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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 [1] 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 Cockburn template [2].

### 2.3.1 Use Cases

#### 2.3.1.1 summary-suGlobalManagementOfEvent

Shows the suGlobaManagementOfEvent use-case and its actors.

USE-CASE DESCRIPTION	
<i>Name</i>	suGlobalManagementOfEvent
<i>Scope</i>	system
<i>Level</i>	summary
<b>Primary actor(s)</b>	
1	actCentralCoordinator[active]
<b>Secondary actor(s)</b>	
1	actCommunicationCompany[active]
2	actFiremenCoordinator[active]
3	actTowServiceCoordinator[active]
4	actPoliceCoordinator[active]
<b>Goal(s) description</b>	
Shows the suGlobaManagementOfEvent use-case and its actors.	
<b>Protocol condition(s)</b>	
1	
<b>Pre-condition(s)</b>	
1	
<b>Main post-condition(s)</b>	
1	
<b>Main Steps</b>	
a	the actor actCentralCoordinator executes the <u>ugCreateNewCrisisEvent</u> use case
b	the actor actFiremenCoordinator executes the <u>ugGlobalDispatchManagement</u> use case
c	the actor actTowServiceCoordinator executes the <u>ugGlobalDispatchManagement</u> use case
<b>Steps Ordering Constraints</b>	

*continues in next page ...*

**... Use-Case Description table continuation**

1	step (a) must be executed before step (b) or step (c)
2	step (b) XOR step (c)
<b>Additional Information</b>	
none	

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

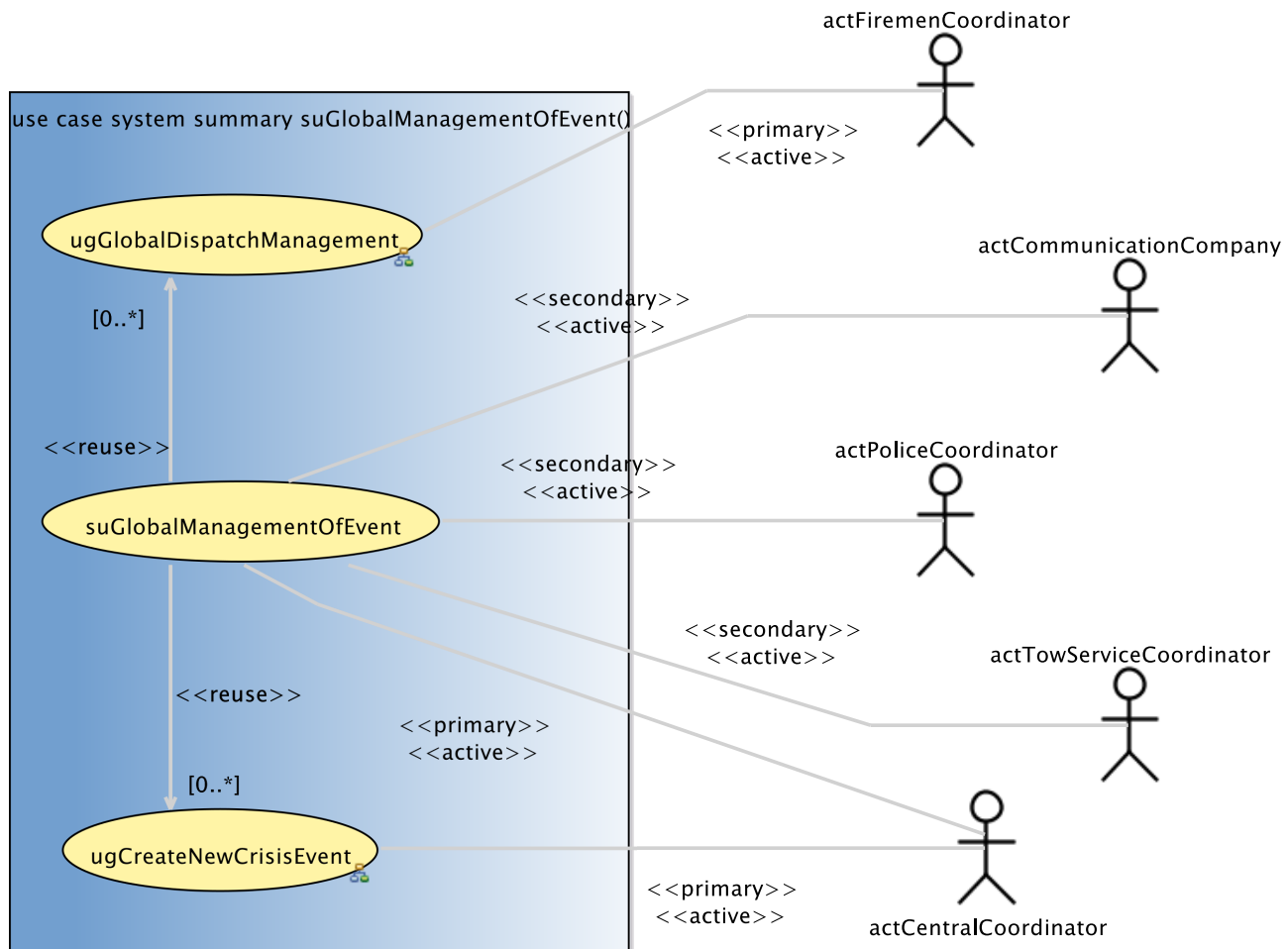


Figure 2.1:

**2.3.1.2 usergoal-ugCreateNewCrisisEvent**

Shows the ugCreateNewCrisisEvent use-case and its actors.

USE-CASE DESCRIPTION	
Name	ugCreateNewCrisisEvent
Scope	system
Level	usergoal
Primary actor(s)	

*continues in next page ...*

**... Use-Case Description table continuation**

1	actCentralCoordinator[active]
<b>Secondary actor(s)</b>	
1	actCommunicationCompany[active]
2	actFiremenCoordinator[passive]
3	actTowServiceCoordinator[passive]
<b>Goal(s) description</b>	
Shows the ugCreateNewCrisisEvent use-case and its actors.	
<b>Reuse</b>	
1	<u>oeRequestCrisisEventLocation</u> [0..*]
2	<u>oeReceiveCrisisEventLocation</u> [0..*]
3	<u>oeConfirmCrisisEventLocation</u> [1..*]
4	<u>oeCreateNewCrisisEvent</u> [1..*]
<b>Protocol condition(s)</b>	
1	
<b>Pre-condition(s)</b>	
1	
<b>Main post-condition(s)</b>	
1	
<b>Main Steps</b>	
a	the actor actCentralCoordinator executes the <u>oeRequestCrisisEventLocation</u> use case
b	the actor actCommunicationCompany executes the <u>oeReceiveCrisisEventLocation</u> use case
c	the actor actCentralCoordinator executes the <u>oeConfirmCrisisEventLocation</u> use case
d	the actor actCentralCoordinator executes the <u>oeCreateNewCrisisEvent</u> use case
<b>Steps Ordering Constraints</b>	
1	if (b) then previously (a)
2	step (c) must be executed before step (d)
<b>Additional Information</b>	
none	

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

**2.3.1.3 usergoal-ugGlobalDispatchManagement**

Shows the ugGlobalDispatchManagement use-case and its actors.

USE-CASE DESCRIPTION	
Name	ugGlobalDispatchManagement
Scope	system
Level	usergoal
<b>Primary actor(s)</b>	
1	actFiremenCoordinator[active]
<b>Secondary actor(s)</b>	

*continues in next page ...*

**... Use-Case Description table continuation**

1	actCentralCoordinator[active]
2	actTowServiceCoordinator[active]
3	actPoliceCoordinator[active]
<b>Goal(s) description</b>	
Shows the ugGlobalDispatchManagement use-case and its actors.	
<b>Protocol condition(s)</b>	
1	
<b>Pre-condition(s)</b>	
1	
<b>Main post-condition(s)</b>	
1	
<b>Main Steps</b>	
a	the actor actFiremenCoordinator executes the <u>oeUpdateDispatchStatus</u> use case
b	the actor actTowServiceCoordinator executes the <u>oeRefreshMap</u> use case
c	the actor actTowServiceCoordinator executes the <u>oeMessage</u> use case
d	the actor actTowServiceCoordinator executes the <u>oeUpdateDispatchStatus</u> use case
e	the actor actFiremenCoordinator executes the <u>oeRequestHelp</u> use case
f	the actor actPoliceCoordinator executes the <u>oeUpdateDispatchStatus</u> use case
<b>Steps Ordering Constraints</b>	
1	step (a) must be executed at least two times
2	step (d) must be executed at least two times
3	step (f) can only be executed if step (e) has at least been executed once previously
4	step (f) must be executed at least two times
<b>Additional Information</b>	
none	

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

**2.3.1.4 subfunction-oeConfirmCrisisEventLocation**

sent to confirm the crisis event's location.

USE-CASE DESCRIPTION	
<i>Name</i>	oeConfirmCrisisEventLocation
<i>Scope</i>	system
<i>Level</i>	subfunction
<b>Primary actor(s)</b>	
1	actCentralCoordinator[active]
<b>Goal(s) description</b>	
sent to confirm the crisis event's location.	
<b>Protocol condition(s)</b>	
1	
<b>Pre-condition(s)</b>	
1	
<b>Main post-condition(s)</b>	

**continues in next page ...**

**... Use-Case Description table continuation**

1
<i>Additional Information</i>
none

**2.3.1.5 subfunction-oeCreateNewCrisisEvent**

sent to create an new crisis event and to alert the corresponding coordinators.

USE-CASE DESCRIPTION	
<i>Name</i>	oeCreateNewCrisisEvent
<i>Scope</i>	system
<i>Level</i>	subfunction
<i>Parameters</i>	
AdtCrisisID: dtCrisisID 1	
AdtName: ptString 2	
AetHumanType: etHumanType 3	
AdtPhoneNumber: dtPhoneNumber 4	
AdtMapWithPin: dtMapWithPin 5	
<i>Primary actor(s)</i>	
1	actCentralCoordinator[active]
<i>Secondary actor(s)</i>	
1	actAbstractDispatchCoordinator[passive]
<i>Goal(s) description</i>	
sent to create an new crisis event and to alert the corresponding coordinators.	
<i>Protocol condition(s)</i>	
1	
<i>Pre-condition(s)</i>	
1	
<i>Main post-condition(s)</i>	
1	
<i>Additional Information</i>	
none	

**2.3.1.6 subfunction-oeMessage**

sent to transmit a message.

USE-CASE DESCRIPTION	
<i>Name</i>	oeMessage
<i>Scope</i>	system
<i>Level</i>	subfunction
<i>Parameters</i>	

*continues in next page ...*

**... Use-Case Description table continuation**

AMessage: ptString 1	
<b>Primary actor(s)</b>	
1	actAbstractDispatchCoordinator[active]
<b>Secondary actor(s)</b>	
1	actCentralCoordinator[passive]
2	actAbstractDispatchCoordinator[multiple]
<b>Goal(s) description</b>	
sent to transmit a message.	
<b>Protocol condition(s)</b>	
1	
<b>Pre-condition(s)</b>	
1	
<b>Main post-condition(s)</b>	
1	
<b>Additional Information</b>	
none	

**2.3.1.7 subfunction-oeReceiveCrisisEventLocation**

sent to return a map with pin.

USE-CASE DESCRIPTION	
<i>Name</i>	oeReceiveCrisisEventLocation
<i>Scope</i>	system
<i>Level</i>	subfunction
<b>Parameters</b>	
AdtMapWithPin: dtMapWithPin 1	
<b>Primary actor(s)</b>	
1	actCommunicationCompany[active]
<b>Secondary actor(s)</b>	
1	actCentralCoordinator[passive]
<b>Goal(s) description</b>	
sent to return a map with pin.	
<b>Protocol condition(s)</b>	
1	
<b>Pre-condition(s)</b>	
1	
<b>Main post-condition(s)</b>	
1	
<b>Additional Information</b>	
none	

**2.3.1.8 subfunction-oeRefreshMap**

sent to refresh the map.

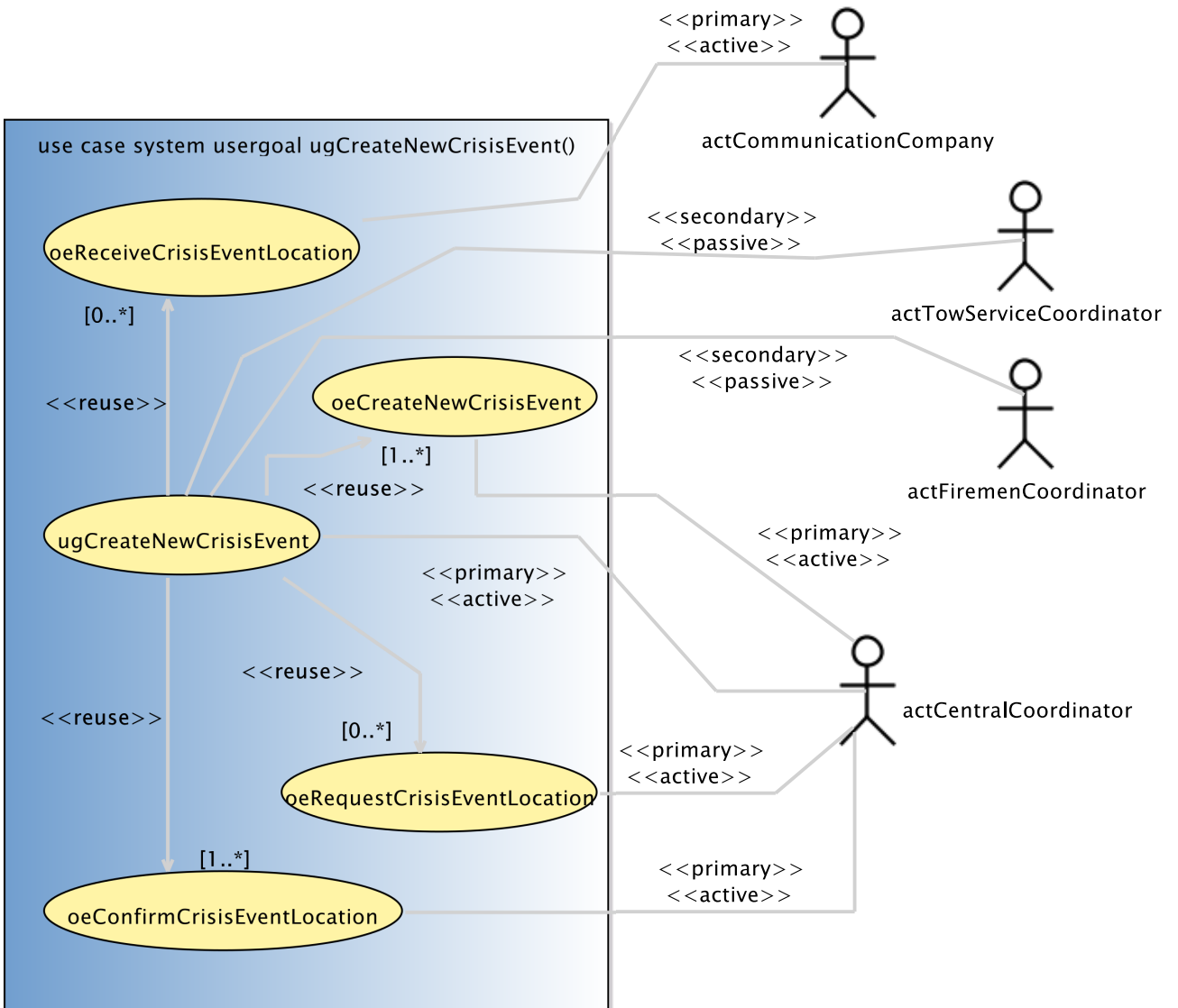


Figure 2.2:



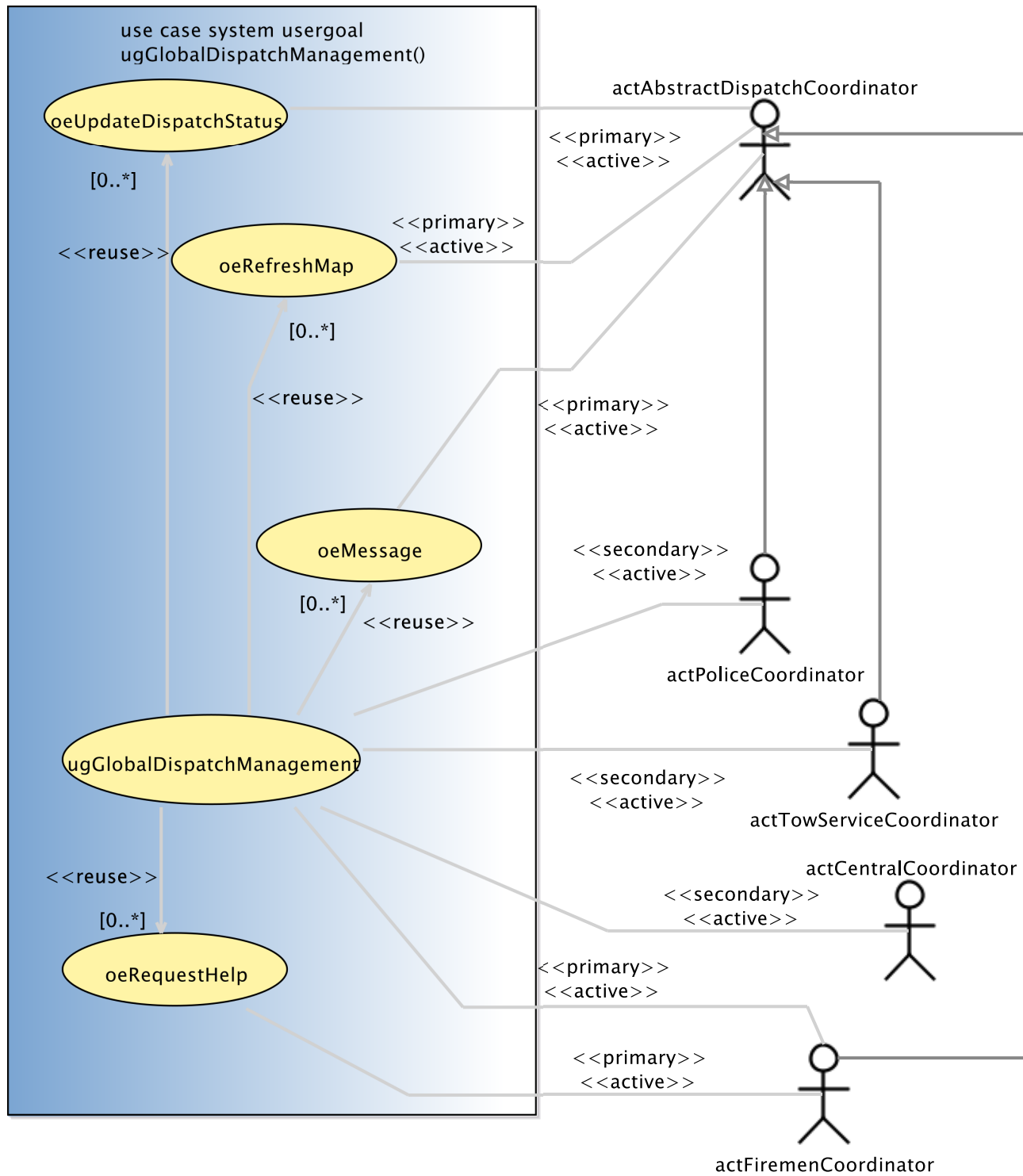


Figure 2.3:

USE-CASE DESCRIPTION	
<i>Name</i>	oeRefreshMap
<i>Scope</i>	system
<i>Level</i>	subfunction
<b><i>Parameters</i></b>	
AdtCrisisID: dtCrisisID 1	
<b><i>Primary actor(s)</i></b>	
1	actAbstractDispatchCoordinator[active]
<b><i>Goal(s) description</i></b>	
sent to refresh the map.	
<b><i>Protocol condition(s)</i></b>	
1	
<b><i>Pre-condition(s)</i></b>	
1	
<b><i>Main post-condition(s)</i></b>	
1	
<b><i>Additional Information</i></b>	
none	

### 2.3.1.9 subfunction-oeRequestCrisisEventLocation

sent to request a crisis event's location.

USE-CASE DESCRIPTION	
<i>Name</i>	oeRequestCrisisEventLocation
<i>Scope</i>	system
<i>Level</i>	subfunction
<b><i>Parameters</i></b>	
AdtPhoneNumber: dtPhoneNumber 1	
<b><i>Primary actor(s)</i></b>	
1	actCentralCoordinator[active]
<b><i>Secondary actor(s)</i></b>	
1	actCommunicationCompany[passive]
<b><i>Goal(s) description</i></b>	
sent to request a crisis event's location.	
<b><i>Protocol condition(s)</i></b>	
1	
<b><i>Pre-condition(s)</i></b>	
1	
<b><i>Main post-condition(s)</i></b>	
1	
<b><i>Additional Information</i></b>	
none	

**2.3.1.10 subfunction-oeRequestHelp**

sent to request help from the corresponding team type.

USE-CASE DESCRIPTION	
<i>Name</i>	oeRequestHelp
<i>Scope</i>	system
<i>Level</i>	subfunction
<b><i>Parameters</i></b>	
AetTeamType: etTeamType 1	
RequestedNumber: ptInteger 2	
<b><i>Primary actor(s)</i></b>	
1	actFiremenCoordinator[active]
<b><i>Secondary actor(s)</i></b>	
1	actAbstractDispatchCoordinator[passive]
<b><i>Goal(s) description</i></b>	
sent to request help from the corresponding team type.	
<b><i>Protocol condition(s)</i></b>	
1	
<b><i>Pre-condition(s)</i></b>	
1	
<b><i>Main post-condition(s)</i></b>	
1	
<b><i>Additional Information</i></b>	
none	

**2.3.1.11 subfunction-oeUpdateDispatchStatus**

sent to update the dispatch status.

USE-CASE DESCRIPTION	
<i>Name</i>	oeUpdateDispatchStatus
<i>Scope</i>	system
<i>Level</i>	subfunction
<b><i>Parameters</i></b>	
AetDispatchStatus: etDispatchStatus 1	
<b><i>Primary actor(s)</i></b>	
1	actAbstractDispatchCoordinator[active]
<b><i>Goal(s) description</i></b>	
sent to update the dispatch status.	
<b><i>Protocol condition(s)</i></b>	
1	
<b><i>Pre-condition(s)</i></b>	
1	
<b><i>Main post-condition(s)</i></b>	

*continues in next page ...*

**... Use-Case Description table continuation**

1
<i>Additional Information</i>
none

### 2.3.2 Use Case Instance(s)

#### 2.3.2.1 Use-Case Instance - ucisuGlobalManagementOfEvent:suGlobalManagementOfEvent

Shows the suGlobaManagementOfEvent instance.

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

Figure 2.4 Shows the suGlobaManagementOfEvent instance.

#### 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 2.5 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 2.6 Shows the ugGlobalDispatchManagement instance.

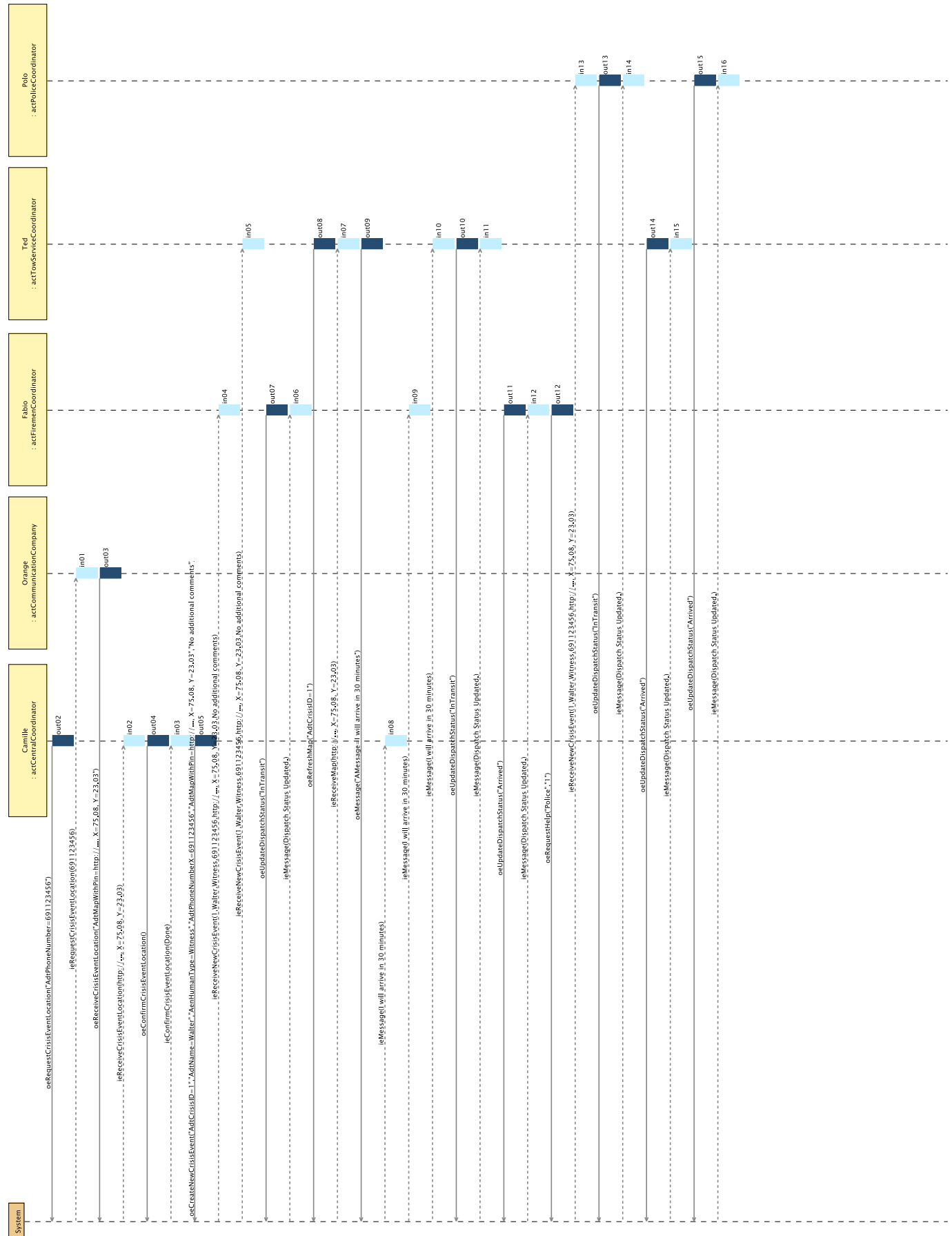


Figure 2.4: suGlobaManagementOfEvent

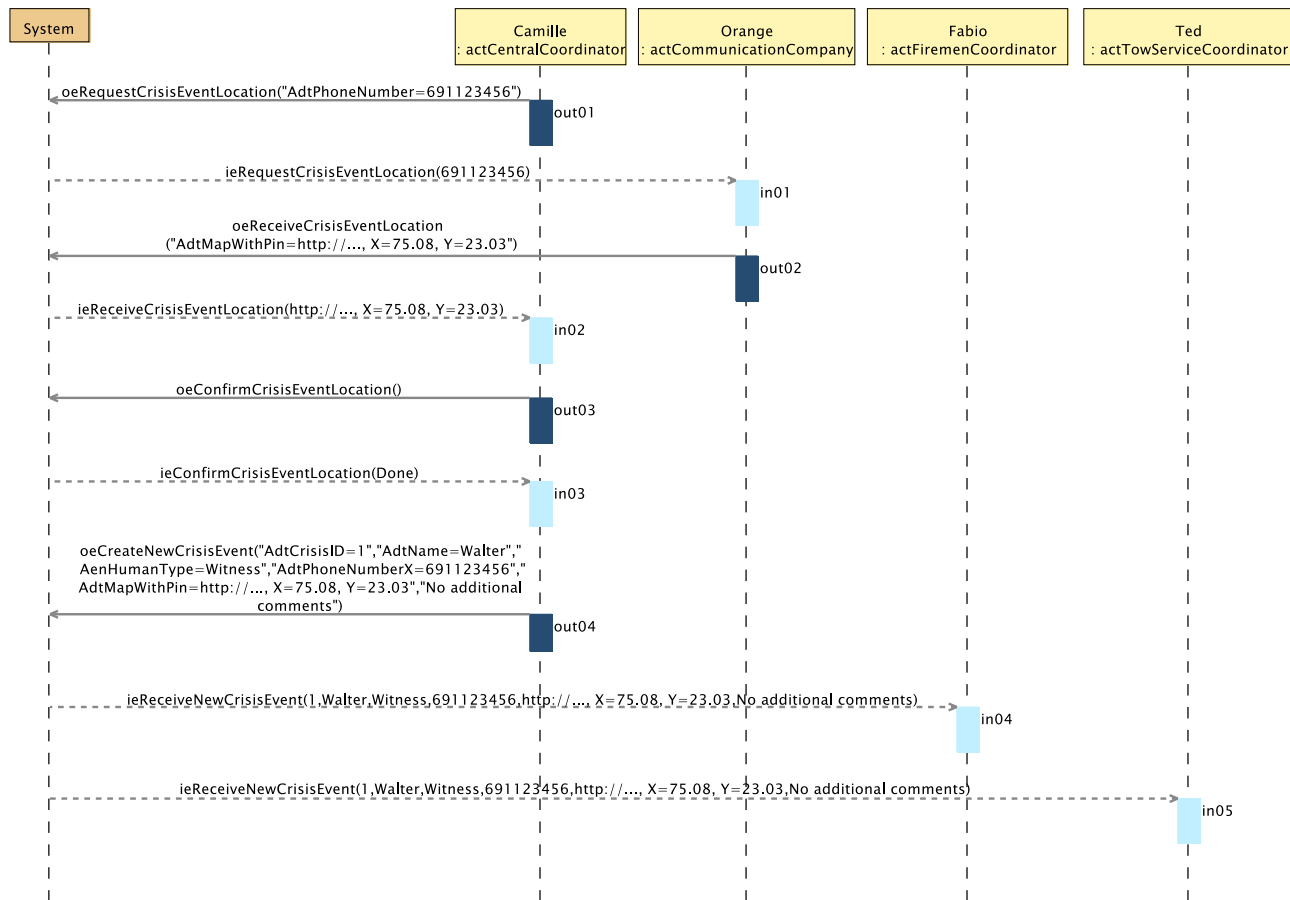
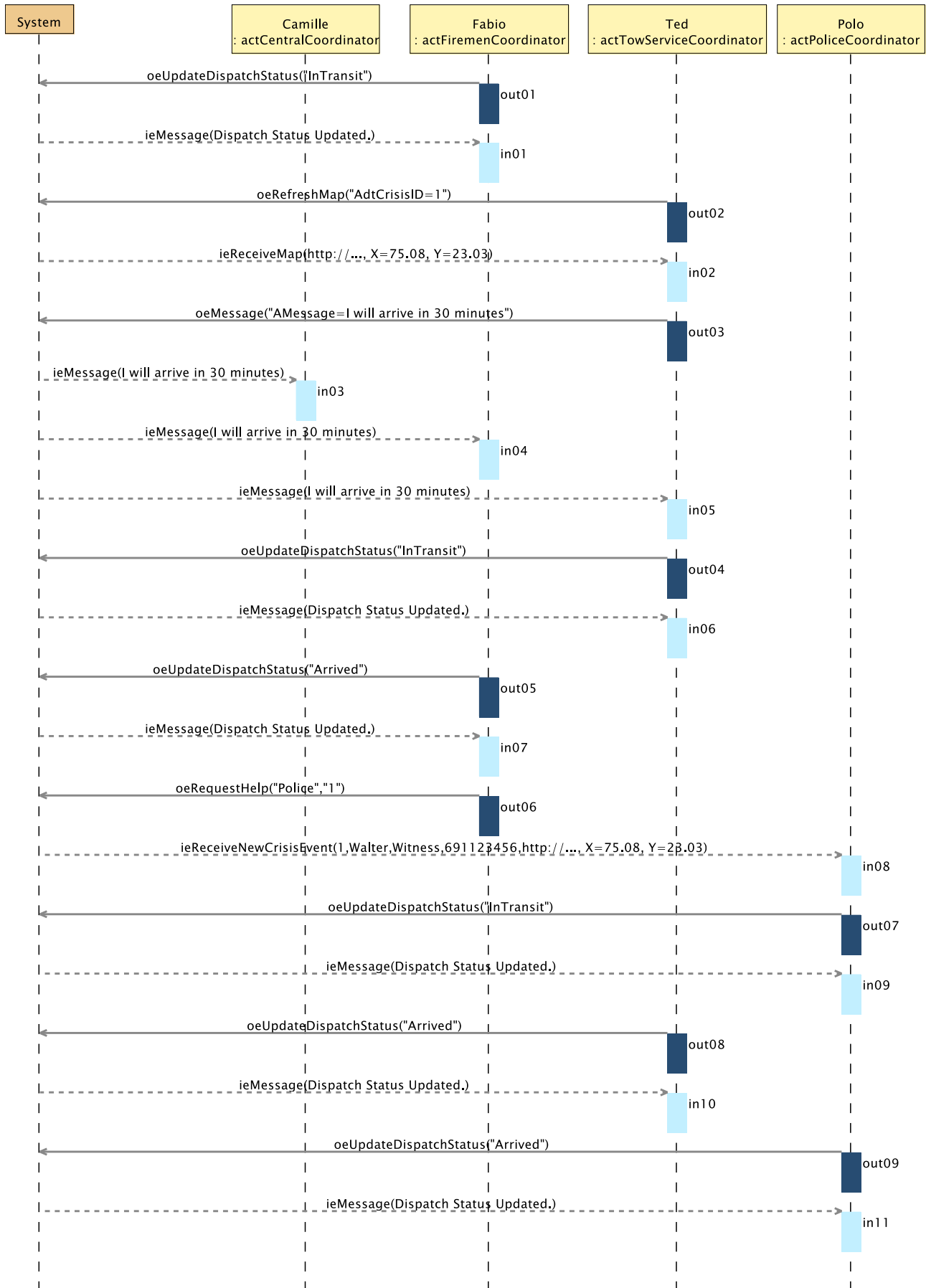


Figure 2.5: ugCreateNewCrisisEvent

Figure 2.6: `ugGlobalDispatchManagement`



## Chapter 3

# Environment Model

### 3.1 Environment model view(s)

There are no view(s) for the **messip** 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	
<b><i>actAbstractDispatchCoordinator</i></b>	
An abstract Actor which brings together the common operations of the FiremanCoordinator, the PoliceCoordinator and the TowServiceCoordinator.	
<b><i>OutputInterfaces</i></b>	
OUT 1	<b>oeMessage (AMessage:ptString) :ptBoolean</b>
OUT 2	<b>oeUpdateDispatchStatus (AetDispatchStatus:etDispatchStatus) :ptBoolean</b>
<b><i>InputInterfaces</i></b>	
IN 1	<b>ieReceiveNewCrisisEvent (AdtCrisisID:dtCrisisID, AdtName:ptString, AetHumanType:etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AMessage:ptString) :ptBoolean</b>
IN 2	<b>ieMessage (AMessage:ptString) :ptBoolean</b>

#### 3.2.2 **actCentralCoordinator** Actor

ACTOR	
<b><i>actCentralCoordinator</i></b>	
Is representing the person that receives the victim's or witness' call in the emergency central.	
<b><i>OutputInterfaces</i></b>	

*continues in next page ...*

... **Actor table continuation**

OUT 1	<code>oeRequestCrisisEventLocation (AdtPhoneNumber:dtPhoneNumber) :ptBoolean</code>
OUT 2	<code>oeMessage (AMessage:ptString) :ptBoolean</code>
OUT 3	<code>oeCreateNewCrisisEvent (AdtCrisisID:dtCrisisID, AdtName:ptString, AetHumanType:etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AMessage:ptString) :ptBoolean</code>
OUT 4	<code>oeConfirmCrisisEventLocation () :ptBoolean</code>
<i>InputInterfaces</i>	
IN 1	<code>ieReceiveCrisisEventLocation (AdtMapWithPin:dtMapWithPin) :ptBoolean</code>
IN 2	<code>ieMessage (AMessage:ptString) :ptBoolean</code>

**3.2.3 actCommunicationCompany Actor**

<b>ACTOR</b>	
<i>actCommunicationCompany</i>	
Is representing any communication company in Luxembourg.	
<i>OutputInterfaces</i>	
OUT 1	<code>oeReceiveCrisisEventLocation (AdtMapWithPin:dtMapWithPin) :ptBoolean</code>
<i>InputInterfaces</i>	
IN 1	<code>ieRequestCrisisEventLocation (AdtPhoneNumber:dtPhoneNumber) :ptBoolean</code>

**3.2.4 actFiremenCoordinator Actor**

<b>ACTOR</b>	
<i>actFiremenCoordinator</i>	
Is representing any firemen team leader able to manage a two Ambulances.	
<i>Extends</i>	
lu.uni.lassy.excalibur.group09.spec.environment.actAbstractDispatchCoordinator	
<i>OutputInterfaces</i>	
OUT 1	<code>oeRequestHelp (AetTeamType:etTeamType, ARequestedNumber:ptInteger) :ptBoolean</code>

**3.2.5 actPoliceCoordinator Actor**

<b>ACTOR</b>	
<i>actPoliceCoordinator</i>	
Is representing a police team leader.	
<i>Extends</i>	

*continues in next page ...*

**... Actor table continuation**

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

**3.2.6 actTowServiceCoordinator Actor**

<b>ACTOR</b>
<b><i>actTowServiceCoordinator</i></b> Is representing a tow service driver.
<b><i>Extends</i></b>
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>ctCrisisEvent</i>	
A class containing the attributes identifying a crisis event.	
attribute	<b>comment: ptString</b>
attribute	<b>id: ptInteger</b>
attribute	<b>isLocationConfirmed: ptBoolean</b>
attribute	<b>location: dtMapWithPin</b>

*continues in next page ...*

**... Classes table continuation**

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

**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	
<b>dtGeoPos</b> Two Real numbers used to identify a geographical position on earth.	
attribute	<b>latitude: dtLatitude</b>
attribute	<b>longitude: dtLongitude</b>
operation	<b>is () :ptBoolean</b>
<b>dtInteger</b> A primary type Integer incuding some basic Integer operations.	
attribute	<b>value: ptInteger</b>

*continues in next page ...*

**... Datatypes table continuation**

<b><i>dtMapWithPin</i></b>	
An image used to identify a map including some pins.	
attribute	<b>image: dtImage</b>
operation	<b>is():ptBoolean</b>
operation	<b>isMapRepresentation():ptBoolean</b>
<b><i>dtReal</i></b>	
A primary type Real incuding some basic Real operations.	
attribute	<b>value: ptReal</b>
<b><i>dtString</i></b>	
A primary type String incuding some basic String operations.	
attribute	<b>value: ptString</b>
operation	<b>is():ptBoolean</b>
operation	<b>length():ptInteger</b>
operation	<b>myStringConcat (AdtString2IN:dtString):dtString</b>

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

<b>UNDIRECTED ASSOCIATIONS</b>	
<b><i>assClassActorDisptachCoordinator</i></b>	
Association of a dispatched coordinator to an actor of the same type.	
<b><i>assctCrisisEventtctHuman</i></b>	
Association of a crisis event to an human.	
<b><i>assctCrisisEventtctMapWithPin</i></b>	
Association of a crisis event with a MapWithPin image.	
<b><i>assctDispatchedCoordinatorctCrisisEvent</i></b>	
Association of a dispatched coordinator to a crisis event.	
<b><i>assDispatchedCoordinatorortctMapWithPin</i></b>	

*continues in next page ...*

### ... **Undirected associations table continuation**

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.

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

*continues in next page ...*



**... Datatypes table continuation**

<i>extends</i>	dtString
operation	<b>is () :ptBoolean</b>

**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.



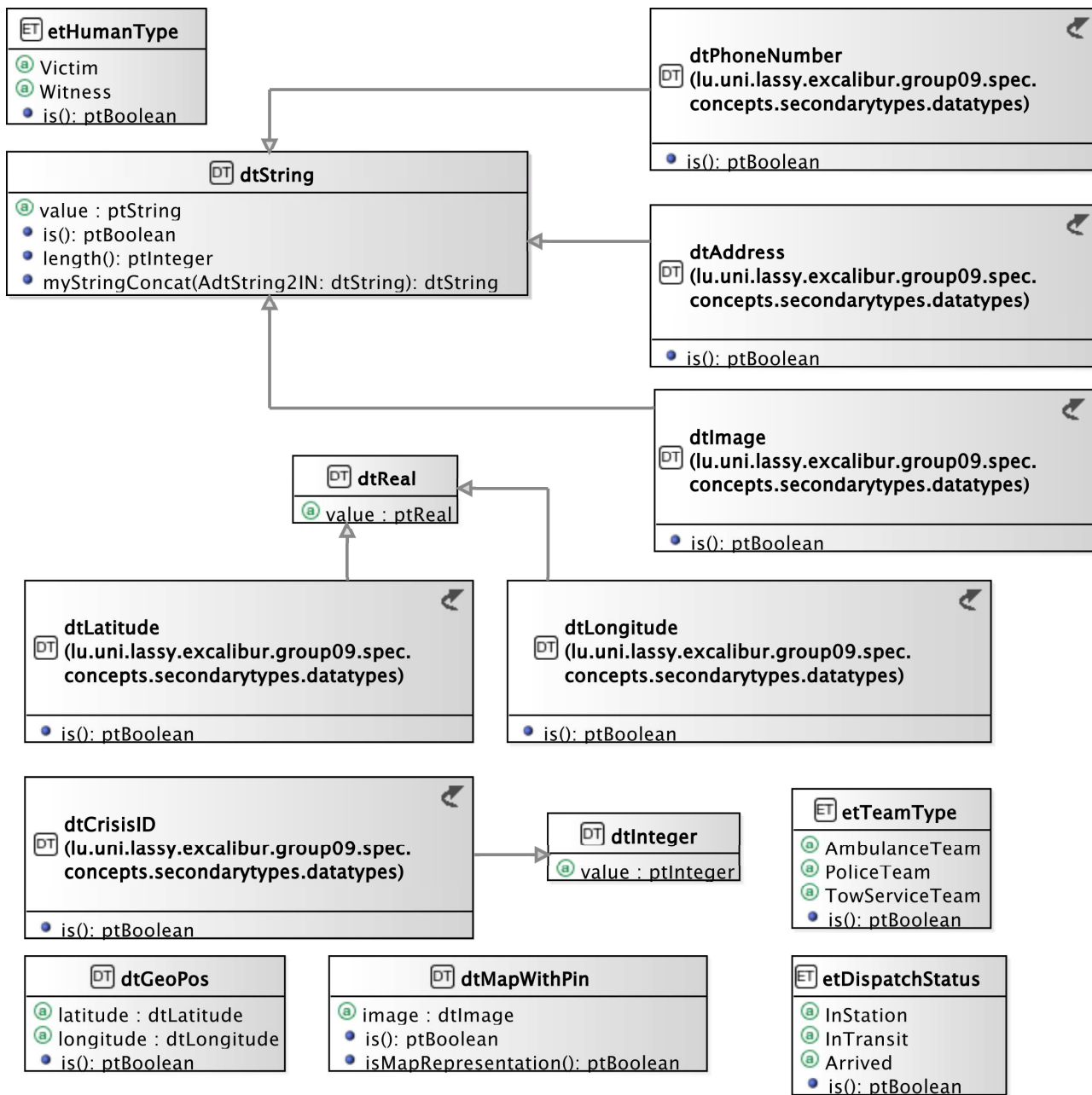


Figure 4.2: Concept Model - PrimaryTypes-Datatypes local view 15. .



## 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 **Messip** OCL code listing is joined to the comment table.

### 5.1 Environment - Out Interface Operation Scheme for actCentralCoordinator

#### 5.1.1 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 <b>AdtPhoneNumber: dtPhoneNumber</b>
<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
<i>Post-Condition (protocol)</i>
PostP 1

### 5.2 Environment - Actor Operation Schemes

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

### **5.3 Primary Types - Operation Schemes for Classes**

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

### **5.4 Primary Types - Operation Schemes for Datatypes**

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

### **5.5 Primary Types - Operation Schemes for Enumerations**

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

### **5.6 Secondary Types - Operation Schemes for Classes**

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

### **5.7 Secondary Types - Operation Schemes for Datatypes**

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

### **5.8 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 Primary Types

#### A.1.1 Undocumented Primary Classe Types

- `lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.classes.ctState`



## 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 uuidff8a216549a64951bf055c8b5a9dde2a {
5   Concept Model {}
6 }
```

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

### B.2 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 */
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.2: Messir Spec. file environment-actCentralCoordinator-oeRequestCrisisEventLocation.msr.

### B.3 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 ieMessage(AMessage:ptString) : ptBoolean
25     }
26
27     output interface outactCentralCoordinator {
28       operation oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) : ptBoolean
29       operation oeMessage(AMessage:ptString) : ptBoolean
30       operation oeCreateNewCrisisEvent(AdtCrisisID:dtCrisisID, AdtName:ptString, AetHumanType:
31         etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AMessage:ptString) :
32         ptBoolean
33       operation oeConfirmCrisisEventLocation() : ptBoolean
34     }
35
36   }
37
38   actor actCommunicationCompany role rnactCommunicationCompany cardinality [1..*] {
39
40     operation init() : ptBoolean
41
42     input interface inactCommunicationCompany {
43       operation ieRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) : ptBoolean
44     }
45
46     output interface outactCommunicationCompany {
47       operation oeReceiveCrisisEventLocation(AdtMapWithPin:dtMapWithPin) : ptBoolean
48     }
49
50   }
51
52   actor actAbstractDispatchCoordinator role rnactAbstractDispatchCoordinator cardinality [1..*] {
53
54     operation init() : ptBoolean
55
56     input interface inactAbstractDispatchCoordinator {
57       operation ieReceiveNewCrisisEvent(AdtCrisisID:dtCrisisID, AdtName:ptString, AetHumanType:
58         etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AMessage:ptString) :
59         ptBoolean
60       operation ieMessage(AMessage: ptString) : ptBoolean
61       operation ieReceiveMap(AdtMapWithPin: dtMapWithPin) : ptBoolean
62     }
63
64   }
65
66 }

```

```

58  output interface outactAbstractDispatchCoordinator {
59      operation oeMessage(AMessage:ptString) : ptBoolean
60      operation oeUpdateDispatchStatus(AetDispatchStatus:etDispatchStatus): ptBoolean
61      operation oeRefreshMap(AdtCrisisID:dtCrisisID) : ptBoolean
62  }
63  }
64
65  actor actFiremenCoordinator role rnactFiremenCoordinator cardinality [1..*] extends
    actAbstractDispatchCoordinator {
66
67      operation init() : ptBoolean
68
69      input interface inactFiremenCoordinator {
70      }
71
72      output interface outactFiremenCoordinator {
73          operation oeRequestHelp(AetTeamType: etTeamType, ARequestedNumber:ptInteger) : ptBoolean
74      }
75  }
76
77  actor actPoliceCoordinator role rnPoliceCoordinator cardinality [1..*] extends
    actAbstractDispatchCoordinator {
78
79      operation init() : ptBoolean
80
81      input interface inactPoliceCoordinator {
82      }
83
84      output interface outactPoliceCoordinator {
85      }
86  }
87
88  actor actTowServiceCoordinator role rnTowServiceCoordinator cardinality [1..*] extends
    actAbstractDispatchCoordinator {
89
90      operation init() : ptBoolean
91
92      input interface inactTowServiceCoordinator {
93      }
94
95      output interface outactTowServiceCoordinator {
96      }
97  }
98
99 }
100 }

```

Listing B.3: Messir Spec. file environment.msr.

## B.4 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(rncdtMapWithPin) [1..1]
26
27 association assDispatchedCoordinatorctMapWithPin
28   ctDispatchedCoordinator(rnctDispatchedCoordinator) [1..1]
29   ctMapWithPin(rncdtMapWithPin) [1..1]
30
31 association assClassActorDisptachCoordinator
32   ctDispatchedCoordinator(rnctDispatchedCoordinator) [1..1]
33   actAbstractDispatchCoordinator(rnactAbstractDispatchCoordinator) [1..1]
34
35 association assctDispatchedCoordinatorctCrisisEvent
36   ctDispatchedCoordinator(rnctDispatchedCoordinator2) [2..*]
37   ctCrisisEvent(rnctCrisisEvent2) [1..1]
38
39 }
40 }
41 }

```

Listing B.4: Messir Spec. file primarytypes-associations.msr.

## B.5 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
24   operation init(AvpStarted:ptBoolean): ptBoolean
25 }
26
27 class ctHuman role rnHuman cardinality [1..*] {
28   attribute id: dtPhoneNumber
29   attribute name: ptString
30   attribute type: etHumanType
31
32   operation init( Aid:dtPhoneNumber,
33     Aname:ptString,
34     Atype:etHumanType
35   ): ptBoolean
36 }
37 }

```



```

38
39 class ctCrisisEvent role rnCrisisEvent cardinality [1..*] {
40     attribute id: ptInteger
41     attribute location: dtMapWithPin
42     attribute isLocationConfirmed: ptBoolean
43     attribute comment: ptString //Multiple Comments?
44     attribute geoPos: dtGeoPos
45
46     operation init( Aid:ptInteger,
47                     Alocation:dtMapWithPin,
48                     AisLocationConfirmed:ptBoolean,
49                     Acomment:ptString,
50                     AgeoPos:dtGeoPos
51     ): ptBoolean
52
53 }
54
55 class ctDispatchedCoordinator role rnDispatchedCoordinator cardinality [1..*] {
56     attribute type: etTeamType
57     attribute status: etDispatchStatus
58     attribute geoPos: dtGeoPos
59
60     operation init( Atype:etTeamType,
61                     Astatus:etDispatchStatus,
62                     AgeoPos:dtGeoPos
63     ): ptBoolean
64 }
65
66 class ctMapWithPin role rnMapWithPin cardinality [1..*] {
67     attribute mapWithPin: dtMapWithPin
68
69     operation init( AmapWithPin:dtMapWithPin
70     ): ptBoolean
71 }
72
73 }
74 }
75 }

```

Listing B.5: Messir Spec. file primarytypes-classes.msr.

## B.6 File `./src-gen/messir-spec/concepts/primarytypes-datatypes/primarytypes-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.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 dtString {
19         attribute value : ptString
20         operation is() : ptBoolean
21         operation length(): ptInteger
22         operation myStringConcat (AdtString2IN:dtString): dtString
23     }
24

```

```

25 datatype dtInteger {
26     attribute value : ptInteger
27 }
28
29 datatype dtReal {
30     attribute value : ptReal
31 }
32
33 datatype dtMapWithPin{
34     attribute image : dtImage
35     operation is() : ptBoolean
36     external operation isMapRepresentation() : ptBoolean
37 }
38
39 datatype dtGeoPos{
40     attribute latitude: dtLatitude
41     attribute longitude: dtLongitude
42     operation is() : ptBoolean
43 }
44
45 enum etDispatchStatus {
46     constants["InStation", "InTransit", "Arrived"]
47     operation is() : ptBoolean
48 }
49
50 enum etHumanType {
51     constants["Victim", "Witness"]
52     operation is() : ptBoolean
53 }
54
55 enum etTeamType {
56     constants["AmbulanceTeam", "PoliceTeam", "TowServiceTeam"]
57     operation is() : ptBoolean
58 }
59 }
60 }
61 }

```

Listing B.6: Messir Spec. file primarytypes-datatypes.msr.

## B.7 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.7: Messir Spec. file secondarytypes-associations.msr.

## B.8 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.8: Messir Spec. file secondarytypes-classes.msr.

## B.9 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 lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
19   dtString {
20   operation is() : ptBoolean
21 }
22
23 datatype dtAddress extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
24   dtString {
25   operation is() : ptBoolean
26 }
27
28 datatype dtCrisisID extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
29   dtInteger {
30   operation is() : ptBoolean
31 }
32
33 datatype dtLongitude extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
34   dtReal {
35   operation is() : ptBoolean
36 }
37
38 datatype dtLatitude extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
39   dtReal {

```

```

35     operation is() : ptBoolean
36 }
37
38 datatype dtImage extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
    dtString {
39     operation is() : ptBoolean
40 }
41 }
42
43 }
44 }

```

Listing B.9: Messir Spec. file secondarytypes-datatypes.msr.

## B.10 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.10: Messir Spec. file tests.msr.

## B.11 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
    =691123456") {
22 ieRequestCrisisEventLocation("691123456") returned to Orange
23 }
24
25 Orange executed instanceof subfunction oeReceiveCrisisEventLocation("AdtMapWithPin=http
    ://..., X=75.08, Y=23.03") {
26 ieReceiveCrisisEventLocation("http://..., X=75.08, Y=23.03") returned to Camille

```

```

27     }
28
29     Camille executed instance of subfunction oeConfirmCrisisEventLocation() {
30         ieConfirmCrisisEventLocation("Done") returned to Camille
31     }
32
33     Camille executed instance of subfunction oeCreateNewCrisisEvent("AdtCrisisID=1", "AdtName=
        Walter", "AenHumanType=Witness", "AdtPhoneNumberX=691123456", "AdtMapWithPin=http://...,
        X=75.08, Y=23.03", "No additional comments") {
34         ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "http://..., X=75.08, Y=23.03", "
            No additional comments") returned to Fabio
35         ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "http://..., X=75.08, Y=23.03", "
            No additional comments") returned to Ted
36     }
37 }
38 }
39
40 Fabio executed instance of ugGlobalDispatchManagement() {
41     use case steps {
42         Fabio executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatus="InTransit") {
43             ieMessage("Dispatch Status Updated.") returned to Fabio
44         }
45
46         Ted executed instance of subfunction oeRefreshMap("AdtCrisisID=1") {
47             ieReceiveMap("http://..., X=75.08, Y=23.03") returned to Ted
48         }
49
50         Ted executed instance of subfunction oeMessage("AMessage=I will arrive in 30 minutes") {
51             ieMessage("I will arrive in 30 minutes") returned to Camille
52             ieMessage("I will arrive in 30 minutes") returned to Fabio
53             ieMessage("I will arrive in 30 minutes") returned to Ted
54         }
55
56         Ted executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusX="InTransit") {
57             ieMessage("Dispatch Status Updated.") returned to Ted
58         }
59
60         Fabio executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXX="Arrived") {
61             ieMessage("Dispatch Status Updated.") returned to Fabio
62         }
63
64         Fabio executed instance of subfunction oeRequestHelp(AenTeamType="Police", RequestedNumber="1"
        ) {
65             ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "http://..., X=75.08, Y=23.03")
                returned to Polo
66         }
67
68         Polo executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXXX="InTransit")
        {
69             ieMessage("Dispatch Status Updated.") returned to Polo
70         }
71
72         Ted executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXX="Arrived") {
73             ieMessage("Dispatch Status Updated.") returned to Ted
74         }
75
76         Polo executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXXX="Arrived")
        {
77             ieMessage("Dispatch Status Updated.") returned to Polo
78         }
79     }
80 }
81
82 }
83 }
84 }
85 }

```

## B.12 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 uciugCreateNewCrisiEvent : ugCreateNewCrisisEvent {
9       actors {
10        Camille : actCentralCoordinator
11        Orange : actCommunicationCompany
12        Fabio : actFiremenCoordinator
13        Ted : actTowServiceCoordinator
14      }
15
16      use case steps {
17
18        Camille executed instance of subfunction oeRequestCrisisEventLocation("AdtPhoneNumber=691123456")
19        {
20          ieRequestCrisisEventLocation("691123456") returned to Orange
21        }
22
23        Orange executed instance of subfunction oeReceiveCrisisEventLocation("AdtMapWithPin=http://..., X
24        =75.08, Y=23.03") {
25          ieReceiveCrisisEventLocation("http://..., X=75.08, Y=23.03") returned to Camille
26        }
27
28        Camille executed instance of subfunction oeConfirmCrisisEventLocation() {
29          ieConfirmCrisisEventLocation("Done") returned to Camille
30        }
31
32        Camille executed instance of subfunction oeCreateNewCrisisEvent("AdtCrisisID=1", "AdtName=Walter"
33        , "AenHumanType=Witness", "AdtPhoneNumberX=691123456", "AdtMapWithPin=http://..., X=75.08, Y
34        =23.03", "No additional comments") {
35          ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "http://..., X=75.08, Y=23.03", "No
36          additional comments") returned to Fabio
37          ieReceiveNewCrisisEvent("1", "Walter", "Witness", "691123456", "http://..., X=75.08, Y=23.03", "No
38          additional comments") returned to Ted
39        }
40      }
41    }
42  }
43 }

```

Listing B.12: Messir Spec. file  
 usecaseinstance-ugCreateNewCrisisEvent-uciugCreateNewCrisisEvent.msr.

## B.13 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 {
10        Camille : actCentralCoordinator
11        Fabio : actFiremenCoordinator

```

```

12   Ted : actTowServiceCoordinator
13   Polo : actPoliceCoordinator
14 }
15 use case steps {
16   Fabio executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatus="InTransit") {
17     ieMessage("Dispatch Status Updated.") returned to Fabio
18   }
19
20   Ted executed instance of subfunction oeRefreshMap("AdtCrisisID=1") {
21     ieReceiveMap("http://...", X=75.08, Y=23.03") returned to Ted
22   }
23
24   Ted executed instance of subfunction oeMessage("AMessage=I will arrive in 30 minutes") {
25     ieMessage("I will arrive in 30 minutes") returned to Camille
26     ieMessage("I will arrive in 30 minutes") returned to Fabio
27     ieMessage("I will arrive in 30 minutes") returned to Ted
28   }
29
30   Ted executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusX="InTransit") {
31     ieMessage("Dispatch Status Updated.") returned to Ted
32   }
33
34   Fabio executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXX="Arrived") {
35     ieMessage("Dispatch Status Updated.") returned to Fabio
36   }
37
38   Fabio executed instance of subfunction oeRequestHelp(AenTeamType="Police", RequestedNumber="1")
39   {
40     ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","http://...", X=75.08, Y=23.03")
41     returned to Polo
42   }
43
44   Polo executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXXX="InTransit") {
45     ieMessage("Dispatch Status Updated.") returned to Polo
46   }
47
48   Ted executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXX="Arrived") {
49     ieMessage("Dispatch Status Updated.") returned to Ted
50   }
51
52   Polo executed instance of subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXXX="Arrived") {
53     ieMessage("Dispatch Status Updated.") returned to Polo
54   }
55 }
56 }
57 }

```

Listing B.13: Messir Spec. file  
 usecaseinstance-ugGlobalDispatchManagement-uciugGlobalDispatchManagement.msr.

## B.14 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     actor actPoliceCoordinator[secondary, active]
24
25     step a: actCentralCoordinator executes ugCreateNewCrisisEvent
26     step b: actFiremenCoordinator executes ugGlobalDispatchManagement
27     step c: actTowServiceCoordinator executes ugGlobalDispatchManagement
28
29     ordering constraint "step (a) must be executed before step (b) or step (c)"
30     ordering constraint "step (b) XOR step (c)"
31 }
32
33
34 use case system usergoal ugCreateNewCrisisEvent() {
35     actor actCentralCoordinator[primary, active]
36     actor actCommunicationCompany[secondary, active]
37     actor actFiremenCoordinator[secondary, passive]
38     actor actTowServiceCoordinator[secondary, passive]
39
40     reuse oeRequestCrisisEventLocation[0..*]
41     reuse oeReceiveCrisisEventLocation[0..*]
42     reuse oeConfirmCrisisEventLocation[1..*]
43     reuse oeCreateNewCrisisEvent[1..*]
44
45     step a: actCentralCoordinator executes oeRequestCrisisEventLocation
46     step b: actCommunicationCompany executes oeReceiveCrisisEventLocation
47     step c: actCentralCoordinator executes oeConfirmCrisisEventLocation
48     step d: actCentralCoordinator executes oeCreateNewCrisisEvent
49
50     ordering constraint "if (b) then previously (a)"
51     ordering constraint "step (c) must be executed before step (d)"
52 }
53
54
55 use case system usergoal ugGlobalDispatchManagement() {
56     actor actFiremenCoordinator[primary, active]
57     actor actCentralCoordinator[secondary, active]
58     actor actTowServiceCoordinator[secondary, active]
59     actor actPoliceCoordinator[secondary, active]
60
61     step a: actFiremenCoordinator executes oeUpdateDispatchStatus
62     step b: actTowServiceCoordinator executes oeRefreshMap
63     step c: actTowServiceCoordinator executes oeMessage
64     step d: actTowServiceCoordinator executes oeUpdateDispatchStatus
65     step e: actFiremenCoordinator executes oeRequestHelp
66     step f: actPoliceCoordinator executes oeUpdateDispatchStatus
67
68     ordering constraint "step (a) must be executed at least two times"
69     ordering constraint "step (d) must be executed at least two times"
70     ordering constraint "step (f) can only be executed if step (e) has at least been executed once
71     previously"
72     ordering constraint "step (f) must be executed at least two times"
73 }
74
75 use case system subfunction oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) {
76     actor actCentralCoordinator[primary, active]
77     actor actCommunicationCompany[secondary, passive]
78     returned messages{
79         ieRequestCrisisEventLocation(AdtPhoneNumber) returned to actCommunicationCompany //Slide 208..
80     }
81 }
82
83 use case system subfunction oeReceiveCrisisEventLocation(AdtMapWithPin:dtMapWithPin) {
84     actor actCommunicationCompany[primary, active]
85     actor actCentralCoordinator[secondary, passive]

```



```

85   returned messages{
86     ieReceiveCrisisEventLocation(AdtMapWithPin) returned to actCentralCoordinator
87   }
88 }
89
90 use case system subfunction oeConfirmCrisisEventLocation() {
91   actor actCentralCoordinator[primary, active]
92   returned messages{
93     ieConfirmCrisisEventLocation() returned to actCentralCoordinator
94   }
95 }
96
97 use case system subfunction oeCreateNewCrisisEvent(AdtCrisisID:dtCrisisID, AdtName:ptString,
    AetHumanType:etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtMapWithPin, AMessage:
    ptString) {
98   actor actCentralCoordinator[primary, active]
99   actor actAbstractDispatchCoordinator[secondary, passive]
100  returned messages{
101    ieReceiveNewCrisisEvent(AdtCrisisID, AdtName, AetHumanType, AdtPhoneNumber, AdtMapWithPin,
        AMessage) returned to actAbstractDispatchCoordinator
102  }
103 }
104
105 use case system subfunction oeMessage(AMessage:ptString) {
106   actor actAbstractDispatchCoordinator[primary, active]
107   actor actCentralCoordinator[secondary, passive]
108   actor actAbstractDispatchCoordinator[secondary, multiple]
109   returned messages{
110     ieMessage(AMessage) returned to actAbstractDispatchCoordinator
111 //   ieMessage(AMessage) returned to actCentralCoordinator //PROBLEME DE IE DEUX FOIS
    SANS SOUS-TYPAGE
112  }
113 }
114
115 use case system subfunction oeUpdateDispatchStatus(AetDispatchStatus:etDispatchStatus) {
116   actor actAbstractDispatchCoordinator[primary, active]
117   returned messages{
118     ieMessage(AMessage) returned to actAbstractDispatchCoordinator
119   }
120 }
121
122 use case system subfunction oeRefreshMap(AdtCrisisID:dtCrisisID){
123   actor actAbstractDispatchCoordinator[primary, active]
124   returned messages{
125     ieReceiveMap(AdtMapWithPin) returned to actAbstractDispatchCoordinator
126   }
127 }
128
129 use case system subfunction oeRequestHelp(AetTeamType: etTeamType, RequestedNumber:ptInteger) {
130   actor actFiremenCoordinator[primary, active]
131   actor actAbstractDispatchCoordinator[secondary, passive]
132   returned messages{
133     ieReceiveNewCrisisEvent(AdtCrisisID, AdtName, AetHumanType, AdtPhoneNumber, AdtMapWithPin,
        AMessage) returned to actAbstractDispatchCoordinator
134   }
135 }
136
137 }
138
139 }

```

Listing B.14: Messir Spec. file usecases.msr.



# Bibliography

- [1] Guelfi, N.: Messir: A Scientific Method for the Software Engineer. to be published (2017)
- [2] Armour, F., Miller, G.: Advanced Use Case Modeling: Software Systems. Addison-Wesley (2001)