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MESSIR Analysis Document
- v 0.0 -

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Chapter 1

Introduction

1.1 Overview

1.2 Purpose and recipients of the document

1.3 Application Domain

1.4 Definitions, acronyms and abbreviations

1.5 Document structure

Chapter 2

General Description

2.1 Domain Stakeholders

2.2 System's Actors

The objective of this section is not to provide the full requirement elicitation document in this section but to reuse a part of this document to provide a informal introduction to the **Messip** specification of the system under development. The use case model is made of a use case diagrams modelling abstractly and informally the actors and their use cases together with a set of use cases descriptions. In addition, those diagrams and description tables are adapted to the **Messip** specification since actor and messages names together with parameters are partly adapted to be consistent with the specification identifiers (see [?] for more details).

2.3 Use Cases Model

This section contains the use cases elicited during the requirements elicitation phase. The use cases are textually described as suggested by the **Messip** method and inspired by the standard Cokburn template [?].

2.3.1 Use Cases

2.3.1.1 summary-suGlobalManagementOfEvent

The goal is to manage the creation of a new crisis event including all the necessary information and to have the requested coordinators arrive on the crisis event's location.

USE-CASE DESCRIPTION	
Name	suGlobalManagementOfEvent
Scope	system
Level	summary
<i>Primary actor(s)</i>	
1	actCentralCoordinator[active]
<i>Secondary actor(s)</i>	
1	actCommunicationCompany[active]
2	actFiremenCoordinator[active]
3	actTowServiceCoordinator[active]
<i>Goal(s) description</i>	
The goal is to manage the creation of a new crisis event including all the necessary information and to have the requested coordinators arrive on the crisis event's location.	
<i>Reuse</i>	
1	<u>ugCreateNewCrisisEvent</u> [1..*]
2	<u>ugGlobalDispatchManagement</u> [1..*]
<i>Protocol condition(s)</i>	
1	none.
<i>Pre-condition(s)</i>	
1	none.
<i>Main post-condition(s)</i>	
1	a new crisis event has been created and modifications have been made by the coordinators to the system and its environment concerning a crisis event.
<i>Main Steps</i>	
a	the actor actCentralCoordinator executes the <u>ugCreateNewCrisisEvent</u> use case
<i>continues in next page ...</i>	

... Use-Case Description table continuation

b	the actor	actFiremenCoordinator	executes the	<u>ugGlobalDispatchManagement</u>	use case
c	the actor	actTowServiceCoordinator	executes the	<u>ugGlobalDispatchManagement</u>	use case
Steps Ordering Constraints					
1	step (a)	must be executed before step (b) or step (c)			
2	step (b)	XOR step (c)			
Additional Information					
none					

Figure 2.1 Shows the suGlobalManagementOfEvent use-case and its actors.

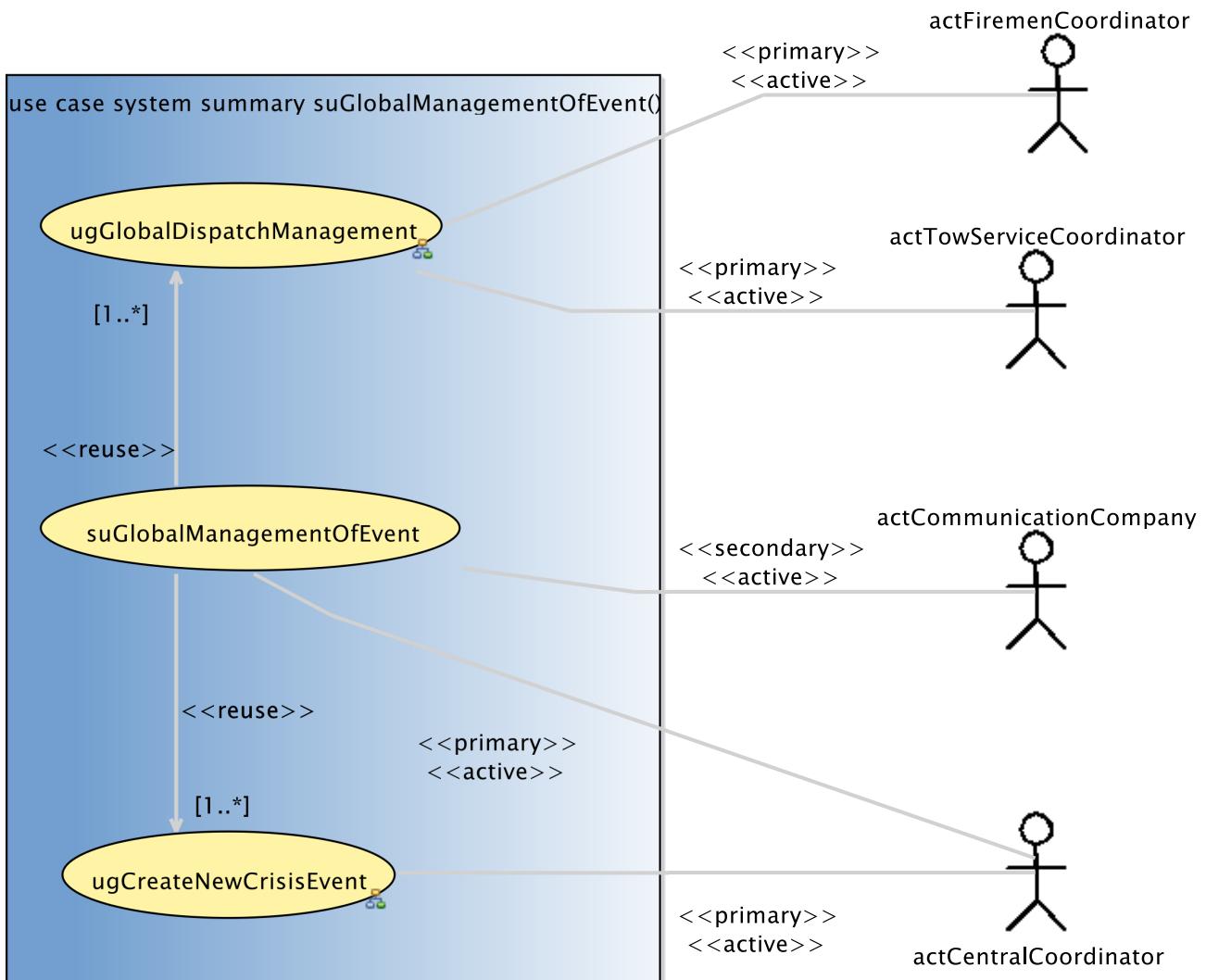


Figure 2.1:

2.3.1.2 usergoal-ugCreateNewCrisisEvent

The goal is to manage the creation of a new crisis event including all the necessary information.

USE-CASE DESCRIPTION	
Name	ugCreateNewCrisisEvent
Scope	system
Level	usergoal
Primary actor(s)	
1	actCentralCoordinator [active]
Secondary actor(s)	
1	actCommunicationCompany [active]
2	actFiremenCoordinator [passive]
3	actTowServiceCoordinator [passive]
Goal(s) description	
The goal is to manage the creation of a new crisis event including all the necessary information.	
Reuse	
1	<u>oeInitialiseNewCrisisEvent [1..*]</u>
2	<u>oeRequestCrisisEventLocation [0..*]</u>
3	<u>oeReceiveCrisisEventLocation [0..*]</u>
4	<u>oeConfirmCrisisEventLocation [1..*]</u>
5	<u>oeCreateNewCrisisEvent [1..*]</u>
Protocol condition(s)	
1	none.
Pre-condition(s)	
1	none.
Main post-condition(s)	
1	a dispatch order including the crisis event's information such as the id, map with pins, witness's phone number, etc. is sent to nearest, free Firemen Team and Tow Service Team.
Main Steps	
a	the actor actCentralCoordinator executes the <u>oeInitialiseNewCrisisEvent</u> use case
b	the actor actCentralCoordinator executes the <u>oeRequestCrisisEventLocation</u> use case
c	the actor actCommunicationCompany executes the <u>oeReceiveCrisisEventLocation</u> use case
d	the actor actCentralCoordinator executes the <u>oeConfirmCrisisEventLocation</u> use case
e	the actor actCentralCoordinator executes the <u>oeCreateNewCrisisEvent</u> use case
Steps Ordering Constraints	
1	step (a) must be executed first
2	if step (c) then previously step (b)
3	step (d) must be executed before step (e)
Additional Information	
none	

Figure 2.2 Shows the ugCreateNewCrisisEvent use-case and its actors.

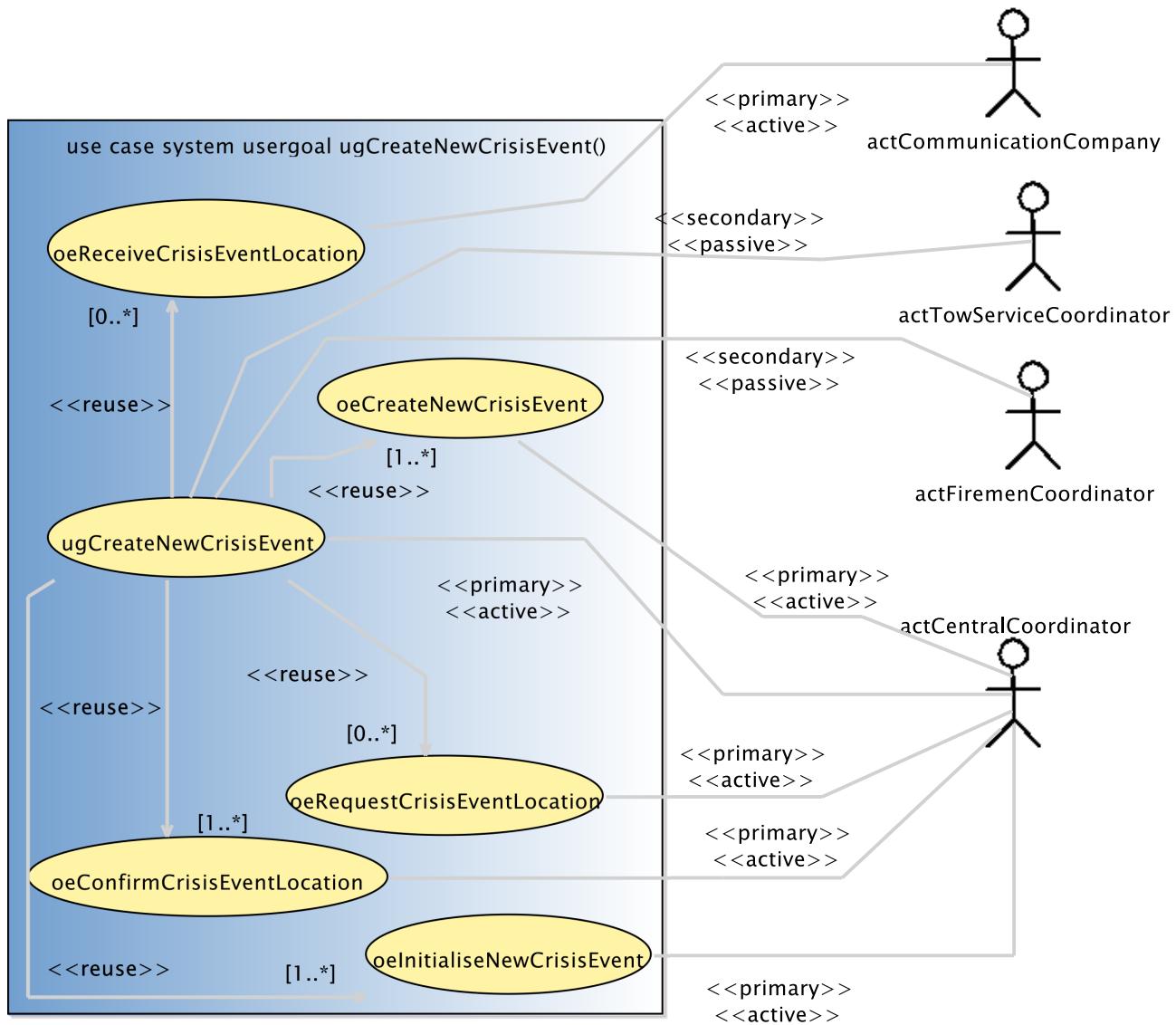


Figure 2.2: ugCreateNewCrisisEvent

2.3.1.3 usergoal-ugGlobalDispatchManagement

The goal is to have the requested coordinators arrive on the crisis event's location.

USE-CASE DESCRIPTION	
Name	ugGlobalDispatchManagement
Scope	system
Level	usergoal
Primary actor(s)	
1	actFiremenCoordinator [active]
2	actTowServiceCoordinator [active]
Secondary actor(s)	
1	actCentralCoordinator [passive]
2	actPoliceCoordinator [active]
Goal(s) description	
The goal is to have the requested coordinators arrive on the crisis event's location.	
Reuse	
1	<u>oeGetCrisisEventInformation</u> [2...*]
2	<u>oeUpdateDispatchStatus</u> [4...*]
3	<u>oeRefreshMap</u> [0...*]
4	<u>oeMessage</u> [0...*]
5	<u>oeRequestHelp</u> [0...*]
6	<u>oeCloseCrisisEvent</u> [2...*]
Protocol condition(s)	
1	none.
Pre-condition(s)	
1	the sender is associated to a crisis event.
Main post-condition(s)	
1	modifications have been made to the system and its environment concerning a crisis event.
Main Steps	
a	the actor actFiremenCoordinator executes the <u>oeGetCrisisEventInformation</u> use case
b	the actor actFiremenCoordinator executes the <u>oeUpdateDispatchStatus</u> use case
c	the actor actTowServiceCoordinator executes the <u>oeGetCrisisEventInformation</u> use case
d	the actor actTowServiceCoordinator executes the <u>oeUpdateDispatchStatus</u> use case
e	the actor actTowServiceCoordinator executes the <u>oeRefreshMap</u> use case
f	the actor actTowServiceCoordinator executes the <u>oeMessage</u> use case
g	the actor actFiremenCoordinator executes the <u>oeRequestHelp</u> use case
h	the actor actPoliceCoordinator executes the <u>oeGetCrisisEventInformation</u> use case
i	the actor actPoliceCoordinator executes the <u>oeUpdateDispatchStatus</u> use case
j	the actor actFiremenCoordinator executes the <u>oeCloseCrisisEvent</u> use case
k	the actor actTowServiceCoordinator executes the <u>oeCloseCrisisEvent</u> use case
l	the actor actPoliceCoordinator executes the <u>oeCloseCrisisEvent</u> use case
Steps Ordering Constraints	
1	if step (b) then previously step (a)

continues in next page ...

... Use-Case Description table continuation

- | | |
|---|--|
| 2 | if step (d) then previously step (c) |
| 3 | step (h) can only be executed if step (g) has at least been executed once previously |
| 4 | if step (i) then previously step (h) |
| 5 | if step (j) then previously step (b) at least two times |
| 6 | if step (k) then previously step (d) at least two times |
| 7 | if step (l) then previously step (i) at least two times |

Additional Information

none

Figure 2.3 Shows the ugGlobalDispatchManagement use-case and its actors.

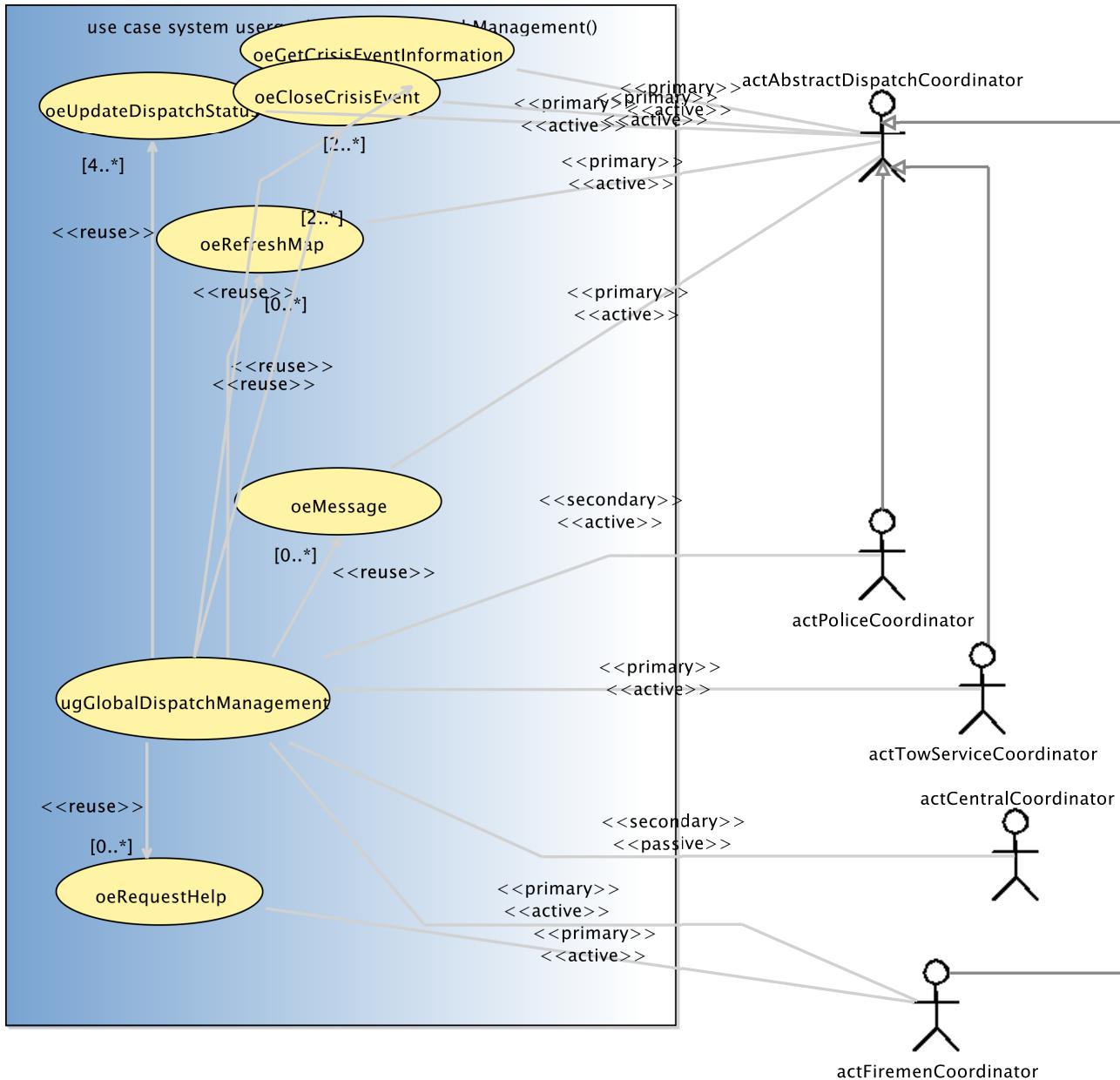


Figure 2.3: ugGlobalDispatchManagement

2.3.2 Use Case Instance(s)

2.3.2.1 Use-Case Instance - ucisuGlobalManagementOfEvent:suGlobalManagementOfEvent

Shows the suGlobalManagementOfEvent instance.

SUMMARY USE-CASE INSTANCE
<i>Instantiated Use Case</i> suGlobalManagementOfEvent
<i>Instance ID</i> ucisuGlobalManagementOfEvent

2.3.2.2 Use-Case Instance - uciugCreateNewCrisiEvent:ugCreateNewCrisisEvent

Shows the ugCreateNewCrisisEvent instance.

USERGOAL USE-CASE INSTANCE
<i>Instantiated Use Case</i> ugCreateNewCrisisEvent
<i>Instance ID</i> uciugCreateNewCrisiEvent

Figure 2.4 Shows the ugCreateNewCrisisEvent instance.

2.3.2.3 Use-Case Instance - uciugGlobalDispatchManagement:ugGlobalDispatchManagement

Shows the ugGlobalDispatchManagement instance.

USERGOAL USE-CASE INSTANCE
<i>Instantiated Use Case</i> ugGlobalDispatchManagement
<i>Instance ID</i> uciugGlobalDispatchManagement

Figure 2.5 Shows the ugGlobalDispatchManagement instance.

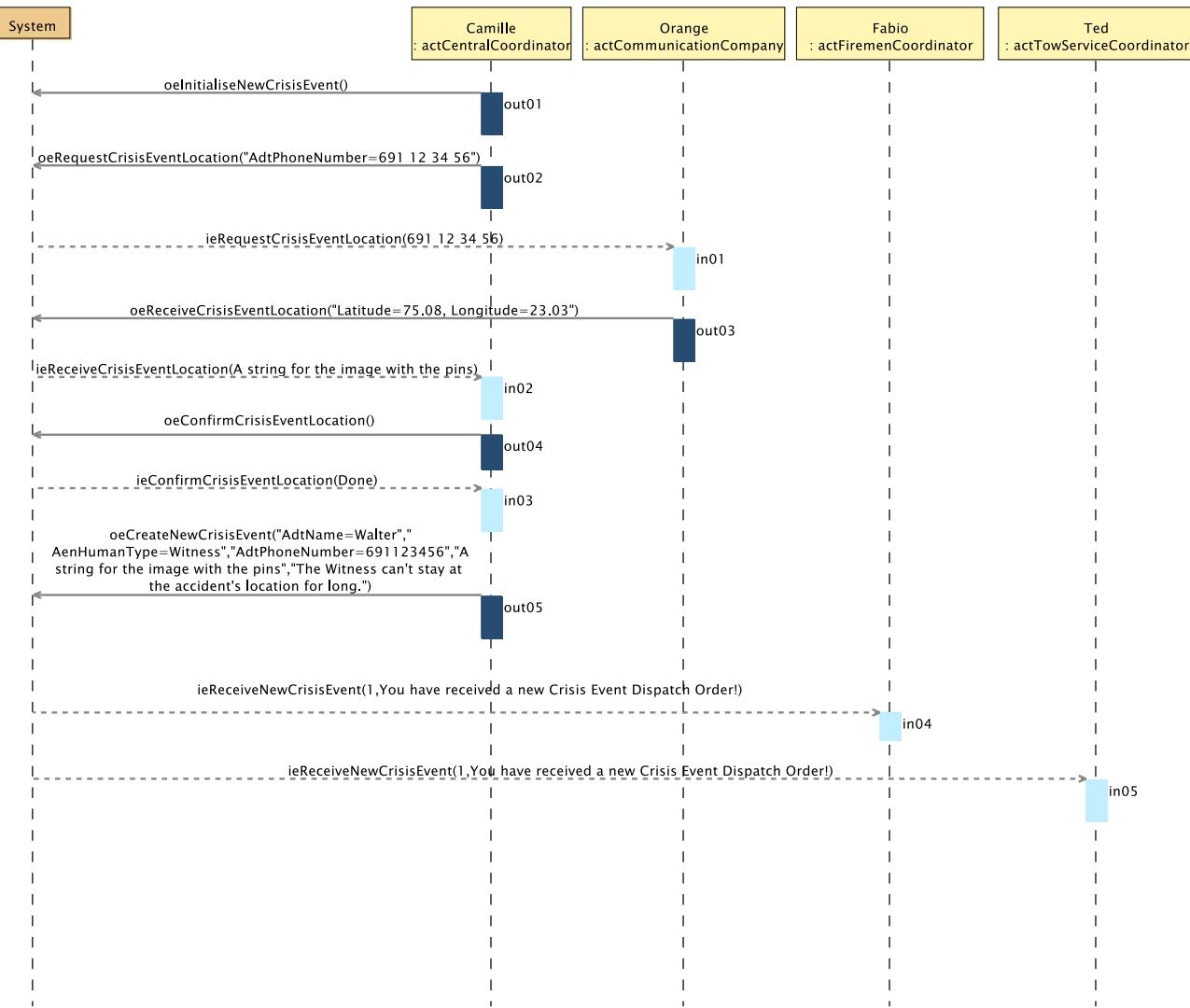
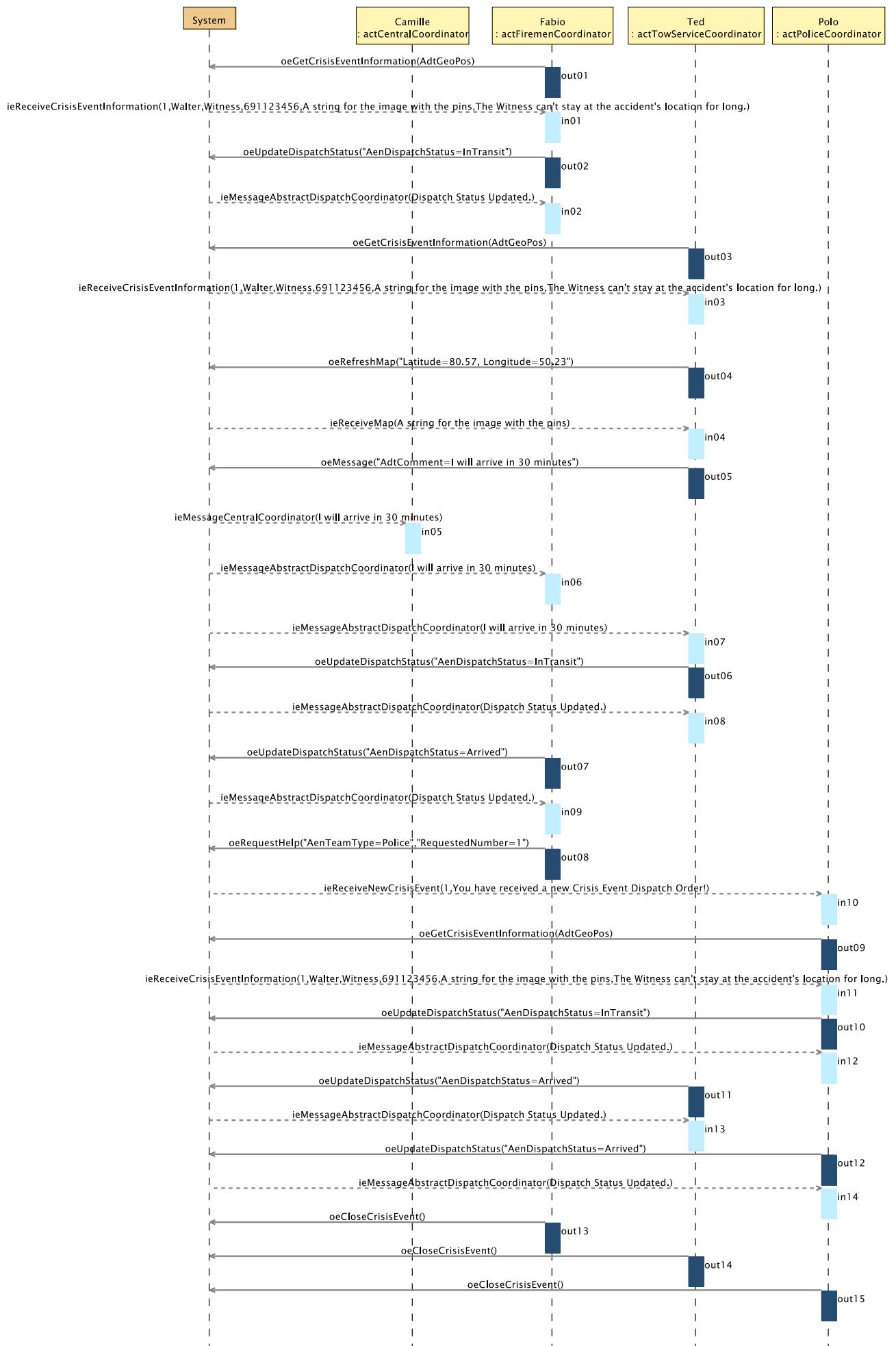


Figure 2.4: ugCreateNewCrisisEvent



Chapter 3

Environment Model

3.1 Environment model view(s)

There are no view(s) for the **Messir** environment model.

3.2 Actors and Interfaces Descriptions

We provide for the given views the description of the actors together with their associated input and output interface descriptions.

3.2.1 **actAbstractDispatchCoordinator** Actor

ACTOR
<i>actAbstractDispatchCoordinator</i>
An abstract Actor which brings together the common operations of the FiremanCoordinator, the PoliceCoordinator and the TowServiceCoordinator.
<i>OutputInterfaces</i>
OUT 1 oeMessage (AdtComment : dtComment) : ptBoolean
OUT 2 oeUpdateDispatchStatus (AetDispatchStatus : etDispatchStatus) : ptBoolean
<i>InputInterfaces</i>
IN 1 ieReceiveNewCrisisEvent (AdtCrisisID : dtCrisisID, AdtComment : dtComment) : ptBoolean
IN 2 ieMessageAbstractDispatchCoordinator (AdtComment : dtComment) : ptBoolean

3.2.2 **actCentralCoordinator** Actor

ACTOR
<i>actCentralCoordinator</i>
Is representing the person that receives the victim's or witness' call in the emergency central.
<i>OutputInterfaces</i>
OUT 1 oeRequestCrisisEventLocation (AdtPhoneNumber : dtPhoneNumber) : ptBoolean

continues in next page ...

... Actor table continuation

OUT 2	<code>oeCreateNewCrisisEvent (AdtName:ptString, AetHumanType:etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AdtComment:dtComment) :ptBoolean</code>
-------	--

OUT 3	<code>oeConfirmCrisisEventLocation () :ptBoolean</code>
-------	---

InputInterfaces

IN 1	<code>ieReceiveCrisisEventLocation (AdtMapWithPin:dtMapWithPin) :ptBoolean</code>
------	---

IN 2	<code>ieMessageCentralCoordinator (AdtComment:dtComment) :ptBoolean</code>
------	--

3.2.3 actCommunicationCompany Actor**ACTOR***actCommunicationCompany*

Is representing any communication company in Luxembourg.

OutputInterfaces

OUT 1	<code>oeReceiveCrisisEventLocation (AdtGeoPos:dtGeoPos) :ptBoolean</code>
-------	---

InputInterfaces

IN 1	<code>ieRequestCrisisEventLocation (AdtPhoneNumber:dtPhoneNumber) :ptBoolean</code>
------	---

3.2.4 actFiremenCoordinator Actor**ACTOR***actFiremenCoordinator*

Is representing any firemen team leader able to manage a two Ambulances.

Extends

lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator

OutputInterfaces

OUT 1	<code>oeRequestHelp (AetTeamType:etTeamType, ARRequestedNumber:ptInteger) :ptBoolean</code>
-------	---

3.2.5 actPoliceCoordinator Actor**ACTOR***actPoliceCoordinator*

Is representing a police team leader.

Extends

lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator

3.2.6 actTowServiceCoordinator Actor

ACTOR
<i>actTowServiceCoordinator</i>
Is representing a tow service driver.
<i>Extends</i>
lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator

Chapter 4

Concept Model

4.1 PrimaryTypes-Classes

4.1.1 Local view 12

Figure 4.1 View of all the associations.

4.2 PrimaryTypes-Datatypes

4.2.1 Local view 15

Figure 4.2 View of all the datatypes

4.3 Concept Model Types Descriptions

This section provides the textual descriptions of all the types defined in the concept model and that can be part of the graphical views provided.

4.3.1 Primary types - Class types descriptions

The table below is providing comments on the graphical views given for the class types of the primary types. Type logical operations are precisely specified in the operation model.

CLASSES	
<i>ctComment</i>	
A class containing a comment.	
attribute	comment: dtComment
operation	init (AComment : dtComment) : ptBoolean
<i>ctCrisisEvent</i>	
A class containing the attributes identifying a crisis event.	
attribute	id: dtCrisisID
attribute	isLocationConfirmed: ptBoolean

continues in next page ...

... Classes table continuation

attribute	location: dtMapWithPin
operation	init (Aid:dtCrisisID, Alocation:dtMapWithPin, AisLocationConfirmed:ptBoolean, Acomment:ptString, AgeoPos:dtGeoPos) :ptBoolean
<i>ctDispatchedCoordinator</i>	
A class containing the attributes identifying a dispatched team.	
attribute	status: etDispatchStatus
attribute	type: etTeamType
operation	init (Atype:etTeamType, Astatus:etDispatchStatus, AgeoPos:dtGeoPos) :ptBoolean
<i>ctHuman</i>	
A class containing the attributes identifying an human.	
attribute	id: dtPhoneNumber
attribute	name: ptString
attribute	type: etHumanType
operation	init (Aid:dtPhoneNumber, Aname:ptString, Atype:etHumanType) :ptBoolean
<i>ctMapWithPin</i>	
A class containing an image which is the map including the pins.	
attribute	mapWithPin: dtMapWithPin
operation	init (AmapWithPin:dtMapWithPin) :ptBoolean
<i>ctState</i>	
used to model the system.	
attribute	vpStarted: ptBoolean
operation	init (ANextValueForAlertID:ptInteger, AvpStarted:ptBoolean) :ptBoolean

4.3.2 Primary types - Datatypes types descriptions

The table below is providing comments on the graphical views given for the datatype types of the primary types.

DATATYPES
<i>dtGeoPos</i>
Two Real numbers used to identify a geographical position on earth.

continues in next page ...

... Datatypes table continuation

attribute	latitude: dtLatitude
attribute	longitude: dtLongitude
operation	is () :ptBoolean

ENUMERATIONS
<i>etDispatchStatus</i>
A String used to identify a dispatch status.
<i>etHumanType</i>
A String used to identify an Human type.
<i>etTeamType</i>
A String used to identify a team type.

4.3.3 Primary types - Association types descriptions

The table below is providing comments on the association types of the primary types.

UNDIRECTED ASSOCIATIONS
<i>assClassActorDispatchCoordinator</i>
Association of a dispatched coordinator to an actor of the same type.
<i>assctCommentctCentralCoordinator</i>
Association of a comment to a central coordinator actor.
<i>assctCommentctCrisisEvent</i>
Association of a comment to a crisis event.
<i>assctCommentctDispatchedCoordinator</i>
Association of a comment to a dispatched coordinator.
<i>assctCrisisEventctHuman</i>
Association of a crisis event to an human.
<i>assctCrisisEventctMapWithPin</i>
Association of a crisis event with a MapWithPin image.
<i>assctDispatchedCoordinatorctCrisisEvent</i>
Association of a dispatched coordinator to a crisis event.
<i>assDispatchedCoordinatorctctMapWithPin</i>
Association of a dispatched coordinator with a MapWithPin image.

4.3.4 Primary types - Aggregation types descriptions

There are no aggregation types for the primary types.

4.3.4.1 Primary types - Composition types descriptions

There are no composition types for the primary types.

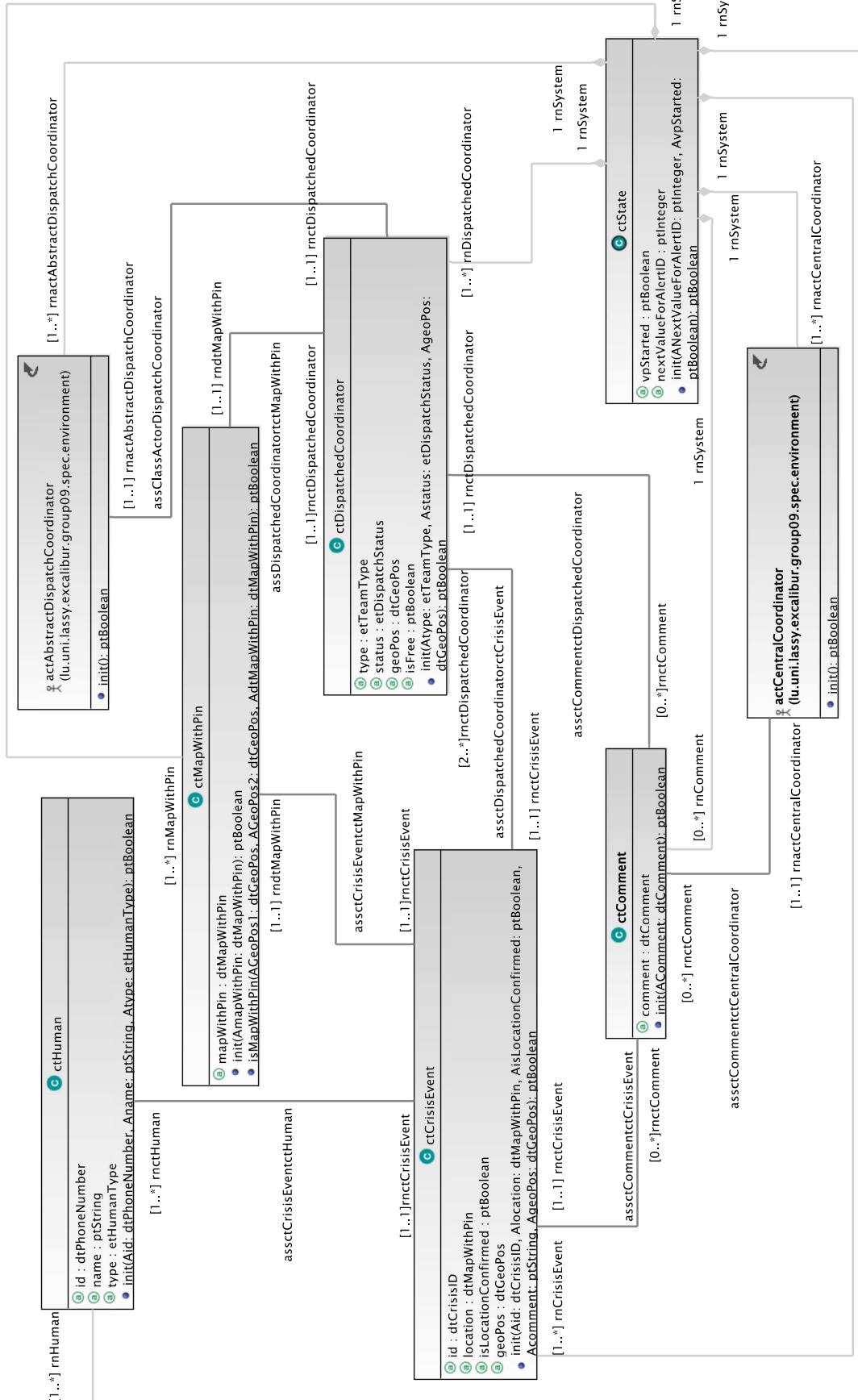


Figure 4.1: Concept Model - PrimaryTypes-Classes local view 12. .

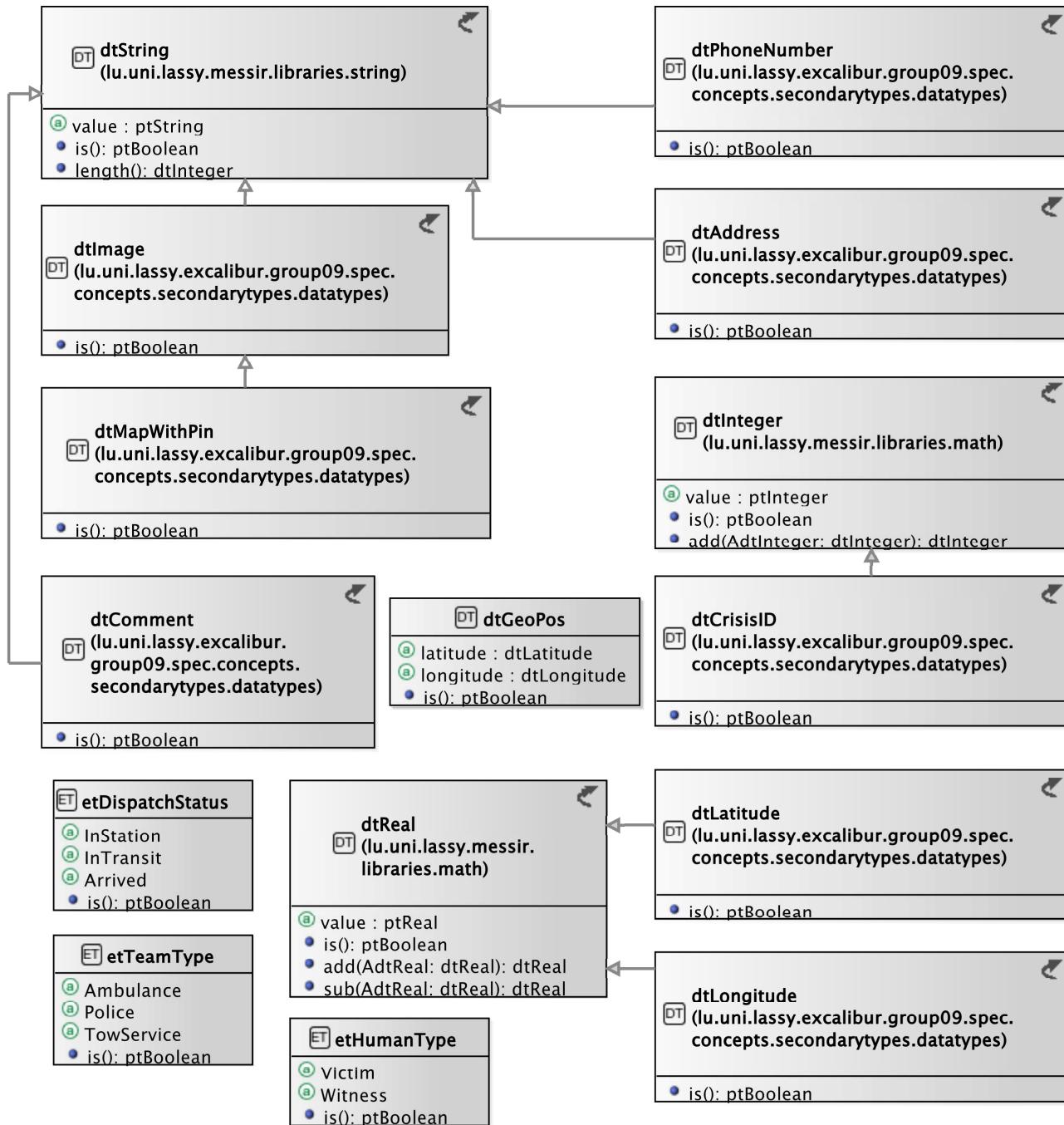


Figure 4.2: Concept Model - PrimaryTypes-Datatypes local view 15. .

4.3.5 Secondary types - Class types descriptions

There are no elements in this category in the system analysed.

4.3.6 Secondary types - Datatypes types descriptions

The table below is providing comments on the graphical views given for the datatype types of the secondary types.

DATATYPES	
<i>dtAddress</i>	A String used to identify an address. extends dtString operation is() :ptBoolean
<i>dtComment</i>	A String used to identify a comment. extends dtString operation is() :ptBoolean
<i>dtCrisisID</i>	An Integer used to identify a crisis id. extends dtInteger operation is() :ptBoolean
<i>dtImage</i>	A String used to identify an image. extends dtString operation is() :ptBoolean
<i>dtLatitude</i>	used to define a latitude value of a geographical positions on earth. extends dtReal operation is() :ptBoolean
<i>dtLongitude</i>	used to define a longitude value of a geographical positions on earth. extends dtReal operation is() :ptBoolean
<i>dtMapWithPin</i>	An image which is a map including pins. extends dtImage operation is() :ptBoolean
<i>dtPhoneNumber</i>	A String used to store a phone number. extends dtString operation is() :ptBoolean

continues in next page ...

*... Datatypes table continuation***4.3.7 Secondary types - Association types descriptions**

There are no association types for the secondary types.

4.3.8 Secondary types - Aggregation types descriptions

There are no aggregation types for the secondary types.

4.3.9 Secondary types - Composition types descriptions

There are no composition types for the secondary types.

Chapter 5

Operation Model

This section contains the operation schemes of each operation defined in either an actor, its output interface, in a primary or secondary type (class, datatype or enumeration types). The **Messir** OCL code listing is joined to the comment table.

5.1 Environment - Out Interface Operation Scheme for actAbstractDispatchCoordinator

5.1.1 Operation Model for oeCloseCrisisEvent

The oeCloseCrisisEvent operation has the following properties:

OPERATION
<i>oeCloseCrisisEvent</i> sent to close up the associated event.
<i>Return type</i>
ptBoolean
<i>Pre-Condition (protocol)</i>
PreP 1 the coordinator has been associated to a crisis event.
<i>Pre-Condition (functional)</i>
PreF 1 it is supposed that a dispatched coordinator can only be associated to one crisis event at the same time.
<i>Post-Condition (protocol)</i>
PostP 1 The coordinator's attribute <code>isFree</code> is set back to true and can thus be associated to another crisis event. PostP 2 The operations <code>oeMessage</code> , <code>oeRefreshMap</code> , <code>oeUpdateDispatchStatus</code> are deactivated.

5.1.2 Operation Model for oeGetCrisisEventInformation

The oeGetCrisisEventInformation operation has the following properties:

OPERATION
<i>oeGetCrisisEventInformation</i> sent to get the information stored in the current state of the crisis event.
<i>Parameters</i>

continues in next page ...

... Operation table continuation

1	AdtGeoPos: dtGeoPos a geographical position that identifies the actor's current position.
<i>Return type</i>	
ptBoolean	
<i>Pre-Condition (protocol)</i>	
PreP 1 the coordinator has been associated to a crisis event.	
<i>Pre-Condition (functional)</i>	
PreF 1 it is supposed that a dispatched coordinator can only be associated to one crisis event at the same time.	
PreF 2 the GeoPos given by the coordinator is a valid one.	
<i>Post-Condition (functional)</i>	
PostF 1 the map with pins returned to coordinator includes a pin of the actor's current position and another one of the crisis event's location.	
<i>Post-Condition (protocol)</i>	
PostP 1 The operations oeMessage, oeUpdateDispatchStatus, oeRefreshMap are activated.	
PostP 2 The operation oeGetCrisisEventInformation is deactivated.	

5.1.3 Operation Model for oeMessage

The oeMessage operation has the following properties:

OPERATION
<i>oeMessage</i>
sent to transmit a message.
<i>Parameters</i>
1 AdtComment: dtComment
<i>Return type</i>
ptBoolean
<i>Pre-Condition (protocol)</i>
PreP 1 the coordinator has been associated to a crisis event.
<i>Pre-Condition (functional)</i>
PreF 1 it is supposed that a dispatched coordinator can only be associated to one crisis event at the same time.
<i>Post-Condition (functional)</i>
PostF 1
<i>Post-Condition (protocol)</i>
PostP 1

5.1.4 Operation Model for oeRefreshMap

The oeRefreshMap operation has the following properties:

OPERATION
<i>oeRefreshMap</i>
sent to refresh the map.

continues in next page ...

...Operation table continuation

Parameters	
1	AdtGeoPos: dtGeoPos
Return type	
ptBoolean	
Pre-Condition (protocol)	
PreP 1	the coordinator has been associated to a crisis event.
Pre-Condition (functional)	
PreF 1	it is supposed that a dispatched coordinator can only be associated to one crisis event at the same time.
PreF 2	the GeoPos given by the coordinator is a valid one.
Post-Condition (functional)	
PostF 1	the map with pins returned to the coordinator includes a pin of the actor's current position and another one of the crisis event's location.
Post-Condition (protocol)	
PostP 1	

5.1.5 Operation Model for oeUpdateDispatchStatus

The `oeUpdateDispatchStatus` operation has the following properties:

OPERATION	
<i>oeUpdateDispatchStatus</i>	
sent to update the dispatch status.	
Parameters	
1	AetDispatchStatus: etDispatchStatus
Return type	
ptBoolean	
Pre-Condition (protocol)	
PreP 1	the coordinator has been associated to a crisis event.
Pre-Condition (functional)	
PreF 1	it is supposed that a dispatched coordinator can only be associated to one crisis event at the same time.
Post-Condition (functional)	
PostF 1	the attribute status of the coordinator is modified either from 'InStation' to 'InTransit' or from 'InTransit' to 'Arrived'
Post-Condition (protocol)	
PostP 1	the operation <code>oeCloseCrisisEvent</code> is activated when this operation is called twice.

5.2 Environment - Out Interface Operation Scheme for actCentralCoordinator**5.2.1 Operation Model for oeConfirmCrisisEventLocation**

The `oeConfirmCrisisEventLocation` operation has the following properties:

OPERATION	
<i>oeConfirmCrisisEventLocation</i>	sent to confirm the crisis event's location.
Return type	ptBoolean
Pre-Condition (protocol)	PreP 1 the crisis event is supposed to be initialised, but not deployed yet.
Pre-Condition (functional)	PreF 1
Post-Condition (functional)	PostF 1 the attribute isLocationConfirmed of the newly initialised ctCrisisEvent is set to true.
Post-Condition (protocol)	PostP 1 The operation oeCreateNewCrisisEvent is activated.

5.2.2 Operation Model for oeCreateNewCrisisEvent

The oeCreateNewCrisisEvent operation has the following properties:

OPERATION	
<i>oeCreateNewCrisisEvent</i>	sent to create an new crisis event and to alert the corresponding coordinators.
Parameters	
1	AdtName: ptString the name of the notifier that informed the Central Coordinator of the crisis event.
2	AetHumanType: etHumanType the notifier can be either a victim or a witness.
3	AdtPhoneNumber: dtPhoneNumber the phone number of the notifier.
4	AdtMapWithPin: dtAddress a map with pins showing the crisis event's location.
Return type	ptBoolean
Pre-Condition (protocol)	PreP 1 the crisis event is supposed to be initialised, but not deployed yet.
Pre-Condition (functional)	PreF 1 the attribute isLocationConfirmed is set to true.
Post-Condition (functional)	PostF 1 An alert message is sent to a free FiremenCoordinator and a free TowServiceCoordinator that are geographically the nearest of the crisis event's location.
Post-Condition (protocol)	PostP 1 The selected ctDispatchCoordinator's attribute isFree is set to false and can thus no more be associated to another crisis event. PostP 2 The operation oeCreateNewCrisisEvent, oeConfirmCrisisEventLocation, oeRequestCrisisEventLocation are deactivated. PostP 3 The operation oeInitialiseNewCrisisEvent is activated.

continues in next page ...

...Operation table continuation

PostP 4	The operation oeGetCrisisEventInformation for the selected DispatchCoordinators is activated.
---------	---

5.2.3 Operation Model for oeInitialiseNewCrisisEvent

The oeInitialiseNewCrisisEvent operation has the following properties:

OPERATION
<i>oeInitialiseNewCrisisEvent</i>
sent to initialise a new crisis event with a new unique id that is the id of the previous crisis event incremented by one.
<i>Return type</i>
ptBoolean
<i>Pre-Condition (protocol)</i>
PreP 1
<i>Pre-Condition (functional)</i>
PreF 1
<i>Post-Condition (functional)</i>
PostF 1 the attribute nextValueForAlertID of the ctState instance should be equal to the one @pre incremented by one.
<i>Post-Condition (protocol)</i>
PostP 1 The operation oeConfirmCrisisEventLocation, oeRequestCrisisEventLocation are activated.
PostP 2 The operation oeInitialiseNewCrisisEvent is deactivated.

5.2.4 Operation Model for oeRequestCrisisEventLocation

The oeRequestCrisisEventLocation operation has the following properties:

OPERATION
<i>oeRequestCrisisEventLocation</i>
sent to request a crisis event's location.
<i>Parameters</i>
1 AdtPhoneNumber: dtPhoneNumber
<i>Return type</i>
ptBoolean
<i>Pre-Condition (protocol)</i>
PreP 1
<i>Pre-Condition (functional)</i>
PreF 1 it is supposed that the phone number given by the CentralCoordinator is always sent to correct communication company.
<i>Post-Condition (functional)</i>
PostF 1 the phone number can be identified by the communication company.
<i>Post-Condition (protocol)</i>
PostP 1

5.3 Environment - Out Interface Operation Scheme for actCommunicationCompany

5.3.1 Operation Model for oeReceiveCrisisEventLocation

The oeReceiveCrisisEventLocation operation has the following properties:

OPERATION
<i>oeReceiveCrisisEventLocation</i>
sent to get a map with pin.
Parameters
1 AdtGeoPos: dtGeoPos
Return type
ptBoolean
Pre-Condition (protocol)
PreP 1
Pre-Condition (functional)
PreF 1 the GeoPos given by the communication company is a valid one.
Post-Condition (functional)
PostF 1 the map with pins returned to the CentralCoordinator includes a pin of the crisis event's location.
Post-Condition (protocol)
PostP 1

5.4 Environment - Out Interface Operation Scheme for actFiremenCoordinator

5.4.1 Operation Model for oeRequestHelp

The oeRequestHelp operation has the following properties:

OPERATION
<i>oeRequestHelp</i>
sent to request help from the corresponding team type.
Parameters
1 AetTeamType: etTeamType
2 ARequestedNumber: ptInteger
Return type
ptBoolean
Pre-Condition (protocol)
PreP 1 the coordinator has been associated to a crisis event.
Pre-Condition (functional)
PreF 1 it is supposed that a dispatched coordinator can only be associated to one crisis event at the same time.

continues in next page ...

...Operation table continuation

<i>Post-Condition (functional)</i>	
PostF 1	An alert message is sent to the nearest and free requested coordinator type.
<i>Post-Condition (protocol)</i>	
PostP 1	The selected ctDispatchCoordinator's attribute isFree is set to false and can thus no more be associated to another crisis event.

5.5 Environment - Actor Operation Schemes

There are no elements in this category in the system analysed.

5.6 Primary Types - Operation Schemes for Classes

There are no elements in this category in the system analysed.

5.7 Primary Types - Operation Schemes for Datatypes

There are no elements in this category in the system analysed.

5.8 Primary Types - Operation Schemes for Enumerations

There are no elements in this category in the system analysed.

5.9 Secondary Types - Operation Schemes for Classes

There are no elements in this category in the system analysed.

5.10 Secondary Types - Operation Schemes for Datatypes

There are no elements in this category in the system analysed.

5.11 Secondary Types - Operation Schemes for Enumerations

There are no elements in this category in the system analysed.

Chapter 6

Test Model(s)

There are no elements in this category in the system analysed.

Chapter 7

Additional Constraints

Appendix A

Undocumented Messir Specification Elements

A.1 Undocumented Use Cases

A.1.1 Undocumented Subfunction Level Use Cases

- lu.uni.lassy.excalibur.group09.spec.usecases.oeCloseCrisisEvent
- lu.uni.lassy.excalibur.group09.spec.usecases.oeConfirmCrisisEventLocation
- lu.uni.lassy.excalibur.group09.spec.usecases.oeCreateNewCrisisEvent
- lu.uni.lassy.excalibur.group09.spec.usecases.oeGetCrisisEventInformation
- lu.uni.lassy.excalibur.group09.spec.usecases.oeInitialiseNewCrisisEvent
- lu.uni.lassy.excalibur.group09.spec.usecases.oeMessage
- lu.uni.lassy.excalibur.group09.spec.usecases.oeRefreshMap
- lu.uni.lassy.excalibur.group09.spec.usecases.oeRequestCrisisEventLocation
- lu.uni.lassy.excalibur.group09.spec.usecases.oeRequestHelp
- lu.uni.lassy.excalibur.group09.spec.usecases.oeReceiveCrisisEventLocation
- lu.uni.lassy.excalibur.group09.spec.usecases.oeUpdateDispatchStatus

A.2 Undocumented Operation Specifications

- lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.classes.ctMapWithPin.isMapWithPin

Appendix B

Messir Specification Files Listing

B.1 File ./src-gen/messir-spec/.views.msr

```
1 //  
2 //DON'T TOUCH THIS FILE !!!  
3 //  
4 package uidff8a216549a64951bf055c8b5a9dde2a {  
5   Concept Model {}  
6 }
```

Listing B.1: Messir Spec. file .views.msr.

B.2 File ./src-gen/messir-spec/operations/environment/environment-actAbstractDispatchCoordinator-oeCloseCrisisEvent.msr

```
1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actAbstractDispatchCoordinator.  
    outactAbstractDispatchCoordinator.oeCloseCrisisEvent {  
2  
3   import lu.uni.lassy.messir.libraries.primitives  
4   import lu.uni.lassy.messir.libraries.math  
5   import lu.uni.lassy.messir.libraries.string  
6   import lu.uni.lassy.messir.libraries.calendar  
7   import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes  
8   import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes  
9  
10  Operation Model {  
11  
12    operation: lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator.  
        outactAbstractDispatchCoordinator.oeCloseCrisisEvent():ptBoolean{  
13      // include below the specification information (pre, post or ocl or prolog)  
14  
15    }  
16  }  
17 }
```

Listing B.2: Messir Spec. file environment-actAbstractDispatchCoordinator-oeCloseCrisisEvent.msr.

B.3 File ./src-gen/messir-spec/operations/environment/environment-actAbstractDispatchCoordinator-oeGetCrisisEventInformation.msr

```
1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actAbstractDispatchCoordinator.  
    outactAbstractDispatchCoordinator.oeGetCrisisEventInformation {  
2  
3   import lu.uni.lassy.messir.libraries.primitives  
4   import lu.uni.lassy.messir.libraries.math  
5   import lu.uni.lassy.messir.libraries.string  
6   import lu.uni.lassy.messir.libraries.calendar
```

```

7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
11
12   operation: lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator.
      outactAbstractDispatchCoordinator.oeGetCrisisEventInformation(AdtGeoPos:dtGeoPos) :ptBoolean{
13   // include below the specification information (pre,post or ocl or prolog)
14
15   }
16 }
17 }
```

Listing B.3: Messir Spec. file environment-actAbstractDispatchCoordinator-oeGetCrisisEventInformation.msr.

B.4 File ./src-gen/messir-spec/operations/environment/environment-actAbstractDispatchCoordinator-oeMessage.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actAbstractDispatchCoordinator.
  outactAbstractDispatchCoordinator.oeMessage {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
11
12   operation: lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator.
      outactAbstractDispatchCoordinator.oeMessage(AdtComment:dtComment) :ptBoolean{
13   // include below the specification information (pre,post or ocl or prolog)
14
15   }
16 }
17 }
```

Listing B.4: Messir Spec. file environment-actAbstractDispatchCoordinator-oeMessage.msr.

B.5 File ./src-gen/messir-spec/operations/environment/environment-actAbstractDispatchCoordinator-oeRefreshMap.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actAbstractDispatchCoordinator.
  outactAbstractDispatchCoordinator.oeRefreshMap {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
11
12   operation: lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator.
      outactAbstractDispatchCoordinator.oeRefreshMap(AdtGeoPos:dtGeoPos) :ptBoolean{
13   // include below the specification information (pre,post or ocl or prolog)
14
15   }
16 }
17 }
```

Listing B.5: Messir Spec. file environment-actAbstractDispatchCoordinator-oeRefreshMap.msr.

B.6 File ./src-gen/messir-spec/operations/environment/environment-actAbstractDispatchCoordinator-oeUpdateDispatchStatus.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actAbstractDispatchCoordinator.
    outactAbstractDispatchCoordinator.oeUpdateDispatchStatus {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
11
12     operation: lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator.
            outactAbstractDispatchCoordinator.oeUpdateDispatchStatus(AetDispatchStatus:etDispatchStatus):
            ptBoolean{
13         // include below the specification information (pre,post or ocl or prolog)
14
15     }
16 }
17 }
```

Listing B.6: Messir Spec. file environment-actAbstractDispatchCoordinator-oeUpdateDispatchStatus.msr.

B.7 File ./src-gen/messir-spec/operations/environment/environment-actCentralCoordinator-oeConfirmCrisisEventLocation.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actCentralCoordinator.
    outactCentralCoordinator.oeConfirmCrisisEventLocation {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7
8 Operation Model {
9
10     operation: lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator.
            outactCentralCoordinator.oeConfirmCrisisEventLocation():ptBoolean{
11         // include below the specification information (pre,post or ocl or prolog)
12
13     }
14 }
15 }
```

Listing B.7: Messir Spec. file environment-actCentralCoordinator-oeConfirmCrisisEventLocation.msr.

B.8 File ./src-gen/messir-spec/operations/environment/environment-actCentralCoordinator-oeCreateNewCrisisEvent.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actCentralCoordinator.
    outactCentralCoordinator.oeCreateNewCrisisEvent {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
```

```

11
12 operation: lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator.
    outactCentralCoordinator.oeCreateNewCrisisEvent(AdtName:ptString, AetHumanType:etHumanType,
    AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AdtComment:dtComment):ptBoolean{
13 // include below the specification information (pre,post or ocl or prolog)
14
15 }
16 }
17 }
```

Listing B.8: Messir Spec. file environment-actCentralCoordinator-oeCreateNewCrisisEvent.msr.

B.9 File ./src-gen/messir-spec/operations/environment/environment-actCentralCoordinator-oeInitialiseNewCrisisEvent.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actCentralCoordinator.
    outactCentralCoordinator.oeInitialiseNewCrisisEvent {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7
8 Operation Model {
9
10 operation: lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator.
    outactCentralCoordinator.oeInitialiseNewCrisisEvent():ptBoolean{
11 // include below the specification information (pre,post or ocl or prolog)
12
13 }
14 }
15 }
```

Listing B.9: Messir Spec. file environment-actCentralCoordinator-oeInitialiseNewCrisisEvent.msr.

B.10 File ./src-gen/messir-spec/operations/environment/environment-actCentralCoordinator-oeRequestCrisisEventLocation.msr

```

1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actCentralCoordinator.
    outactCentralCoordinator.oeRequestCrisisEventLocation {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
9
10 Operation Model {
11
12 operation: lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator.
    outactCentralCoordinator.oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber):ptBoolean{
13 // include below the specification information (pre,post or ocl or prolog)
14 preP {
15     let AvpStarted: ptBoolean in
16     self.rnActor.rnSystem.vpStarted = AvpStarted
17     and AvpStarted = true
18 }
19
20 preF { true }
21
22 postF {
23     let TheactYou:lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator in
24     let AptString:ptString in
25     /* Post Functional:*/
26     /* PostF01 */
```

B.11. FILE /.../ENVIRONMENT-ACTCOMMUNICATIONCOMPANY-OERECEIVECRISISEVENTLOCATION.MSR

```
27 AptString = 'Hello World !'
28 and TheactYou.InterfaceIN = self.rnActor.InterfaceIN
29 and TheactYou.InterfaceIN^ieHelloWorld(AptString)
30 }
31
32 postP { true }
33 }
34 }
35 }
```

Listing B.10: Messir Spec. file environment-actCentralCoordinator-oeRequestCrisisEventLocation.msr.

B.11 File ./src-gen/messir-spec/operations/environment/environment-actCommunicationCompany-oeReceiveCrisisEventLocation.msr

```
1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actCommunicationCompany.
    outactCommunicationCompany.oeReceiveCrisisEventLocation {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
11
12     operation: lu.uni.lassy.excalibur.group09.spec.environment.actCommunicationCompany.
        outactCommunicationCompany.oeReceiveCrisisEventLocation(AdtGeoPos:dtGeoPos) :ptBoolean{
13         // include below the specification information (pre,post or ocl or prolog)
14
15     }
16 }
17 }
```

Listing B.11: Messir Spec. file environment-actCommunicationCompany-oeReceiveCrisisEventLocation.msr.

B.12 File ./src-gen/messir-spec/operations/environment/environment-actFiremenCoordinator-oeRequestHelp.msr

```
1 package lu.uni.lassy.excalibur.group09.spec.environment.operations.actFiremenCoordinator.
    outactFiremenCoordinator.oeRequestHelp {
2
3 import lu.uni.lassy.messir.libraries.primitives
4 import lu.uni.lassy.messir.libraries.math
5 import lu.uni.lassy.messir.libraries.string
6 import lu.uni.lassy.messir.libraries.calendar
7 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
8 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
9
10 Operation Model {
11
12     operation: lu.uni.lassy.excalibur.group09.spec.environment.actFiremenCoordinator.
        outactFiremenCoordinator.oeRequestHelp(AetTeamType:etTeamType, ARequestedNumber:ptInteger) :
        ptBoolean{
13         // include below the specification information (pre,post or ocl or prolog)
14
15     }
16 }
17 }
```

Listing B.12: Messir Spec. file environment-actFiremenCoordinator-oeRequestHelp.msr.

B.13 File ./src-gen/messir-spec/environment/environment.msr

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.environment {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
13 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
14
15 Environment Model {
16
17 actor actCentralCoordinator role rnactCentralCoordinator cardinality [1..*] {
18
19 operation init():ptBoolean
20
21 input interface inactCentralCoordinator {
22     operation ieReceiveCrisisEventLocation(AdtMapWithPin:dtMapWithPin) : ptBoolean
23     operation ieConfirmCrisisEventLocation(AdtMessage:ptString) : ptBoolean
24     operation ieMessageCentralCoordinator(AdtComment:dtComment) : ptBoolean
25 }
26
27 output interface outactCentralCoordinator {
28     operation oeInitialiseNewCrisisEvent() : ptBoolean
29     operation oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) : ptBoolean
30     operation oeCreateNewCrisisEvent(AdtName:ptString, AetHumanType:etHumanType, AdtPhoneNumber:
31         dtPhoneNumber, AdtMapWithPin:dtAddress, AdtComment:dtComment) : ptBoolean
32     operation oeConfirmCrisisEventLocation() : ptBoolean
33 }
34
35 actor actCommunicationCompany role rnactCommunicationCompany cardinality [1..*] {
36
37 operation init() : ptBoolean
38
39 input interface inactCommunicationCompany {
40     operation ieRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) : ptBoolean
41 }
42
43 output interface outactCommunicationCompany {
44     operation oeReceiveCrisisEventLocation(AdtGeoPos:dtGeoPos) : ptBoolean
45 }
46
47 actor actAbstractDispatchCoordinator role rnactAbstractDispatchCoordinator cardinality [1..*] {
48
49 operation init() : ptBoolean
50
51 input interface inactAbstractDispatchCoordinator {
52     operation ieReceiveNewCrisisEvent(AdtCrisisID:dtCrisisID, AdtComment:dtComment) : ptBoolean
53     operation ieReceiveCrisisEventInformation(AdtName:ptString, AetHumanType:etHumanType,
54         AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtMapWithPin, AdtComment:dtComment) : ptBoolean
55     operation ieMessageAbstractDispatchCoordinator(AdtComment: dtComment) : ptBoolean
56     operation ieReceiveMap(AdtMapWithPin: dtMapWithPin) : ptBoolean
57 }
58
59 output interface outactAbstractDispatchCoordinator {
60     operation oeGetCrisisEventInformation(AdtGeoPos:dtGeoPos) : ptBoolean
61     operation oeMessage(AdtComment:dtComment) : ptBoolean
62     operation oeUpdateDispatchStatus(AetDispatchStatus:etDispatchStatus): ptBoolean
63     operation oeRefreshMap(AdtGeoPos:dtGeoPos) : ptBoolean
64     operation oeCloseCrisisEvent(): ptBoolean
65 }
66 }
```

```

67
68 actor actFiremenCoordinator role rnactFiremenCoordinator cardinality [1..*] extends
   actAbstractDispatchCoordinator {
69
70   operation init() : ptBoolean
71
72   input interface inactFiremenCoordinator {
73   }
74
75   output interface outactFiremenCoordinator {
76     operation oeRequestHelp(AetTeamType: etTeamType, ARequestedNumber:ptInteger) : ptBoolean
77   }
78 }
79
80 actor actPoliceCoordinator role rnPoliceCoordinator cardinality [1..*] extends
   actAbstractDispatchCoordinator {
81
82   operation init() : ptBoolean
83
84   input interface inactPoliceCoordinator {
85   }
86
87   output interface outactPoliceCoordinator {
88   }
89 }
90
91 actor actTowServiceCoordinator role rnTowServiceCoordinator cardinality [1..*] extends
   actAbstractDispatchCoordinator {
92
93   operation init() : ptBoolean
94
95   input interface inactTowServiceCoordinator {
96   }
97
98   output interface outactTowServiceCoordinator {
99   }
100 }
101 }
102 }
103 }
```

Listing B.13: Messir Spec. file environment.msr.

B.14 File ./src-gen/messir-spec/concepts/primarytypes-associations/primarytypes-associations.msr

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.associations {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.classes
13 import lu.uni.lassy.excalibur.group09.spec.environment
14
15 Concept Model {
16
17 Primary Types {
18
19   association assctCrisisEventctHuman
20   ctCrisisEvent(rnctCrisisEvent)[1..1]
21   ctHuman(rnctHuman)[1..*]
22 }
```

```

23 association assctCrisisEventctMapWithPin
24   ctCrisisEvent(rnctCrisisEvent) [1..1]
25   ctMapWithPin(rndtMapWithPin) [1..1]
26
27 association assDispatchedCoordinatorctMapWithPin
28   ctDispatchedCoordinator(rnctDispatchedCoordinator) [1..1]
29   ctMapWithPin(rndtMapWithPin) [1..1]
30
31 association assClassActorDispatchCoordinator
32   ctDispatchedCoordinator(rnctDispatchedCoordinator) [1..1]
33   actAbstractDispatchCoordinator(rnactAbstractDispatchCoordinator) [1..1]
34
35 association assctDispatchedCoordinatorctCrisisEvent
36   ctDispatchedCoordinator(rnctDispatchedCoordinator) [2..*]
37   ctCrisisEvent(rnctCrisisEvent) [1..1]
38
39 association assctCommentctCrisisEvent
40   ctComment(rnctComment) [0..*]
41   ctCrisisEvent(rnctCrisisEvent) [1..1]
42
43 association assctCommentctDispatchedCoordinator
44   ctComment(rnctComment) [0..*]
45   ctDispatchedCoordinator(rnctDispatchedCoordinator) [1..1]
46
47 association assctCommentctCentralCoordinator
48   ctComment(rnctComment) [0..*]
49   actCentralCoordinator(rnactCentralCoordinator) [1..1]
50
51 }
52 }
53 }
```

Listing B.14: Messir Spec. file primarytypes-associations.msr.

B.15 File [./src-gen/messir-spec/concepts/primarytypes-classes/primarytypes-classes.msr](#)

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.classes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
13 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
14
15 import lu.uni.lassy.messir.libraries.primitives
16
17 Concept Model {
18
19   Primary Types {
20
21     state class ctState {
22       attribute vpStarted: ptBoolean
23       attribute nextValueForAlertID: ptInteger
24       operation init( ANextValueForAlertID: ptInteger,
25         AvpStarted: ptBoolean
26       ): ptBoolean
27     }
28
29     class ctHuman role rnHuman cardinality [1..*] {
30       attribute id: dtPhoneNumber
31       attribute name: ptString
32     }
33   }
34 }
```

```

32 attribute type: etHumanType
33
34 operation init( Aid:dtPhoneNumber,
35     Aname:ptString,
36     Atype:etHumanType
37 ) : ptBoolean
38
39 }
40
41 class ctCrisisEvent role rnCrisisEvent cardinality [1..*] {
42     attribute id: dtCrisisID
43     attribute location: dtMapWithPin
44     attribute isLocationConfirmed: ptBoolean
45     attribute geoPos: dtGeoPos
46
47     operation init( Aid:dtCrisisID,
48         Alocation:dtMapWithPin,
49         AisLocationConfirmed:ptBoolean,
50         Acomment:ptString,
51         AgeoPos:dtGeoPos
52     ) : ptBoolean
53
54 }
55
56 class ctComment role rnComment cardinality [0..*] {
57     attribute comment: dtComment
58
59     operation init( AComment: dtComment
60
61     ) : ptBoolean
62 }
63
64 class ctDispatchedCoordinator role rnDispatchedCoordinator cardinality [1..*] {
65     attribute type: etTeamType
66     attribute status: etDispatchStatus
67     attribute geoPos: dtGeoPos
68     attribute isFree: ptBoolean
69
70     operation init( Atype:etTeamType,
71         Astatus:etDispatchStatus,
72         AgeoPos:dtGeoPos
73     ) : ptBoolean
74 }
75
76 class ctMapWithPin role rnMapWithPin cardinality [1..*] {
77     attribute mapWithPin: dtMapWithPin
78
79     operation init( AmapWithPin:dtMapWithPin
80     ) : ptBoolean
81
82     operation isMapWithPin(AGeoPos1:dtGeoPos, AGeoPos2:dtGeoPos, AdtMapWithPin:dtMapWithPin) :
83         ptBoolean
84 }
85 }
86 }
87 }

```

Listing B.15: Messir Spec. file primarytypes-classes.msr.

B.16 File [./src-gen/messir-spec/concepts/primarytypes-datatype](#)s/primarytypes-datatype

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5

```

```

6 package lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
13
14 Concept Model {
15
16 Primary Types {
17
18     datatype dtGeoPos{
19         attribute latitude: dtLatitude
20         attribute longitude: dtLongitude
21         operation is() : ptBoolean
22     }
23
24     enum etDispatchStatus {
25         constants["InStation", "InTransit", "Arrived"]
26         operation is() : ptBoolean
27     }
28
29     enum etHumanType {
30         constants["Victim", "Witness"]
31         operation is() : ptBoolean
32     }
33
34     enum etTeamType {
35         constants["Ambulance", "Police", "TowService"]
36         operation is() : ptBoolean
37     }
38 }
39 }
40 }
```

Listing B.16: Messir Spec. file primarytypes-datatatypes.msr.

B.17 File ./src-gen/messir-spec/concepts/secondarytypes- associations/secondarytypes-associations.msr

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.associations {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Concept Model {
14
15 Secondary Types {
16
17 }
18 }
19 }
```

Listing B.17: Messir Spec. file secondarytypes-associations.msr.

B.18 File ./src-gen/messir-spec/concepts/secondarytypes- classes/secondarytypes-classes.msr

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.classes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Concept Model {
14
15 Secondary Types {
16
17 }
18 }
19 }

```

Listing B.18: Messir Spec. file secondarytypes-classes.msr.

B.19 File ./src-gen/messir-spec/concepts/secondarytypes-datatypes/secondarytypes-datatypes.msr

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
13
14 Concept Model {
15
16 Secondary Types {
17
18 datatype dtPhoneNumber extends dtString {
19     operation is() : ptBoolean
20 }
21
22 datatype dtAddress extends dtString {
23     operation is() : ptBoolean
24 }
25
26 datatype dtCrisisID extends dtInteger {
27     operation is() : ptBoolean
28 }
29
30 datatype dtLongitude extends dtReal {
31     operation is() : ptBoolean
32 }
33
34 datatype dtLatitude extends dtReal {
35     operation is() : ptBoolean
36 }
37
38 datatype dtImage extends dtString {
39     operation is() : ptBoolean
40 }
41
42 datatype dtMapWithPin extends dtImage {
43     operation is() : ptBoolean

```

```

44     }
45
46 datatype dtComment extends dtString {
47     operation is() : ptBoolean
48 }
49 }
50
51 }
52 }
```

Listing B.19: Messir Spec. file secondarytypes-datatatypes.msr.

B.20 File ./src-gen/messir-spec/tests/tests.msr

```

1 /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.tests {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12
13 Test Model {
14
15 }
16
17 }
```

Listing B.20: Messir Spec. file tests.msr.

B.21 File ./src-gen/messir-spec/usecases/usecaseinstance-suGlobalManagementOfEvent-ucisuGlobalManagementOfEvent.msr

```

1 package usecases.ucisuGlobalManagementOfEvent {
2 import lu.uni.lassy.excalibur.group09.spec.usecases
3 import lu.uni.lassy.excalibur.group09.spec.environment
4 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
5
6 Use Case Model {
7
8 use case instance ucisuGlobalManagementOfEvent : suGlobalManagementOfEvent{
9   actors {
10   Camille : actCentralCoordinator
11   Orange : actCommunicationCompany
12   Fabio : actFiremenCoordinator
13   Ted : actTowServiceCoordinator
14   Polo : actPoliceCoordinator
15   }
16
17 use case steps {
18
19   Camille executed instanceof ugCreateNewCrisisEvent() {
20     use case steps {
21       Camille executed instanceof subfunction oeRequestCrisisEventLocation("AdtPhoneNumber=691 12
22           34 56") {
23         ieRequestCrisisEventLocation("691 12 34 56") returned to Orange
24       }
25
26       Orange executed instanceof subfunction oeReceiveCrisisEventLocation("Latitude=75.08,
27           Longitude=23.03") {
28         ieReceiveCrisisEventLocation("environment.rndtMapWithPin.image.value") returned to Camille
29       }
30     }
31   }
32 }
```

```

29     Camille executed instanceof subfunction oeConfirmCrisisEventLocation() {
30         ieConfirmCrisisEventLocation("Done") returned to Camille
31     }
32
33     Camille executed instanceof subfunction oeCreateNewCrisisEvent("AdtCrisisID=1", "AdtName=
34         Walter", "AenHumanType=Witness", "AdtPhoneNumberX=691123456", "environment.rndtMapWithPin
35         .image.value", "No additional comments") {
36         ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "environment.rndtMapWithPin.image
37             .value", "No additional comments") returned to Fabio
38         ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "environment.rndtMapWithPin.image
39             .value", "No additional comments") returned to Ted
40     }
41 }
42
43
44 Fabio executed instanceof ugGlobalDispatchManagement() {
45     use case steps {
46         Fabio executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatus="InTransit") {
47             ieMessage("Dispatch Status Updated.") returned to Fabio
48         }
49
50         Ted executed instanceof subfunction oeRefreshMap("AdtCrisisID=1") {
51             ieReceiveMap("environment.rndtMapWithPin.image.value") returned to Ted
52         }
53
54         Ted executed instanceof subfunction oeMessage("AMessage=I will arrive in 30 minutes") {
55             ieMessage("I will arrive in 30 minutes") returned to Camille
56             ieMessage("I will arrive in 30 minutes") returned to Fabio
57             ieMessage("I will arrive in 30 minutes") returned to Ted
58         }
59
60         Ted executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusX="InTransit") {
61             ieMessage("Dispatch Status Updated.") returned to Ted
62         }
63
64         Fabio executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXX="Arrived") {
65             ieMessage("Dispatch Status Updated.") returned to Fabio
66         }
67
68         Fabio executed instanceof subfunction oeRequestHelp(AenTeamType="Police", RequestedNumber="1"
69             ) {
70             ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "environment.rndtMapWithPin.image
71                 .value") returned to Polo
72         }
73
74         Polo executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXX="InTransit")
75             {
76                 ieMessage("Dispatch Status Updated.") returned to Polo
77             }
78
79         Ted executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXX="Arrived") {
80             ieMessage("Dispatch Status Updated.") returned to Ted
81         }
82
83     }
84 }
85 }
```

Listing B.21: Messir Spec. file
 usecaseinstance-suGlobalManagementOfEvent-ucisuGlobalManagementOfEvent.msr.

B.22 File ./.src-gen/messir-spec/usecases/usecaseinstance-ugCreateNewCrisisEvent-uciugCreateNewCrisisEvent.msr

```

1 package usecases.uciugCreateNewCrisisEvent {
2   import lu.uni.lassy.excalibur.group09.spec.usecases
3   import lu.uni.lassy.excalibur.group09.spec.usecases
4   import lu.uni.lassy.excalibur.group09.spec.environment
5   import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
6
7   Use Case Model {
8     use case instance uciugCreateNewCrisisEvent : ugCreateNewCrisisEvent {
9       actors {
10         Camille : actCentralCoordinator
11         Orange : actCommunicationCompany
12         Fabio : actFiremenCoordinator
13         Ted : actTowServiceCoordinator
14     }
15
16     use case steps {
17       Camille executed instanceof subfunction oeInitialiseNewCrisisEvent() {
18     }
19
20       Camille executed instanceof subfunction oeRequestCrisisEventLocation("AdtPhoneNumber=691 12 34
21           56") {
22         ieRequestCrisisEventLocation("691 12 34 56") returned to Orange
23     }
24
25       Orange executed instanceof subfunction oeReceiveCrisisEventLocation("Latitude=75.08, Longitude
26           =23.03") {
27         ieReceiveCrisisEventLocation("A string for the image with the pins") returned to Camille
28     }
29
30       Camille executed instanceof subfunction oeConfirmCrisisEventLocation() {
31         ieConfirmCrisisEventLocation("Done") returned to Camille
32     }
33
34       Camille executed instanceof subfunction oeCreateNewCrisisEvent("AdtName=Walter", "AenHumanType=
35           Witness", "AdtPhoneNumber=691123456", "A string for the image with the pins", "The Witness
36           can't stay at the accident's location for long.") {
37         ieReceiveNewCrisisEvent("1", "You have received a new Crisis Event Dispatch Order!") returned to
38             Fabio
39         ieReceiveNewCrisisEvent("1", "You have received a new Crisis Event Dispatch Order!") returned to
40             Ted
41     }
42   }
43 }
44 }
```

Listing B.22: Messir Spec. file
usecaseinstance-ugCreateNewCrisisEvent-uciugCreateNewCrisisEvent.msr.

B.23 File ./.src-gen/messir-spec/usecases/usecaseinstance-ugGlobalDispatchManagement-uciugGlobalDispatchManagement.msr

```

1 package usecases.uciugGlobalDispatchManagement {
2   import lu.uni.lassy.excalibur.group09.spec.usecases
3   import lu.uni.lassy.excalibur.group09.spec.usecases
4   import lu.uni.lassy.excalibur.group09.spec.environment
5   import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
6
7   Use Case Model {
8     use case instance uciugGlobalDispatchManagement : ugGlobalDispatchManagement {
9       actors {
```

B.23. FILE /.../USECASEINSTANCE-UGGLOBALDISPATCHMANAGEMENT-UCIUGGLOBALDISPATCHMAN

```
10     Camille : actCentralCoordinator
11     Fabio : actFiremenCoordinator
12     Ted : actTowServiceCoordinator
13     Polo : actPoliceCoordinator
14 }
15 use case steps {
16     Fabio executed instanceof subfunction oeGetCrisisEventInformation() {
17         ieReceiveCrisisEventInformation("1", "Walter", "Witness", "691123456", "A string for the image
18             with the pins", "The Witness can't stay at the accident's location for long.") returned to
19                 Fabio
20 }
21     Fabio executed instanceof subfunction oeUpdateDispatchStatus("AenDispatchStatus=InTransit") {
22         ieMessageAbstractDispatchCoordinator("Dispatch Status Updated.") returned to Fabio
23 }
24     Ted executed instanceof subfunction oeGetCrisisEventInformation() {
25         ieReceiveCrisisEventInformation("1", "Walter", "Witness", "691123456", "A string for the image
26             with the pins", "The Witness can't stay at the accident's location for long.") returned to
27                 Ted
28 }
29     Ted executed instanceof subfunction oeRefreshMap("Latitude=80.57, Longitude=50.23") {
30         ieReceiveMap("A string for the image with the pins") returned to Ted
31 }
32     Ted executed instanceof subfunction oeMessage("AdtComment=I will arrive in 30 minutes") {
33         ieMessageCentralCoordinator("I will arrive in 30 minutes") returned to Camille
34         ieMessageAbstractDispatchCoordinator("I will arrive in 30 minutes") returned to Fabio
35         ieMessageAbstractDispatchCoordinator("I will arrive in 30 minutes") returned to Ted
36 }
37
38     Ted executed instanceof subfunction oeUpdateDispatchStatus("AenDispatchStatus=InTransit") {
39         ieMessageAbstractDispatchCoordinator("Dispatch Status Updated.") returned to Ted
40 }
41
42     Fabio executed instanceof subfunction oeUpdateDispatchStatus("AenDispatchStatus=Arrived") {
43         ieMessageAbstractDispatchCoordinator("Dispatch Status Updated.") returned to Fabio
44 }
45
46     Fabio executed instanceof subfunction oeRequestHelp("AenTeamType=Police", "RequestedNumber=1")
47         {
48             ieReceiveNewCrisisEvent("1", "You have received a new Crisis Event Dispatch Order!") returned
49                 to Polo
50 }
51
52     Polo executed instanceof subfunction oeGetCrisisEventInformation() {
53         ieReceiveCrisisEventInformation("1", "Walter", "Witness", "691123456", "A string for the image
54             with the pins", "The Witness can't stay at the accident's location for long.") returned to
55                 Polo
56 }
57
58     Ted executed instanceof subfunction oeUpdateDispatchStatus("AenDispatchStatus=InTransit") {
59         ieMessageAbstractDispatchCoordinator("Dispatch Status Updated.") returned to Polo
60 }
61
62     Polo executed instanceof subfunction oeUpdateDispatchStatus("AenDispatchStatus=Arrived") {
63         ieMessageAbstractDispatchCoordinator("Dispatch Status Updated.") returned to Polo
64 }
65
66     Fabio executed instanceof subfunction oeCloseCrisisEvent() {
67 }
68
69     Ted executed instanceof subfunction oeCloseCrisisEvent() {
70 }
71 }
```

```

72     Polo executed instanceof subfunction oeCloseCrisisEvent() {
73     }
74
75     }
76     }
77     }
78 }
```

Listing B.23: Messir Spec. file
usecaseinstance-ugGlobalDispatchManagement-uciugGlobalDispatchManagement.msr.

B.24 File ./src-gen/messir-spec/usecases/usecases.msr

```

1  /*
2 * @author Kira
3 * @date Tue Oct 25 23:54:03 CEST 2016
4 */
5
6 package lu.uni.lassy.excalibur.group09.spec.usecases {
7
8 import lu.uni.lassy.messir.libraries.calendar
9 import lu.uni.lassy.messir.libraries.math
10 import lu.uni.lassy.messir.libraries.primitives
11 import lu.uni.lassy.messir.libraries.string
12 import lu.uni.lassy.excalibur.group09.spec.environment
13 import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
14 import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes
15
16 Use Case Model {
17
18   use case system summary suGlobalManagementOfEvent() {
19     actor actCentralCoordinator[primary, active]
20     actor actCommunicationCompany[secondary, active]
21     actor actFiremenCoordinator[secondary, active]
22     actor actTowServiceCoordinator[secondary, active]
23
24     reuse ugCreateNewCrisisEvent[1...*]
25     reuse ugGlobalDispatchManagement[1...*]
26
27     step a: actCentralCoordinator executes ugCreateNewCrisisEvent
28     step b: actFiremenCoordinator executes ugGlobalDispatchManagement
29     step c: actTowServiceCoordinator executes ugGlobalDispatchManagement
30
31     ordering constraint "step (a) must be executed before step (b) or step (c)"
32     ordering constraint "step (b) XOR step (c)"
33
34   }
35
36   use case system usergoal ugCreateNewCrisisEvent() {
37     actor actCentralCoordinator[primary, active]
38     actor actCommunicationCompany[secondary, active]
39     actor actFiremenCoordinator[secondary, passive]
40     actor actTowServiceCoordinator[secondary, passive]
41
42     reuse oeInitialiseNewCrisisEvent[1...*]
43     reuse oeRequestCrisisEventLocation[0...*]
44     reuse oeReceiveCrisisEventLocation[0...*]
45     reuse oeConfirmCrisisEventLocation[1...*]
46     reuse oeCreateNewCrisisEvent[1...*]
47
48     step a: actCentralCoordinator executes oeInitialiseNewCrisisEvent
49     step b: actCentralCoordinator executes oeRequestCrisisEventLocation
50     step c: actCommunicationCompany executes oeReceiveCrisisEventLocation
51     step d: actCentralCoordinator executes oeConfirmCrisisEventLocation
52     step e: actCentralCoordinator executes oeCreateNewCrisisEvent
53
54     ordering constraint "step (a) must be executed first"
55     ordering constraint "if step (c) then previously step (b)"
56     ordering constraint "step (d) must be executed before step (e)"
57 }
```

```

57
58 }
59
60 use case system usergoal ugGlobalDispatchManagement() {
61   actor actFiremenCoordinator[primary, active]
62   actor actTowServiceCoordinator[primary, active]
63   actor actCentralCoordinator[secondary, passive]
64   actor actPoliceCoordinator[secondary, active]
65
66   reuse oeGetCrisisEventInformation[2...*]
67   reuse oeUpdateDispatchStatus[4...*]
68   reuse oeRefreshMap[0...*]
69   reuse oeMessage[0...*]
70   reuse oeRequestHelp[0...*]
71   reuse oeCloseCrisisEvent[2...*]
72
73   step a: actFiremenCoordinator executes oeGetCrisisEventInformation
74   step b: actFiremenCoordinator executes oeUpdateDispatchStatus
75   step c: actTowServiceCoordinator executes oeGetCrisisEventInformation
76   step d: actTowServiceCoordinator executes oeUpdateDispatchStatus
77   step e: actTowServiceCoordinator executes oeRefreshMap
78   step f: actTowServiceCoordinator executes oeMessage
79   step g: actFiremenCoordinator executes oeRequestHelp
80   step h: actPoliceCoordinator executes oeGetCrisisEventInformation
81   step i: actPoliceCoordinator executes oeUpdateDispatchStatus
82   step j: actFiremenCoordinator executes oeCloseCrisisEvent
83   step k: actTowServiceCoordinator executes oeCloseCrisisEvent
84   step l: actPoliceCoordinator executes oeCloseCrisisEvent
85
86   ordering constraint "if step (b) then previously step (a)"
87   ordering constraint "if step (d) then previously step (c)"
88   ordering constraint "step (h) can only be executed if step (g) has at least been executed once
     previously"
89   ordering constraint "if step (i) then previously step (h)"
90   ordering constraint "if step (j) then previously step (b) at least two times"
91   ordering constraint "if step (k) then previously step (d) at least two times"
92   ordering constraint "if step (l) then previously step (i) at least two times"
93 }
94
95 use case system subfunction oeInitialiseNewCrisisEvent() {
96   actor actCentralCoordinator[primary, active]
97   //RETURN ADD EVENT NEW WINDOW ??
98 }
99
100 use case system subfunction oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) {
101   actor actCentralCoordinator[primary, active]
102   actor actCommunicationCompany[secondary, passive]
103   returned messages{
104     ieRequestCrisisEventLocation(AdtPhoneNumber) returned to actCommunicationCompany //Slide 208..
105   }
106 }
107
108 use case system subfunction oeReceiveCrisisEventLocation(AdtGeoPos:dtGeoPos) {
109   actor actCommunicationCompany[primary, active]
110   actor actCentralCoordinator[secondary, passive]
111   returned messages{
112     ieReceiveCrisisEventLocation(AdtMapWithPin) returned to actCentralCoordinator
113   }
114 }
115
116 use case system subfunction oeConfirmCrisisEventLocation() {
117   actor actCentralCoordinator[primary, active]
118   returned messages{
119     ieConfirmCrisisEventLocation() returned to actCentralCoordinator
120   }
121 }
122
123 use case system subfunction oeCreateNewCrisisEvent(AdtName:ptString, AetHumanType:etHumanType,
     AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtMapWithPin, AdtComment:dtComment) {
124   actor actCentralCoordinator[primary, active]

```

```

125 actor actAbstractDispatchCoordinator[secondary,passive]
126 returned messages{
127   ieReceiveNewCrisisEvent(AdtCrisisID, AdtMessage) returned to actAbstractDispatchCoordinator
128 }
129 }
130
131 use case system subfunction oeGetCrisisEventInformation(AdtGeoPos:dtGeoPos) {
132   actor actAbstractDispatchCoordinator[primary,active]
133   returned messages{
134     ieReceiveCrisisEventInformation (AdtCrisisID, AdtName, AetHumanType, AdtPhoneNumber,
135       AdtMapWithPin, AdtComment) returned to actAbstractDispatchCoordinator
136   }
137 }
138 use case system subfunction oeMessage(AdtComment:dtComment) {
139   actor actAbstractDispatchCoordinator[primary,active]
140   actor actCentralCoordinator[secondary, passive]
141   actor actAbstractDispatchCoordinator[secondary, multiple]
142   returned messages{
143     ieMessageAbstractDispatchCoordinator(AdtComment) returned to actAbstractDispatchCoordinator
144     ieMessageCentralCoordinator(AdtComment) returned to actCentralCoordinator
145   }
146 }
147
148 use case system subfunction oeUpdateDispatchStatus(AetDispatchStatus:etDispatchStatus){
149   actor actAbstractDispatchCoordinator[primary,active]
150   returned messages{
151     ieMessageAbstractDispatchCoordinator(AdtComment) returned to actAbstractDispatchCoordinator
152   }
153 }
154
155 use case system subfunction oeRefreshMap(AdtGeoPos:dtGeoPos) {
156   actor actAbstractDispatchCoordinator[primary,active]
157   returned messages{
158     ieReceiveMap(AdtMapWithPin) returned to actAbstractDispatchCoordinator
159   }
160 }
161
162 use case system subfunction oeRequestHelp(AetTeamType: etTeamType, RequestedNumber:ptInteger) {
163   actor actFiremenCoordinator[primary,active]
164   actor actAbstractDispatchCoordinator[secondary,passive]
165   returned messages{
166     ieReceiveNewCrisisEvent(AdtCrisisID, AdtMessage) returned to actAbstractDispatchCoordinator
167   }
168 }
169
170 use case system subfunction oeCloseCrisisEvent() {
171   actor actAbstractDispatchCoordinator[primary,active]
172 }
173
174 }
175
176 }

```

Listing B.24: Messir Spec. file usecases.msr.

