values of these parameters. The T-Rex tool identifies these

events and after that T-Rex sends the events for further processing into the Esper tool. The events are compared with the activated patterns/rules within the Esper tool. These rules are triggered by the request with the selected combinations. If the event corresponds to the active rule/s, Esper sends the alert/s regarding the event. If the event doesn't correspond to the active rule/s, Esper doesn't send the alert.

WP4TestCase2-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	The check that the created event in the Monitor is sent to the processing and the evaluation. The second objective is the check that a selected rule/s influence/s the output.
Description	The method of the creation and the sending of the event and the selection of the rules will be called repeatedly with correct/wrong parameters from WP4 testing environment.
Status	NA
% passed	NA

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

Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: <ul style="list-style-type: none"> - Internet connection, - SoapUI version 5.3.0, - T-Rex SUBSCRIBE, - T-Rex PUBLISH TRAIN DELAY, - ESPER. 				
1	The activation of the rule: ArrivalDelayEvent > 5 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 8 min. The verification of the functionality of T-Rex and Esper.	Display of an information about the Train arrival delay with 8 min.		NA	
2	The activation of the rule: ArrivalDelayEvent > 10 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 13 min. The verification of the functionality of T-Rex and Esper.	Display of an information about the Train arrival delay with 13 min.		NA	
3	The activation of the rule: ArrivalDelayEvent > 5 min and the rule ArrivalDelayEvent > 10 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 13 min. The verification of the functionality of T-Rex and Esper.	Display of two information about the Train arrival delay with 13 min.		NA	

Id	Step description	Expected result	Observed result	State	Associated defect
4	The activation of the rule: ArrivalDelayEvent > 15 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 13 min. The verification of the functionality of T-Rex and Esper.	No display of the information about the Train arrival delay with 13 min.		NA	
5	The activation of the rule: ArrivalDelayEvent > 15 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 20 min. The verification of the functionality of T-Rex and Esper.	Display of the information about the Train arrival delay with 20 min.		NA	
6	The activation of the rule: ArrivalDelayEvent > 5 min, the rule ArrivalDelayEvent > 10 min and ArrivalDelayEvent > 15 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 20 min. The verification of the functionality of T-Rex and Esper.	Display of three information about the Train arrival delay with 20 min.		NA	
7	The activation of the rule: ArrivalDelayEvent > 5 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 3 min. The verification of the functionality of T-Rex and Esper.	No display of the information about the Train arrival delay with 3 min.		NA	
8	The activation of the rule: DepartureDelayEvent > 5 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 8 min. The verification of the functionality of T-Rex and Esper.	No display of the information about the Train arrival delay with 8 min.		NA	

Id	Step description	Expected result	Observed result	State	Associated defect
9	The deactivation of all rules. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 8 min. The verification of the functionality of T-Rex and Esper.	No display of the information about the Train arrival delay with 8 min.		NA	

5.2.2 Rules activation and processing, event's impact evaluation

In the second test case the rules are automatically activated based on the request before the sending of the event from the Monitor. The activated rules are following:

```

{"rule": "arrivalDelay"},
{"rule": "departureDelay"}
    
```

Other steps are identical.

WP4TestCase2-2	
Method of Test	Demonstration
Type of test	Manual
Objectives	The check of the activation of the rules and the check that a selected rule/s influence/s the output.
Description	The method of the activation of the rules and the sending of the event will be processed from WP4 testing environment.
Status	NA
% passed	NA

WP4TestCase2-2					
Test Case Running Status		NA			
Test Case Tester		NA			
Id	Step description	Expected result	Observed result	State	Associated defect
	Preconditions: <ul style="list-style-type: none"> - Internet connection, - SoapUI version 5.3.0, - FRAUNHOFER tool - T-Rex SUBSCRIBE, - T-Rex PUBLISH TRAIN DELAY, - ESPER 				
1	The deactivation of all rules. The sending of an itinerary to Fraunhofer tool. The activation of rules. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 8 min. The verification of the functionality of T-Rex and Esper.	Display of an information about the Train arrival delay with 8 min.		NA	
2	The deactivation of all rules. The sending of an itinerary to Fraunhofer tool. The activation of rules. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 20 min. The verification of the functionality of T-Rex and Esper.	Display of three information about the Train arrival delay with 20 min.		NA	

6. TEST EXECUTION

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

6.1 TRACKINGACTIVATION

6.1.1 Request journey tracking

WP4TestCase1-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	To verify the readiness of RequestJourneyTracking method
Description	The interface and communication between Travel Companion and Trip Tracker will be tested, focusing on triggering of journey tracking
Status C-REL	OK
% passed C-REL	100%
Updated A-REL Description	User will ask to start tracking his trip in its application, by pressing the dedicated button at the end of a successful payment for a trip. The request is sent into Trip Tracker application where the request is accepted with correct parameters.
Status A-REL	OK
% passed	100%

WP4TestCase1-1	
Test Case Running Status	NA
Test Case Tester	SNCF, 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 - VPN to Indra configured on the device, - User logged in 				
1	Press the Start Tracking button	The acceptance of the request in Trip Tracker application.	The acceptance of the request in Trip Tracker application.	Passed	

6.2 COMPLEX EVENT PROCESSING

6.2.1 Event creation, processing and evaluation

WP4TestCase2-1	
Method of Test	Demonstration
Type of test	Manual
Objectives	The check that the created event in Monitor is sent to the processing and the evaluation. The second objective is the check that a selected rule/s influence/s the output.
Description	The method of the creation and the sending of the event and the selection of the rules will be called repeatedly with correct/wrong parameters from WP4 testing environment.
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
	Preconditions: <ul style="list-style-type: none"> - Internet connection, - SoapUI version 5.3.0, - T-Rex SUBSCRIBE, - T-Rex PUBLISH TRAIN DELAY, - ESPER. 				
1	The activation of the rule: ArrivalDelayEvent > 5 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 8 min. The verification of the functionality of T-Rex and Esper.	Display of an information about the Train arrival delay with 8 min.	Display of an information about the Train arrival delay with 8 min.	Passed	
2	The activation of the rule: ArrivalDelayEvent > 10 min. The start up to the subscribe of T-Rex. The creation of the event with the Train arrival delay 13 min. The verification of the functionality of T-Rex and Esper.	Display of the information about the Train arrival delay with 13 min.	Display of the information about the Train arrival delay with 13 min.	Passed	

Id	Step description	Expected result	Observed result	State	Associated defect
3	<p>The activation of the rule: ArrivalDelayEvent > 5 min and the rule ArrivalDelayEvent > 10 min.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 13 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>Display of two information about the Train arrival delay with 13 min.</p>	<p>Display of two information about the Train arrival delay with 13 min.</p>	Passed	
4	<p>The activation of the rule: ArrivalDelayEvent > 15 min.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 13 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>No display of the information about the Train arrival delay with 13 min.</p>	<p>No display of the information about the Train arrival delay with 13 min.</p>	Passed	
5	<p>The activation of the rule: ArrivalDelayEvent > 15 min.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 20 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>Display of the information about the Train arrival delay with 20 min.</p>	<p>Display of the information about the Train arrival delay with 20 min.</p>	Passed	

Id	Step description	Expected result	Observed result	State	Associated defect
6	<p>The activation of the rule: ArrivalDelayEvent > 5 min, the rule ArrivalDelayEvent > 10 min and ArrivalDelayEvent > 15 min.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 20 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>Display of three information about the Train arrival delay with 20 min.</p>	<p>Display of three information about the Train arrival delay with 20 min.</p>	Passed	
7	<p>The activation of the rule: ArrivalDelayEvent > 5 min.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 3 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>No display of the information about the Train arrival delay with 3 min.</p>	<p>No display of the information about the Train arrival delay with 3 min.</p>	Passed	
8	<p>The activation of the rule: DepartureDelayEvent > 5 min.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 8 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>No display of the information about the Train arrival delay with 8 min.</p>	<p>No display of the information about the Train arrival delay with 8 min.</p>	Passed	

Id	Step description	Expected result	Observed result	State	Associated defect
9	<p>The deactivation of all rules.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 8 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>No display of the information about the Train arrival delay with 8 min.</p>	<p>No display of the information about the Train arrival delay with 8 min.</p>	Passed	

6.2.2 Rules activation and processing, event's impact evaluation

WP4TestCase2-2	
Method of Test	Demonstration
Type of test	Manual
Objectives	The check of the activation of the rules and the check that a selected rule/s influence/s the output.
Description	The method of the activation of the rules and the sending of the event will be processed from WP4 testing environment.
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"> - Internet connection, - SoapUI version 5.3.0, - FRAUNHOFER tool - T-Rex SUBSCRIBE, - T-Rex PUBLISH TRAIN DELAY, - ESPER 				
1	<p>The deactivation of all rules.</p> <p>The sending of an itinerary to Fraunhofer tool.</p> <p>The activation of rules.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 8 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>Display of an information about the Train arrival delay with 8 min.</p>	<p>Display of an information about the Train arrival delay with 8 min.</p>	Passed	
2	<p>The deactivation of all rules.</p> <p>The sending of an itinerary to Fraunhofer tool.</p> <p>The activation of rules.</p> <p>The start up to the subscribe of T-Rex.</p> <p>The creation of the event with the Train arrival delay 20 min.</p> <p>The verification of the functionality of T-Rex and Esper.</p>	<p>Display of three information about the Train arrival delay with 20 min.</p>	<p>Display of three information about the Train arrival delay with 20 min.</p>	Passed	

7. TEST SUMMARY

The test results are summarized in this chapter.

7.1 TEST PERFORMED

The following table resumes the tests performed at WP4 level.

Test Category	Test Case ID	Test Case Name	Status	% Passed
Tracking Activation	WP4-TA-01		Passed	100%
Complex Event Processing	WP4-CEP1-01	Event creation, processing and evaluation	Passed	100%
	WP4-CEP1-02		Passed	100%
	WP4-CEP1-03		Passed	100%
	WP4-CEP1-04		Passed	100%
	WP4-CEP1-05		Passed	100%
	WP4-CEP1-06		Passed	100%
	WP4-CEP1-07		Passed	100%
	WP4-CEP1-08		Passed	100%
	WP4-CEP1-09		Passed	100%
	WP4-CEP2-01	Rules activation and processing, event's impact evaluation	Passed	100%
	WP4-CEP2-02		Passed	100%

7.2 FAILED TEST CASES

There were no failed test cases in the Additional Release.