Affiliation line 1
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Author line 1
Author line 2

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Messir Analysis Document
- v 0.0 -

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Wednesday 23rd November, 2016 - 12:01

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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

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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 Messir 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 Messir 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 Messir method and inspired by the standard Cokburn template [2].

2.3.1 Use Cases

2.3.1.1 summary-suGlobalManagementOfEvent

Shows the suGlobaManagementOfEvent use-case and its actors.

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

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)
Additional Information	
none	

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

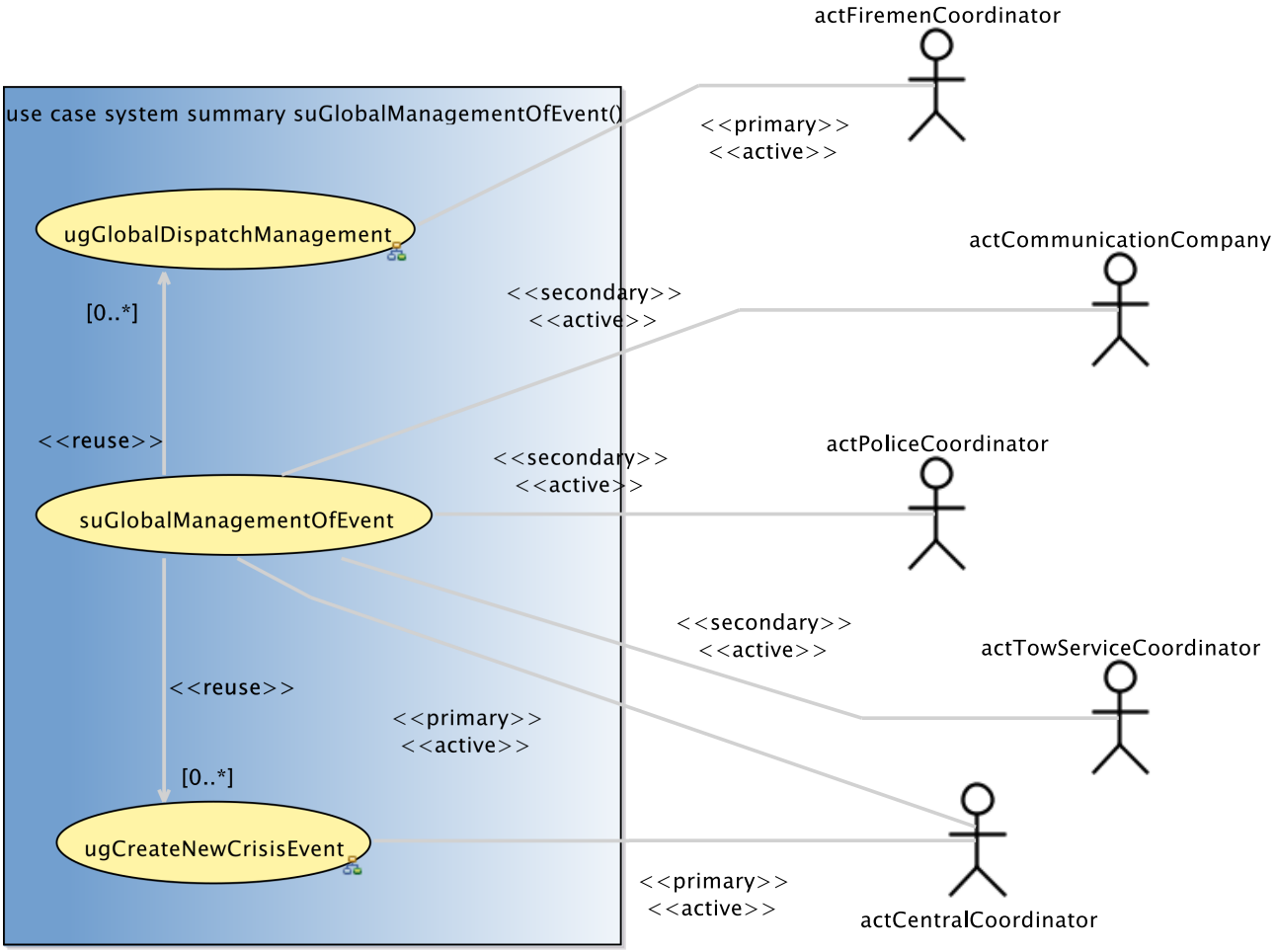

Figure 2.1:

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]
Secondary actor(s)	
1	actCommunicationCompany[active]
2	actFiremenCoordinator[passive]
3	actTowServiceCoordinator[passive]
Goal(s) description	
Shows the ugCreateNewCrisisEvent use-case and its actors.	
Reuse	
1	oeRequestCrisisEventLocation [0..*]
2	oeReceiveCrisisEventLocation [0..*]
3	oeConfirmCrisisEventLocation [1..*]
4	oeCreateNewCrisisEvent [1..*]
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	
1	
Main Steps	
a	the actor actCentralCoordinator executes the oeRequestCrisisEventLocation use case
b	the actor actCommunicationCompany executes the oeReceiveCrisisEventLocation use case
c	the actor actCentralCoordinator executes the oeConfirmCrisisEventLocation use case
d	the actor actCentralCoordinator executes the oeCreateNewCrisisEvent use case
Steps Ordering Constraints	
1	if (b) then previously (a)
2	step (c) must be executed before step (d)
Additional Information	
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
Primary actor(s)	
1	actFiremenCoordinator[active]
Secondary actor(s)	

continues in next page ...

... Use-Case Description table continuation

1	actCentralCoordinator[active]
2	actTowServiceCoordinator[active]
3	actPoliceCoordinator[active]
Goal(s) description	
Shows the ugGlobalDispatchManagement use-case and its actors.	
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	
1	
Main Steps	
a	the actor actFiremenCoordinator executes the oeUpdateDispatchStatus use case
b	the actor actTowServiceCoordinator executes the oeRefreshMap use case
c	the actor actTowServiceCoordinator executes the oeMessage use case
d	the actor actTowServiceCoordinator executes the oeUpdateDispatchStatus use case
e	the actor actFiremenCoordinator executes the oeRequestHelp use case
f	the actor actPoliceCoordinator executes the oeUpdateDispatchStatus use case
Steps Ordering Constraints	
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
Additional Information	
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	
Name	oeConfirmCrisisEventLocation
Scope	system
Level	subfunction
Primary actor(s)	
1	actCentralCoordinator[active]
Goal(s) description	
sent to confirm the crisis event's location.	
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	

continues in next page . . .

. . . Use-Case Description table continuation

1
Additional Information
none

2.3.1.5 subfunction-oeCreateNewCrisisEvent

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

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

2.3.1.6 subfunction-oeMessage

sent to transmit a message.

Use-Case Description	
Name	oeMessage
Scope	system
Level	subfunction
Parameters	

continues in next page . . .

. . . Use-Case Description table continuation

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

2.3.1.7 subfunction-oeReceiveCrisisEventLocation

sent to return a map with pin.

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

2.3.1.8 subfunction-oeRefreshMap

sent to refresh the map.

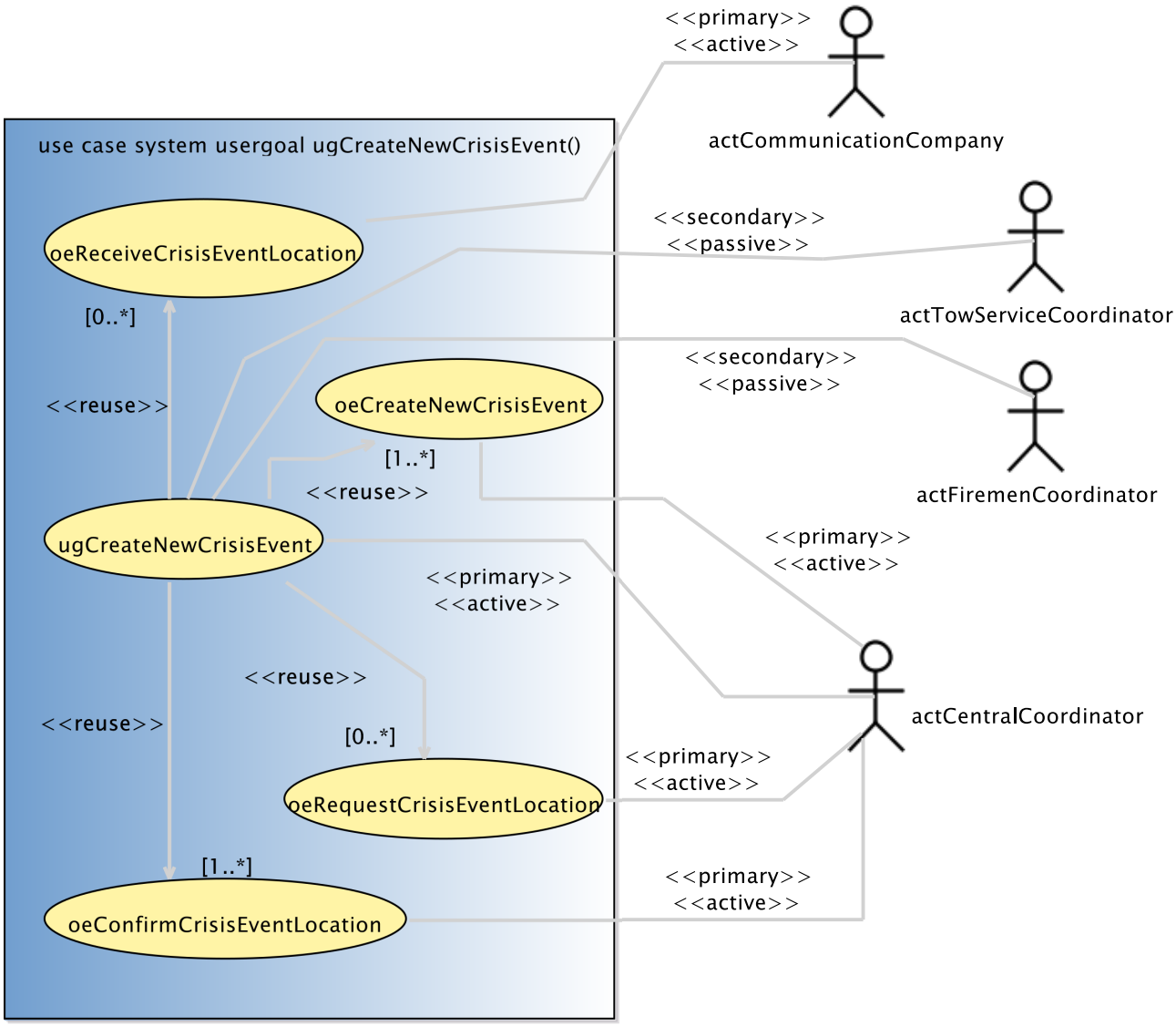
<<primary>>
<<active>>
actCommunicationCompany
use case system usergoal ugCreateNewCrisisEvent()
oeReceiveCrisisEventLocation
<<secondary>>
<<passive>>
actTowServiceCoordinator
[0..*]
<<reuse>>
<<secondary>>
<<passive>>
oeCreateNewCrisisEvent
actFiremenCoordinator
[1..*]
<<reuse>>
ugCreateNewCrisisEvent
<<primary>>
<<active>>
<<primary>>
<<active>>
<<reuse>>
actCentralCoordinator
<<reuse>>
[0..*]
<<primary>>
<<active>>
oeRequestCrisisEventLocation
[1..*]
<<primary>>
<<active>>
oeConfirmCrisisEventLocation

Figure 2.2:

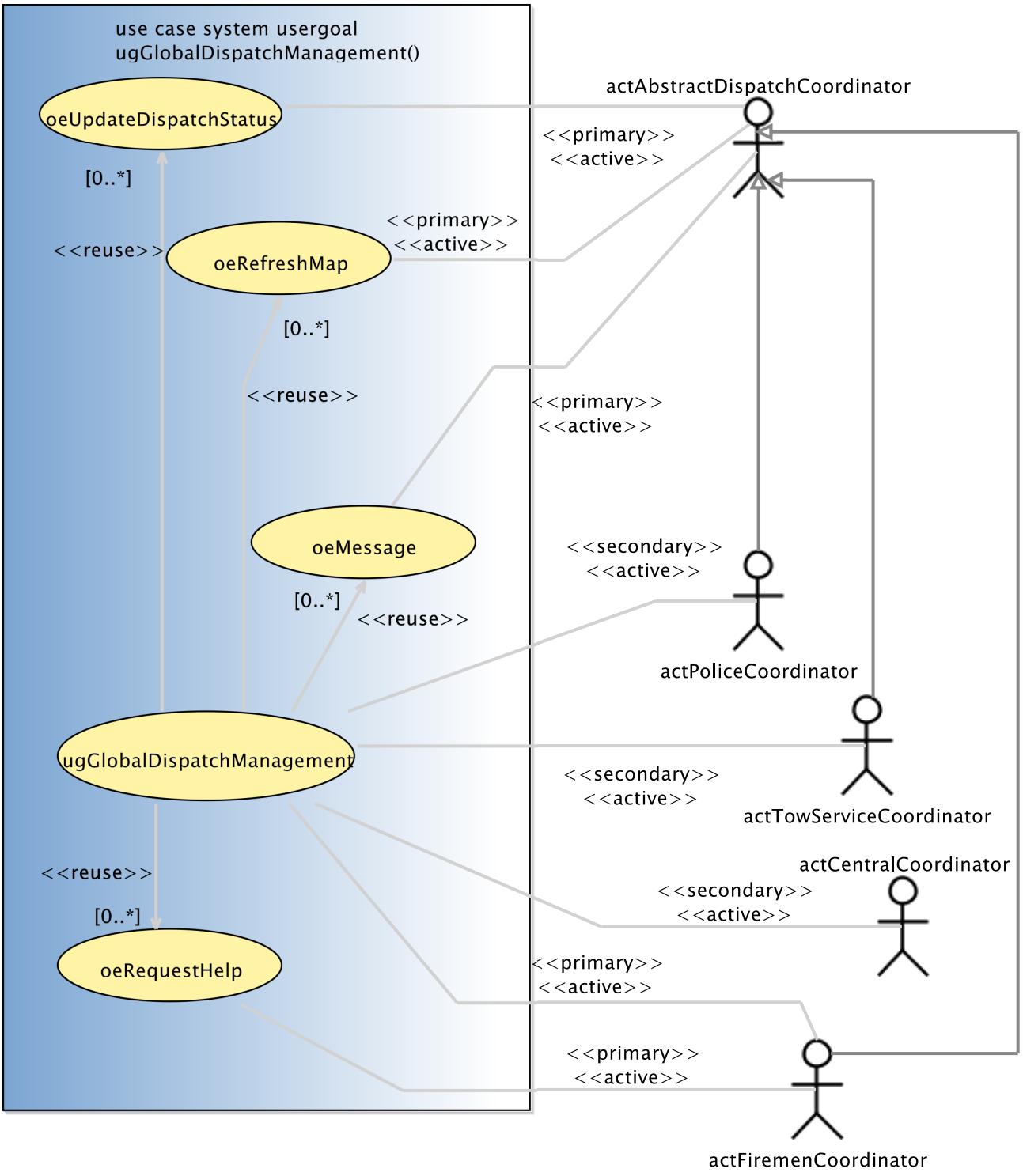
use case system usergoal
ugGlobalDispatchManagement()
oeUpdateDispatchStatus
[0..*]
<<reuse>>
oeRefreshMap
<<primary>>
<<active>>
[0..*]
<<reuse>>
oeMessage
[0..*]
<<reuse>>
ugGlobalDispatchManagement
<<reuse>>
[0..*]
oeRequestHelp
actAbstractDispatchCoordinator
<<primary>>
<<active>>
<<primary>>
<<active>>
<<primary>>
<<active>>
<<secondary>>
<<active>>
actPoliceCoordinator
<<secondary>>
<<active>>
actTowServiceCoordinator
actCentralCoordinator
<<secondary>>
<<active>>
<<primary>>
<<active>>
<<primary>>
<<active>>
actFiremenCoordinator

Figure 2.3:

Use-Case Description	
Name	oeRefreshMap
Scope	system
Level	subfunction
Parameters	
AdtCrisisID: dtCrisisID 1	
Primary actor(s)	
1	`actAbstractDispatchCoordinator[active]`
Goal(s) description	
sent to refresh the map.	
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	
1	
Additional Information	
none	

2.3.1.9 subfunction-oeRequestCrisisEventLocation

sent to request a crisis event's location.

Use-Case Description	
Name	oeRequestCrisisEventLocation
Scope	system
Level	subfunction
Parameters	
AdtPhoneNumber: dtPhoneNumber 1	
Primary actor(s)	
1	`actCentralCoordinator[active]`
Secondary actor(s)	
1	`actCommunicationCompany[passive]`
Goal(s) description	
sent to request a crisis event's location.	
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	
1	
Additional Information	
none	

2.3.1.10 subfunction-oeRequestHelp

sent to request help from the corresponding team type.

Use-Case Description	
Name	oeRequestHelp
Scope	system
Level	subfunction
Parameters	
AetTeamType: etTeamType 1 RequestedNumber: ptInteger 2	
Primary actor(s)	
1	`actFiremenCoordinator[active]`
Secondary actor(s)	
1	`actAbstractDispatchCoordinator[passive]`
Goal(s) description	
sent to request help from the corresponding team type.	
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	
1	
Additional Information	
none	

2.3.1.11 subfunction-oeUpdateDispatchStatus

sent to update the dispatch status.

Use-Case Description	
Name	oeUpdateDispatchStatus
Scope	system
Level	subfunction
Parameters	
AetDispatchStatus: etDispatchStatus 1	
Primary actor(s)	
1	`actAbstractDispatchCoordinator[active]`
Goal(s) description	
sent to update the dispatch status.	
Protocol condition(s)	
1	
Pre-condition(s)	
1	
Main post-condition(s)	

continues in next page . . .

. . . Use-Case Description table continuation

1
Additional Information
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
Instantiated Use Case suGlobalManagementOfEvent
Instance ID 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
Instantiated Use Case ugCreateNewCrisisEvent
Instance ID 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
Instantiated Use Case ugGlobalDispatchManagement
Instance ID uciugGlobalDispatchManagement

Figure 2.6 Shows the ugGlobalDispatchManagement instance.

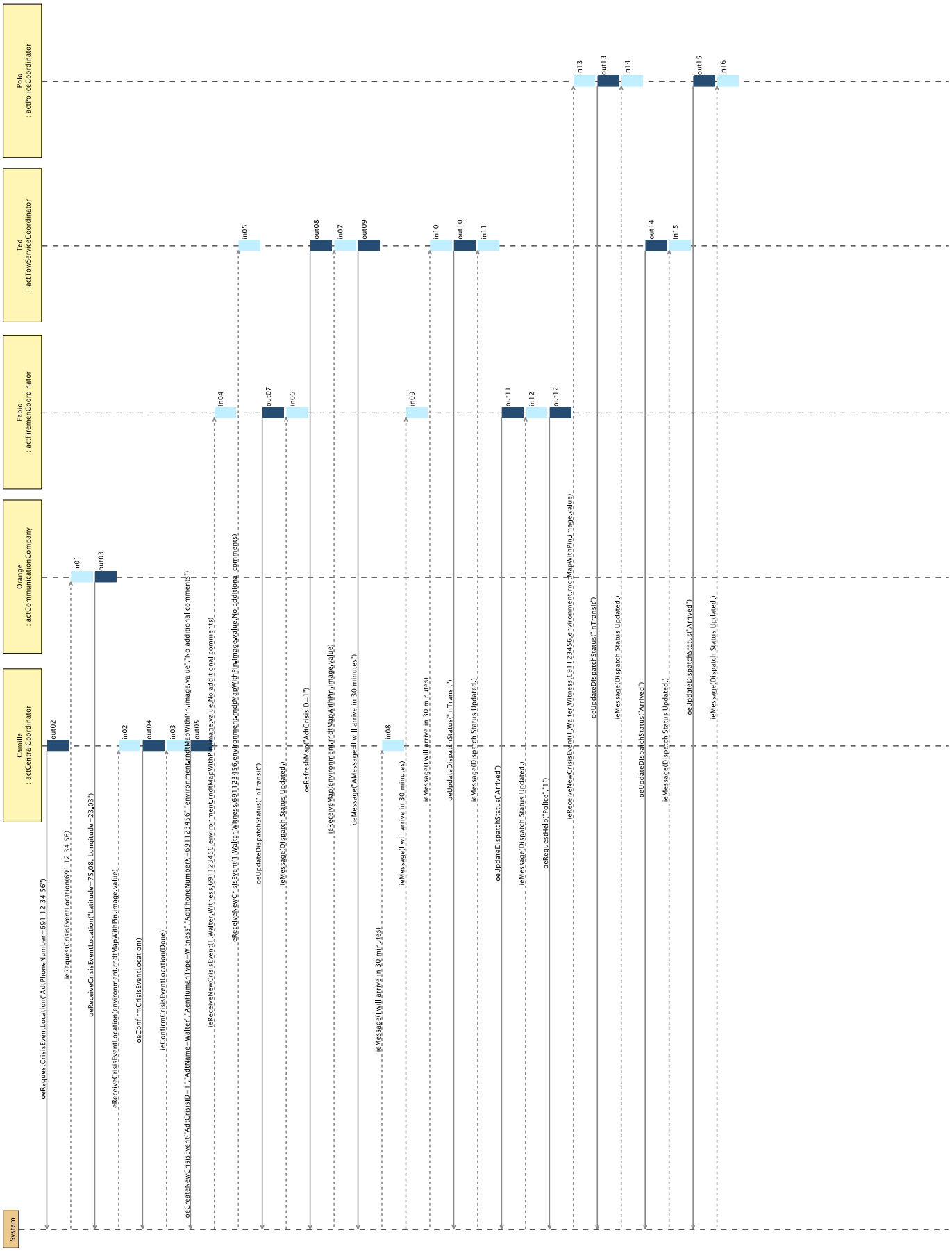

Figure 2.4: suGlobaManagementOfEvent

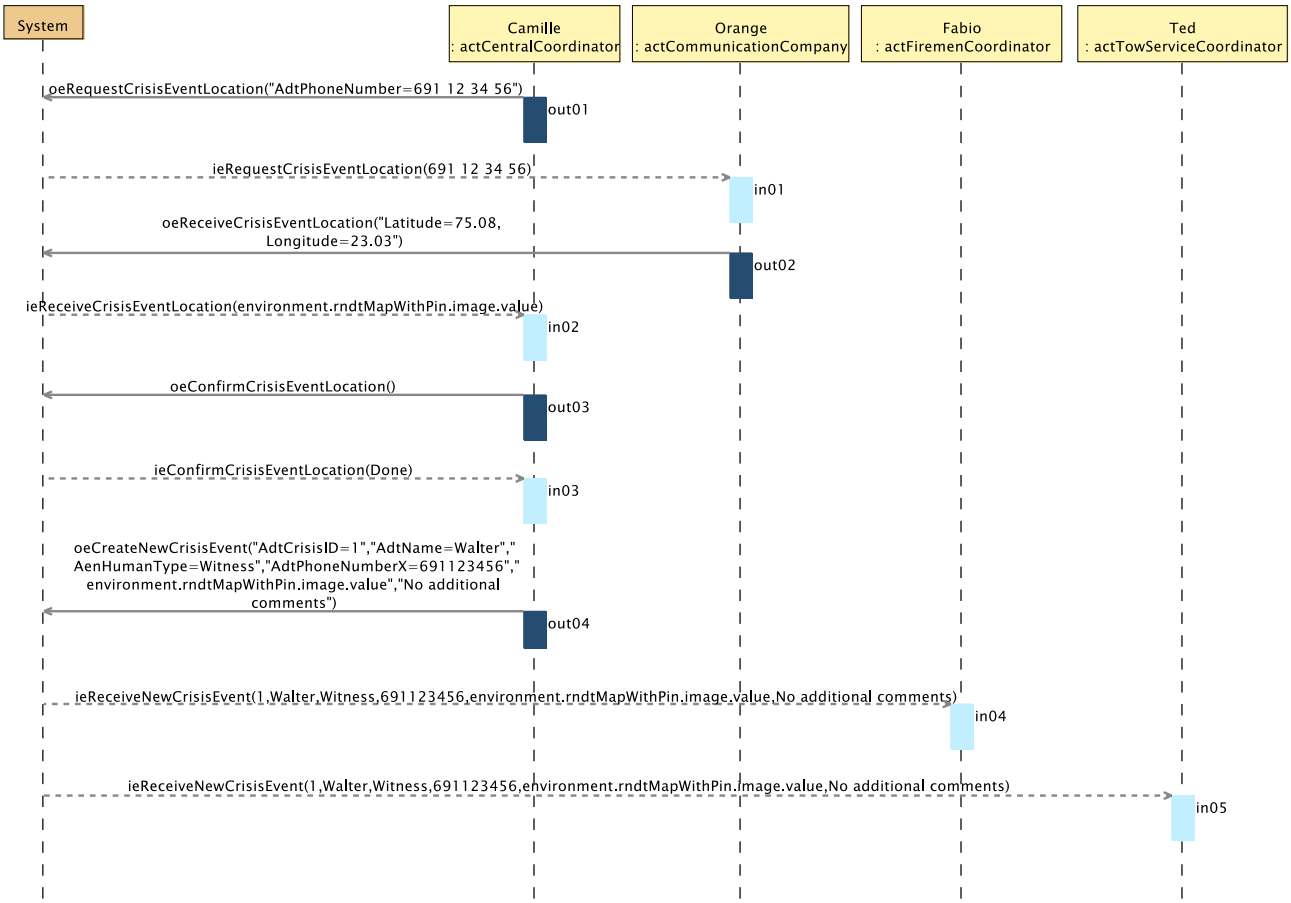

Figure 2.5: ugCreateNewCrisisEvent

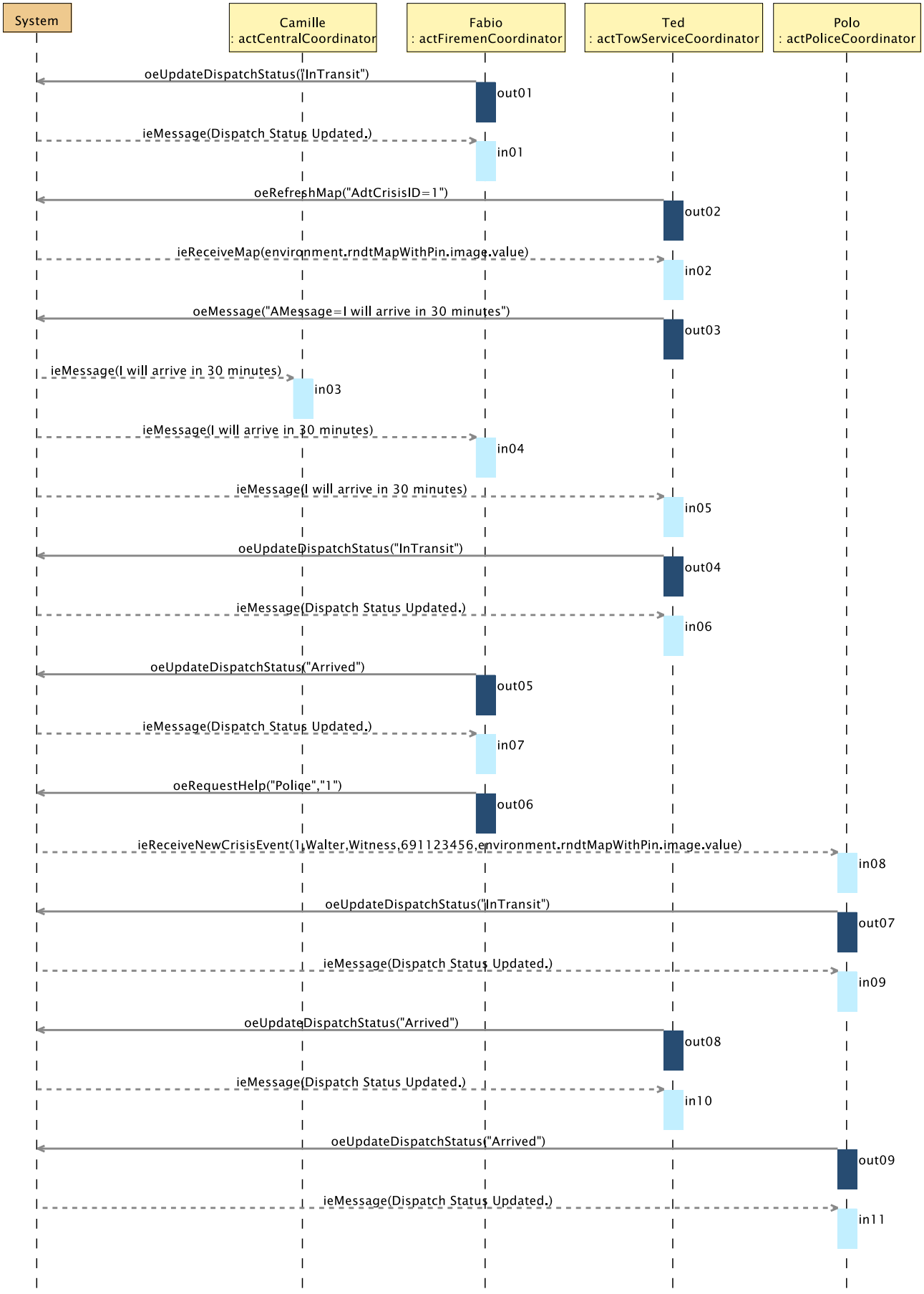

Figure 2.6: ugGlobalDispatchManagement

Chapter 3

Environment Model

3.1 Environment model view(s)

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

3.2.2 `actCentralCoordinator` Actor

Actor
actCentralCoordinator Is representing the person that receives the victim's or witness' call in the emergency central.
OutputInterfaces

continues in next page . . .

... Actor table continuation

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

3.2.3 `actCommunicationCompany` Actor

ACTOR
actCommunicationCompany Is representing any communication company in Luxembourg.
OutputInterfaces
OUT 1 **oeReceiveCrisisEventLocation(AdtGeoPos:dtGeoPos):ptBoolean**
InputInterfaces
IN 1 **ieRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber):ptBoolean**

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 **oeRequestHelp(AetTeamType:etTeamType, ARequestedNumber:ptInteger):ptBoo**

3.2.5 `actPoliceCoordinator` Actor

ACTOR
actPoliceCoordinator Is representing a police team leader.
Extends

continues in next page ...

. . . Actor table continuation

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

3.2.6 `actTowServiceCoordinator` Actor

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

continues in next page . . .

... Classes table continuation

operation	**init(Aid:ptInteger, Alocation:dtMapWithPin, AisLocationConfirmed:ptBoolean, Acomment:ptString, AgeoPos:dtGeoPos):ptBoolean**
ctDispatchedCoordinator	
A class containing the attributes identifying a dispatched team.	
attribute	**status: etDispatchStatus**
attribute	**type: etTeamType**
operation	**init(Atype:etTeamType, Astatus:etDispatchStatus, AgeoPos:dtGeoPos):ptBoolean**
ctHuman	
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**
ctMapWithPin	
A class containing an image which is the map including the pins.	
attribute	**mapWithPin: dtMapWithPin**
operation	**init(AmapWithPin:dtMapWithPin):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	
dtGeoPos	
Two Real numbers used to identify a geographical position on earth.	
attribute	**latitude: dtLatitude**
attribute	**longitude: dtLongitude**
operation	**is():ptBoolean**
dtInteger	
A primary type Integer incuding some basic Integer operations.	
attribute	**value: ptInteger**

continues in next page ...

. . . Datatypes table continuation

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

Enumerations
etDispatchStatus
A String used to identify a dispatch status.
etHumanType
A String used to identify an Human type.
etTeamType
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
assClassActorDisptachCoordinator
Association of a dispatched coordinator to an actor of the same type.
assctCrisisEventctHuman
Association of a crisis event to an human.
assctCrisisEventctMapWithPin
Association of a crisis event with a MapWithPin image.
assctDispatchedCoordinatorctCrisisEvent
Association of a dispatched coordinator to a crisis event.
assDispatchedCoordinatortctMapWithPin

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

continues in next page ...

. . . Datatypes table continuation

extends	dtString
operation	**`is():ptBoolean`**

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.

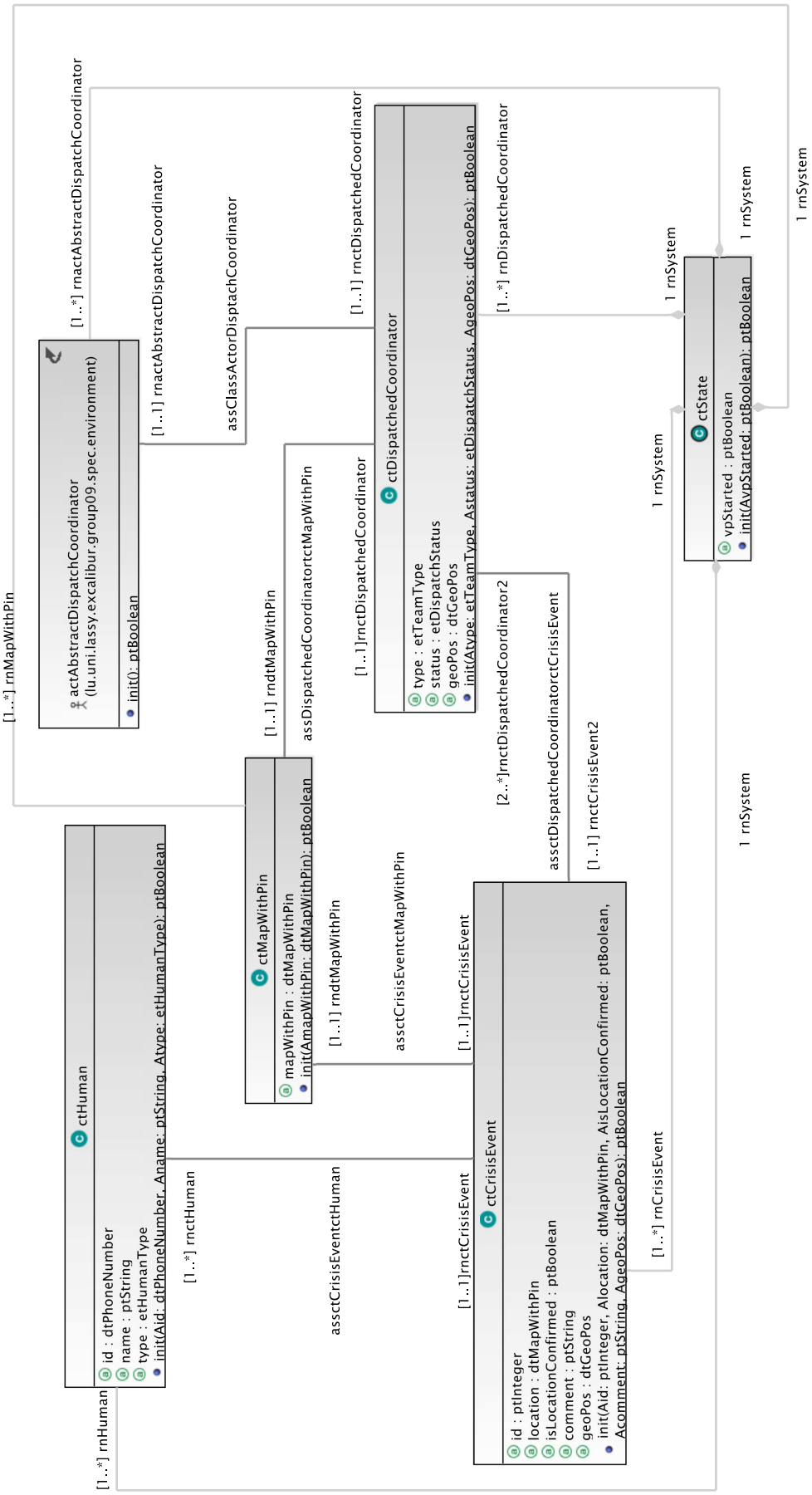

Figure 4.1: Concept Model - PrimaryTypes-Classes local view 12. .

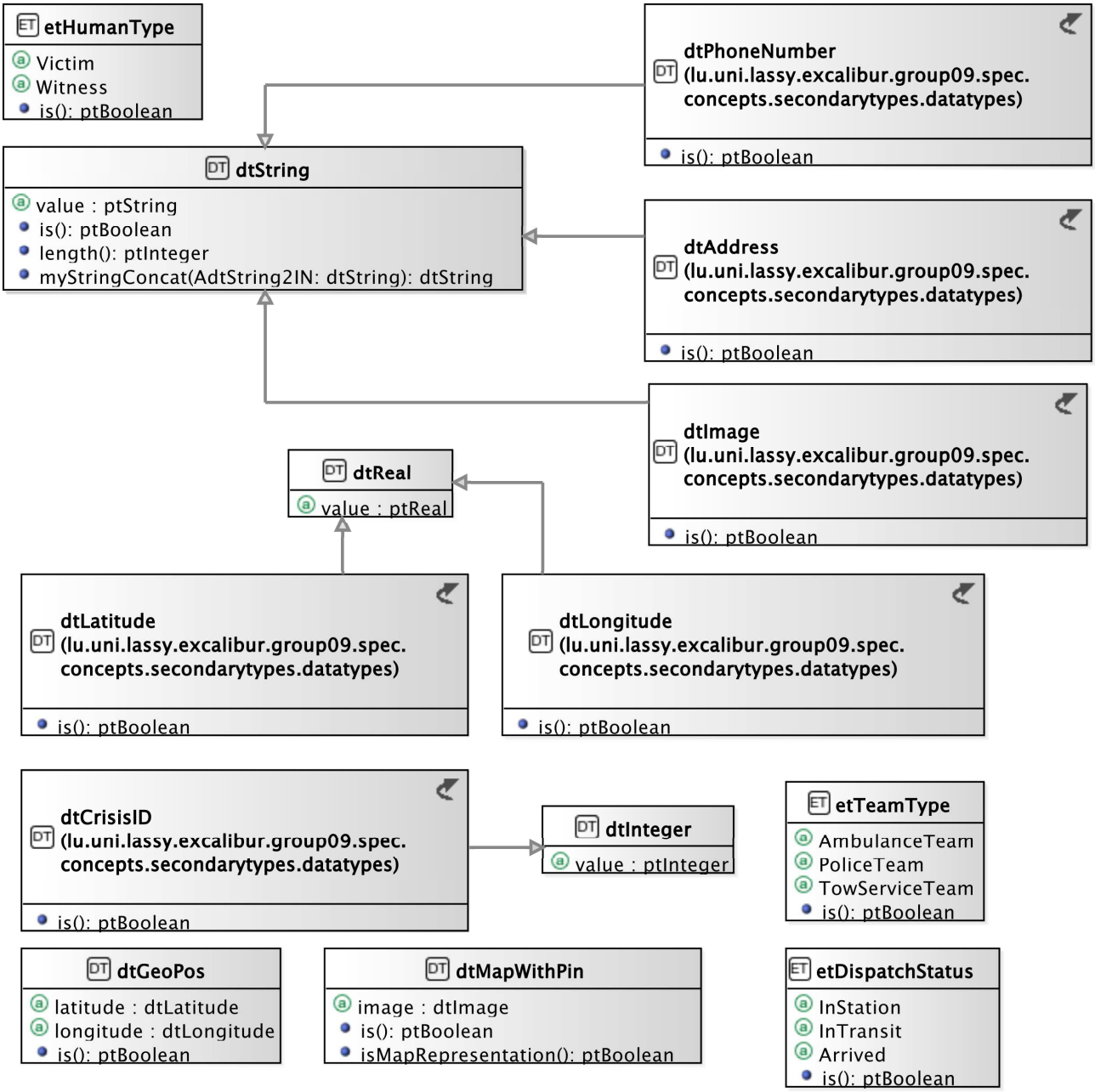

Figure 4.2: Concept Model - PrimaryTypes-Datatypes local view 15. .

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 Messir 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
oeRequestCrisisEventLocation sent to request a crisis event's location.
Parameters
1 **AdtPhoneNumber: dtPhoneNumber**
Return type
ptBoolean
Pre-Condition (protocol)
PreP 1
Pre-Condition (functional)
PreF 1
Post-Condition (functional)
PostF 1
Post-Condition (protocol)
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

```
//
//DON'T TOUCH THIS FILE !!!
//
package uuidff8a216549a64951bf055c8b5a9dde2a {
 Concept Model {}
}
```

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

B.2 File ./src-gen/messir-spec/operations/environment/environment-actCentralCoordinator-oeRequestCrisisEventLocation.msr

```
package lu.uni.lassy.excalibur.group09.spec.environment.operations.actCentralCoordinator.
    outactCentralCoordinator.oeRequestCrisisEventLocation {

import lu.uni.lassy.messir.libraries.primitives
import lu.uni.lassy.messir.libraries.math
import lu.uni.lassy.messir.libraries.string
import lu.uni.lassy.messir.libraries.calendar
import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
import lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes

 Operation Model {

  operation: lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator.
      outactCentralCoordinator.oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber):ptBoolean{
  // include below the specification information (pre,post or ocl or prolog)
 preP {
   let AvpStarted: ptBoolean in
   self.rnActor.rnSystem.vpStarted = AvpStarted
   and AvpStarted = true
 }

 preF { true }

 postF {
  let TheactYou:lu.uni.lassy.excalibur.group09.spec.environment.actCentralCoordinator in
  let AptString:ptString in
  /* Post Functional:*/
  /* PostF01 */
  AptString = 'Hello World !'
  and TheactYou.InterfaceIN = self.rnActor.InterfaceIN
  and TheactYou.InterfaceIN^ieHelloWorld(AptString)
 }

 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(AdMessage: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:
           etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress,AMessage:ptString) :
           ptBoolean
31     operation oeConfirmCrisisEventLocation() : ptBoolean
32    }
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
48   actor actAbstractDispatchCoordinator role rnactAbstractDispatchCoordinator cardinality [1..*] {
49
50    operation init() : ptBoolean
51
52    input interface inactAbstractDispatchCoordinator {
53     operation ieReceiveNewCrisisEvent(AdtCrisisID:dtCrisisID, AdtName:ptString, AetHumanType:
           etHumanType, AdtPhoneNumber:dtPhoneNumber, AdtMapWithPin:dtAddress, AMessage:ptString) :
           ptBoolean
54     operation ieMessage(AMessage: ptString) : ptBoolean
55     operation ieReceiveMap(AdtMapWithPin: dtMapWithPin) : ptBoolean
56    }
57
```

```
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(rndtMapWithPin)[1..1]
26
27  association assDispatchedCoordinatortctMapWithPin
28   ctDispatchedCoordinator(rnctDispatchedCoordinator)[1..1]
29   ctMapWithPin(rndtMapWithPin)[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

```
/*
* @author Kira
* @date Tue Oct 25 23:54:03 CEST 2016
*/

package lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.classes {

import lu.uni.lassy.messir.libraries.calendar
import lu.uni.lassy.messir.libraries.math
import lu.uni.lassy.messir.libraries.primitives
import lu.uni.lassy.messir.libraries.string

Concept Model {

 Secondary Types {

 }
}
}
```

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

B.9 File ./src-gen/messir-spec/concepts/secondarytypes-datatypes/secondarytypes-datatypes.msr

```
/*
* @author Kira
* @date Tue Oct 25 23:54:03 CEST 2016
*/

package lu.uni.lassy.excalibur.group09.spec.concepts.secondarytypes.datatypes {

import lu.uni.lassy.messir.libraries.calendar
import lu.uni.lassy.messir.libraries.math
import lu.uni.lassy.messir.libraries.primitives
import lu.uni.lassy.messir.libraries.string
import lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes

Concept Model {

 Secondary Types {

  datatype dtPhoneNumber extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes
      .dtString {
    operation is() : ptBoolean
   }

  datatype dtAddress extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
      dtString {
    operation is() : ptBoolean
   }

  datatype dtCrisisID extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
      dtInteger {
    operation is() : ptBoolean
   }

  datatype dtLongitude extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
      dtReal {
     operation is() : ptBoolean
    }

  datatype dtLatitude extends lu.uni.lassy.excalibur.group09.spec.concepts.primarytypes.datatypes.
      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=691 12
             34 56") {
22        ieRequestCrisisEventLocation("691 12 34 56") returned to Orange
23       }
24
25       Orange executed instanceof subfunction oeReceiveCrisisEventLocation("Latitude=75.08,
             Longitude=23.03") {
26        ieReceiveCrisisEventLocation("environment.rndtMapWithPin.image.value") returned to Camille
```

```
27        }
28
29        Camille executed instanceof subfunction oeConfirmCrisisEventLocation() {
30         ieConfirmCrisisEventLocation("Done") returned to Camille
31        }
32
33        Camille executed instanceof subfunction oeCreateNewCrisisEvent("AdtCrisisID=1", "AdtName=
              Walter", "AenHumanType=Witness", "AdtPhoneNumberX=691123456", "environment.rndtMapWithPin
              .image.value", "No additional comments") {
34         ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","environment.rndtMapWithPin.image
               .value","No additional comments") returned to Fabio
35         ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","environment.rndtMapWithPin.image
               .value","No additional comments") returned to Ted
36        }
37       }
38      }
39
40     Fabio executed instanceof ugGlobalDispatchManagement() {
41       use case steps {
42        Fabio executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatus="InTransit") {
43         ieMessage("Dispatch Status Updated.") returned to Fabio
44        }
45
46        Ted executed instanceof subfunction oeRefreshMap("AdtCrisisID=1") {
47         ieReceiveMap("environment.rndtMapWithPin.image.value") returned to Ted
48        }
49
50        Ted executed instanceof 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 instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusX="InTransit") {
57         ieMessage("Dispatch Status Updated.") returned to Ted
58        }
59
60        Fabio executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXX="Arrived") {
61         ieMessage("Dispatch Status Updated.") returned to Fabio
62        }
63
64        Fabio executed instanceof subfunction oeRequestHelp(AenTeamType="Police", RequestedNumber="1"
              ) {
65         ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","environment.rndtMapWithPin.image
               .value") returned to Polo
66        }
67
68        Polo executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXX="InTransit")
              {
69         ieMessage("Dispatch Status Updated.") returned to Polo
70        }
71
72        Ted executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXX="Arrived") {
73         ieMessage("Dispatch Status Updated.") returned to Ted
74        }
75
76        Polo executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXXX="Arrived")
              {
77         ieMessage("Dispatch Status Updated.") returned to Polo
78        }
79       }
80      }
81
82    }
83   }
84  }
85 }
```

Listing B.11: Messir Spec. file usecaseinstance-suGlobalManagementOfEvent-ucisuGlobalManagementOfEvent.msr.

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 instanceof subfunction oeRequestCrisisEventLocation("AdtPhoneNumber=691 12 34
          56") {
19     ieRequestCrisisEventLocation("691 12 34 56") returned to Orange
20    }
21
22    Orange executed instanceof subfunction oeReceiveCrisisEventLocation("Latitude=75.08, Longitude
          =23.03") {
23     ieReceiveCrisisEventLocation("environment.rndtMapWithPin.image.value") returned to Camille
24    }
25
26    Camille executed instanceof subfunction oeConfirmCrisisEventLocation() {
27     ieConfirmCrisisEventLocation("Done") returned to Camille
28    }
29
30    Camille executed instanceof subfunction oeCreateNewCrisisEvent("AdtCrisisID=1", "AdtName=Walter"
          , "AenHumanType=Witness", "AdtPhoneNumberX=691123456", "environment.rndtMapWithPin.image.
          value", "No additional comments") {
31     ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","environment.rndtMapWithPin.image.
           value","No additional comments") returned to Fabio
32     ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","environment.rndtMapWithPin.image.
           value","No additional comments") returned to Ted
33    }
34
35   }
36
37  }
38 }
39 }
```

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 instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatus="InTransit") {
17       ieMessage("Dispatch Status Updated.") returned to Fabio
18      }
19
20      Ted executed instanceof subfunction oeRefreshMap("AdtCrisisID=1") {
21       ieReceiveMap("environment.rndtMapWithPin.image.value") returned to Ted
22      }
23
24      Ted executed instanceof 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 instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusX="InTransit") {
31       ieMessage("Dispatch Status Updated.") returned to Ted
32      }
33
34      Fabio executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXX="Arrived") {
35       ieMessage("Dispatch Status Updated.") returned to Fabio
36      }
37
38      Fabio executed instanceof subfunction oeRequestHelp(AenTeamType="Police", RequestedNumber="1")
            {
39       ieReceiveNewCrisisEvent("1","Walter","Witness","691123456","environment.rndtMapWithPin.image.
             value") returned to Polo
40      }
41
42      Polo executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXX="InTransit") {
43       ieMessage("Dispatch Status Updated.") returned to Polo
44      }
45
46      Ted executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXX="Arrived") {
47       ieMessage("Dispatch Status Updated.") returned to Ted
48      }
49
50      Polo executed instanceof subfunction oeUpdateDispatchStatus(AenDispatchStatusXXXXX="Arrived") {
51       ieMessage("Dispatch Status Updated.") returned to Polo
52      }
53
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
          previously"
71    ordering constraint "step (f) must be executed at least two times"
72  }
73
74  use case system subfunction oeRequestCrisisEventLocation(AdtPhoneNumber:dtPhoneNumber) {
75   actor actCentralCoordinator[primary,active]
76   actor actCommunicationCompany[secondary, passive]
77   returned messages{
78    ieRequestCrisisEventLocation(AdtPhoneNumber) returned to actCommunicationCompany //Slide 208..
79   }
80  }
81
82  use case system subfunction oeReceiveCrisisEventLocation(AdtGeoPos:dtGeoPos) {
83   actor actCommunicationCompany[primary, active]
84   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)