

## Annex 1

UnderSafe web page [www.undersafe.eu](http://www.undersafe.eu)

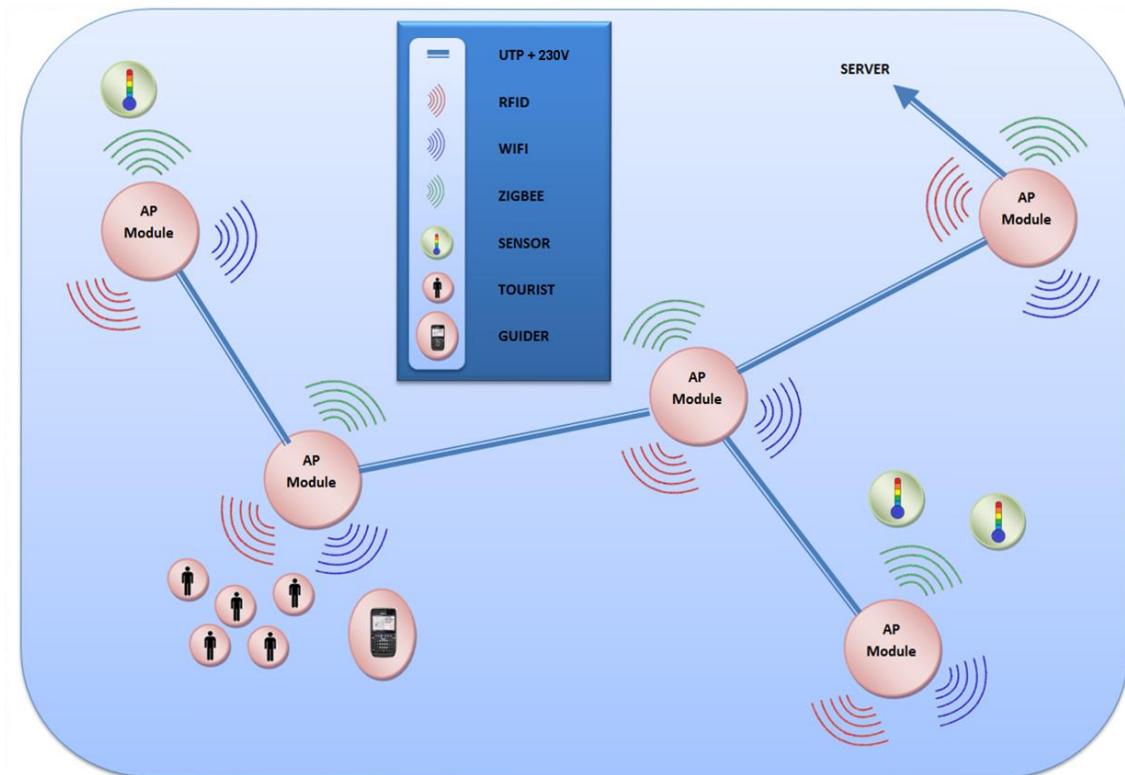
### Undersafe videos:

<http://www.youtube.com/watch?v=2tkAPiSD1eM>

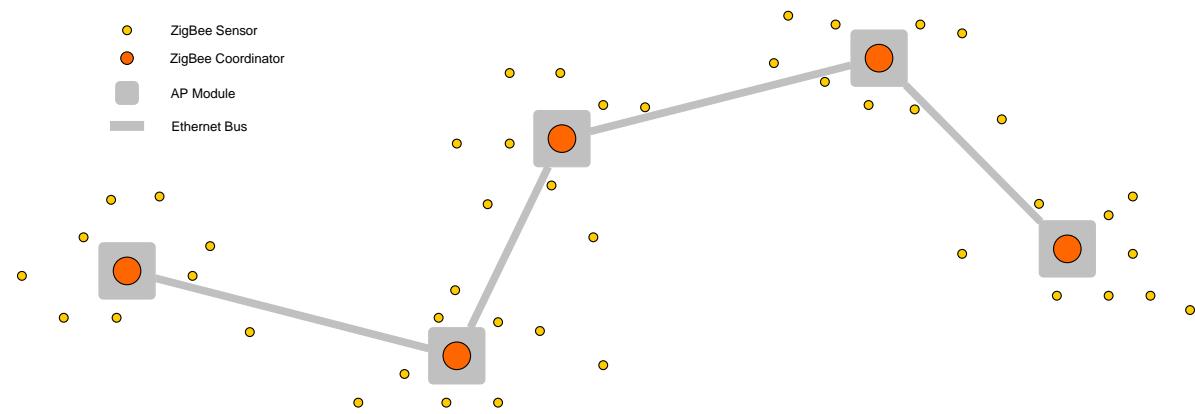
<http://www.youtube.com/watch?v=DEjJ-RZ8pSI>

### Figures and tables.

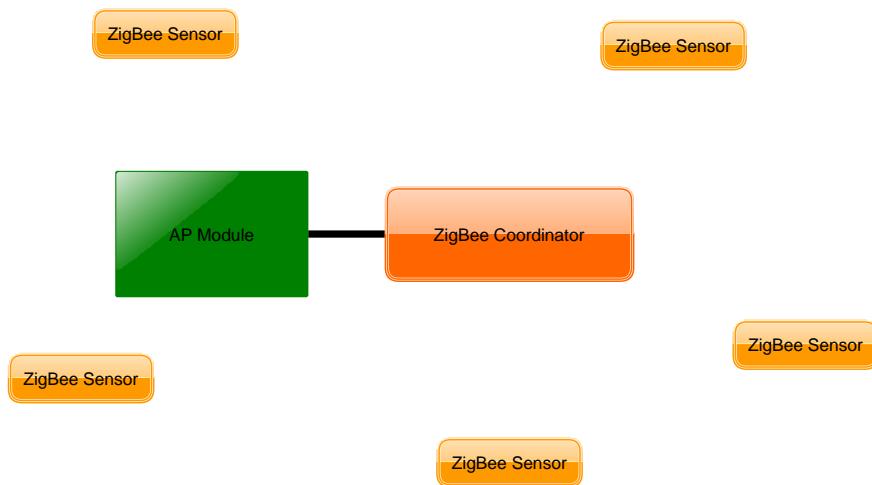
Figure 1 The system topology



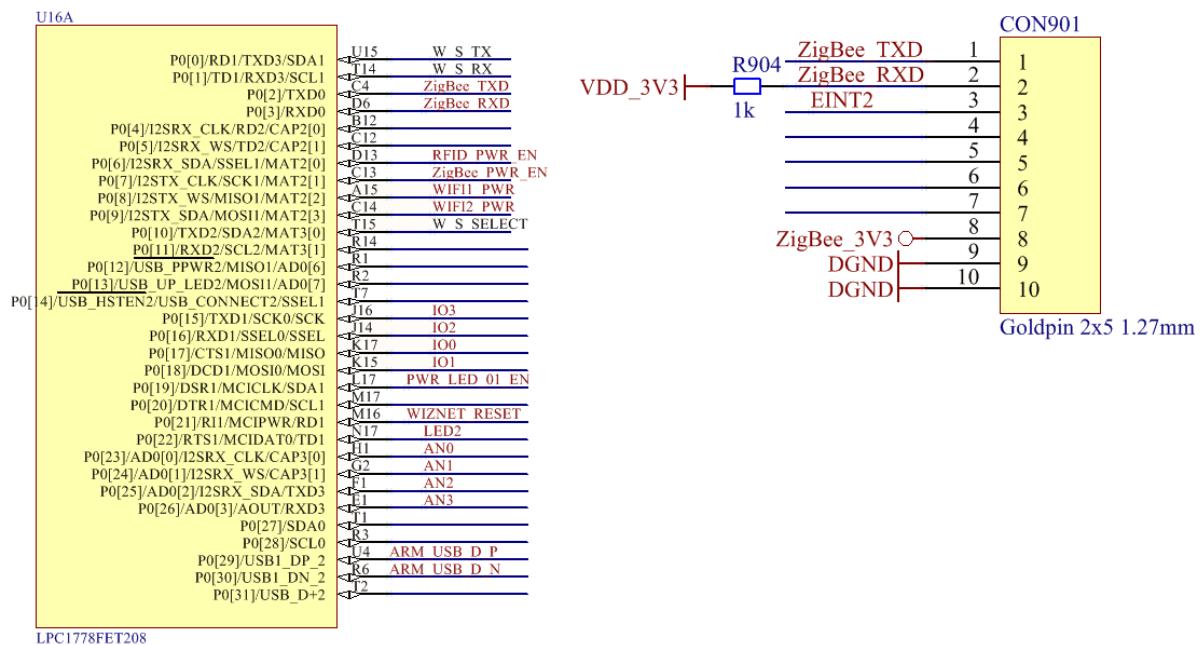
**Figure 2: Overall place of ZigBee sensor system in the project**



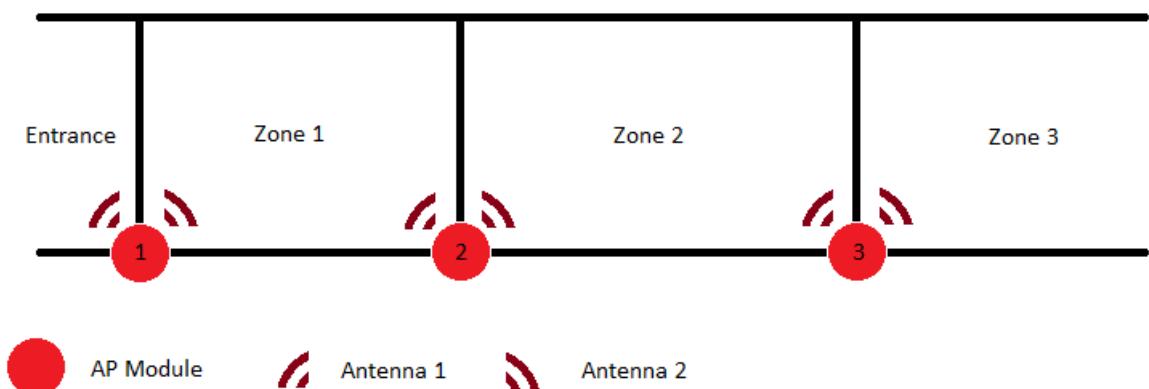
**Figure 3: Block diagram of the sensor system**



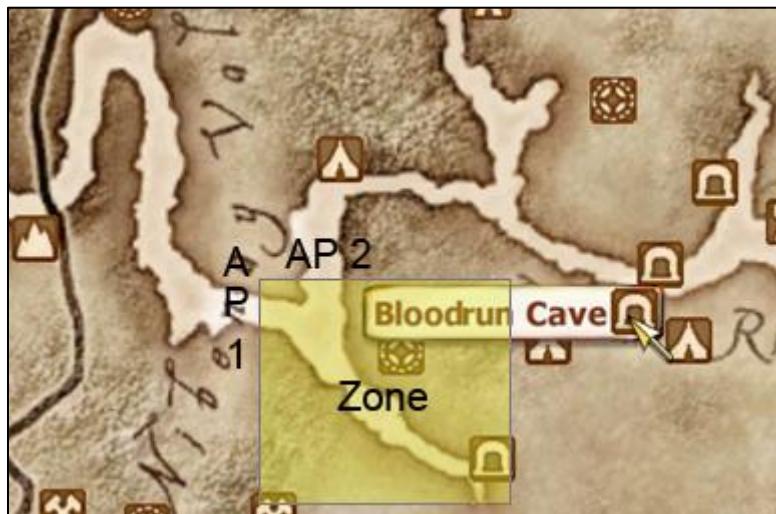
**Figure 4: ZigBee part on the AP Module board**



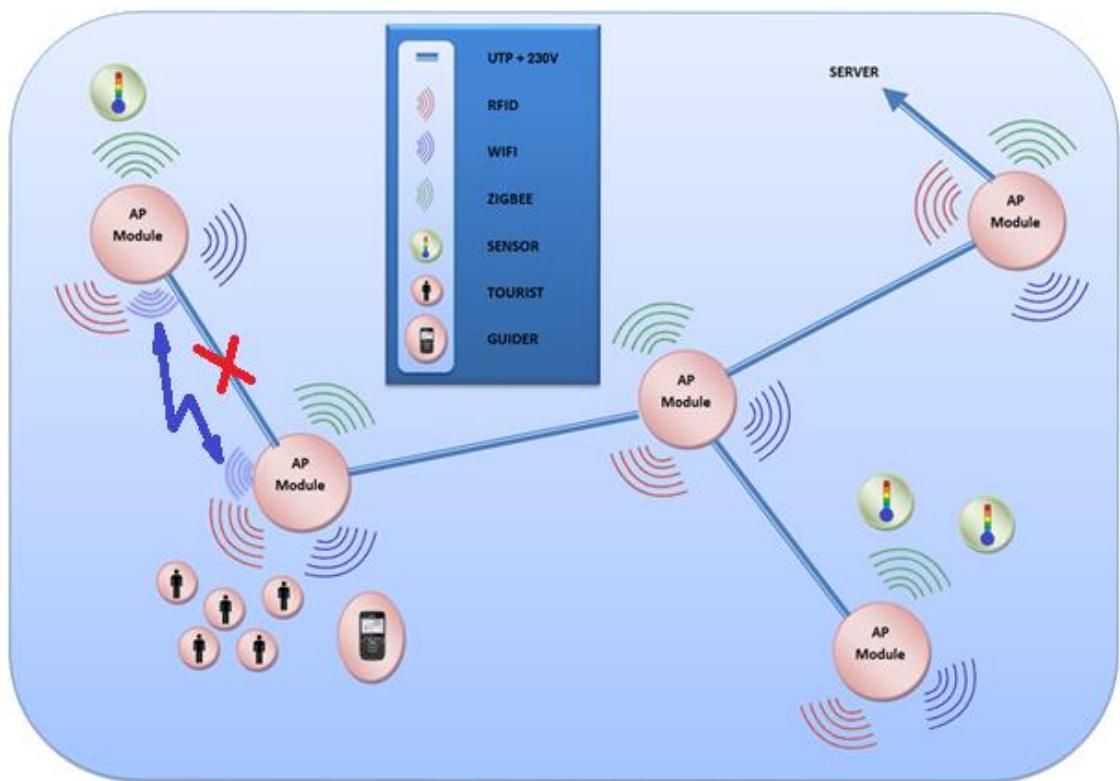
**Fig. 5: Location system principle**



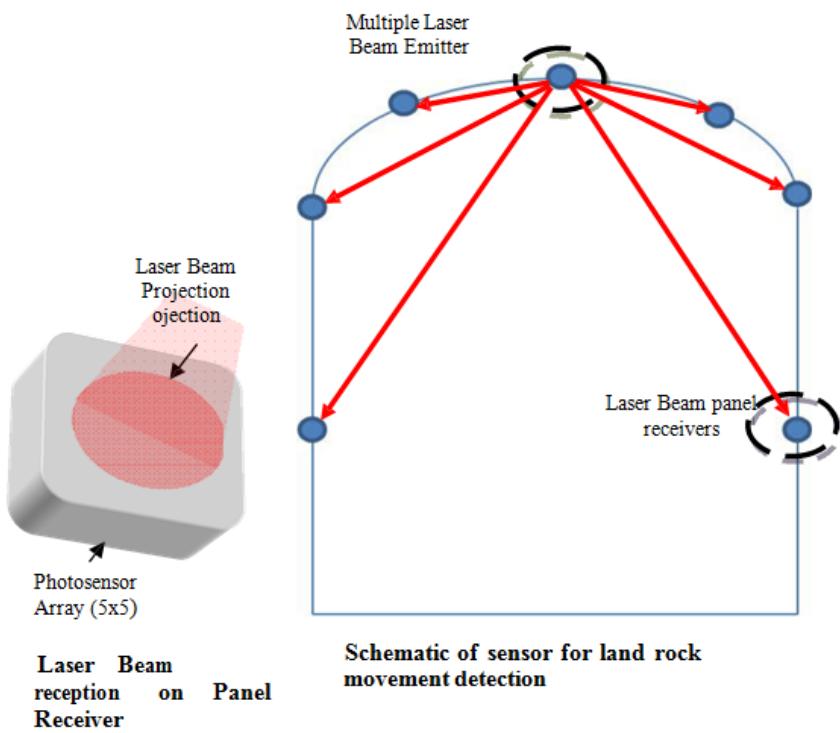
**Fig. 6: Calculation of the number of persons within a zone.**



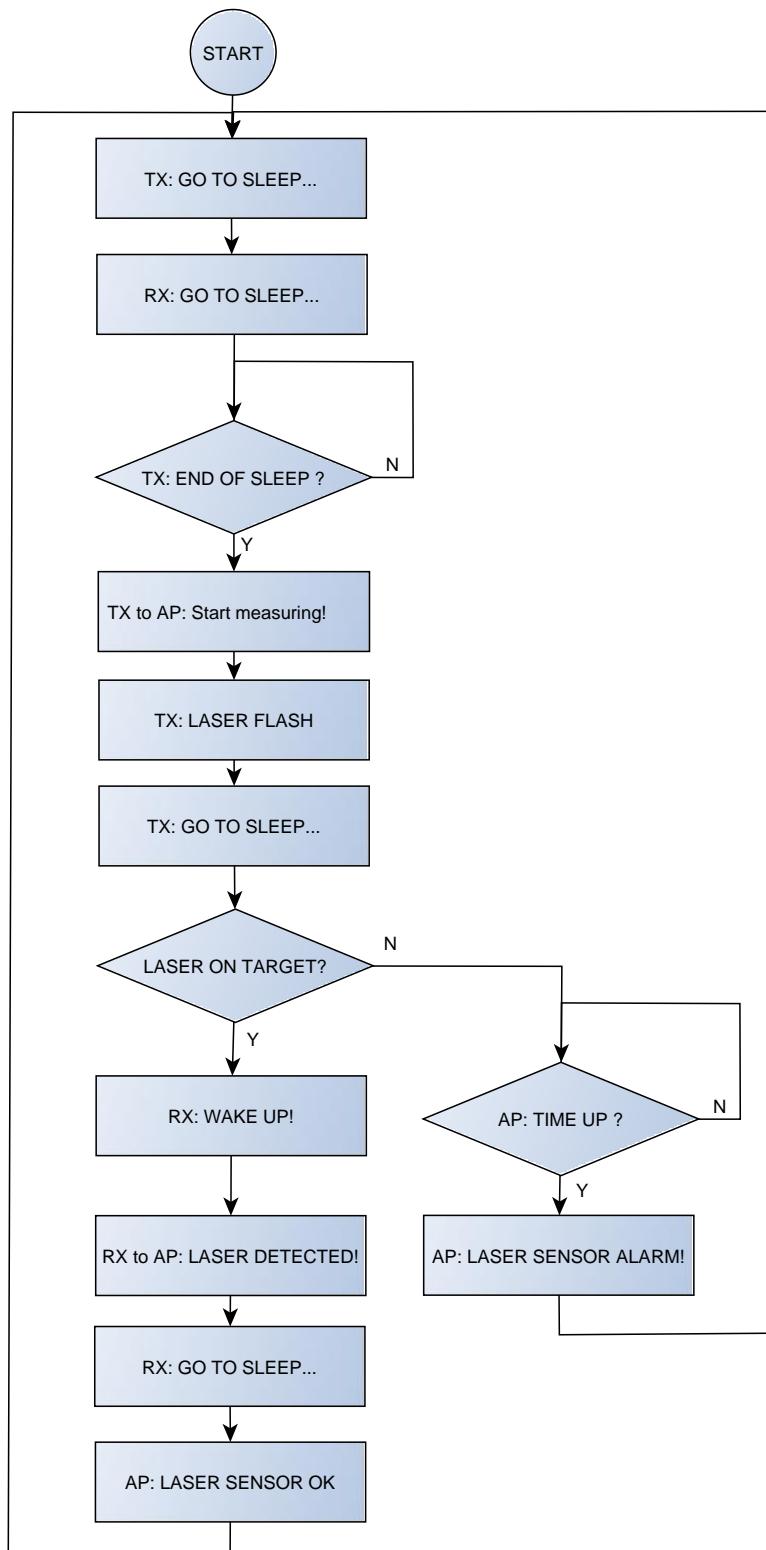
**Figure 7 - emergency WiFi connection**



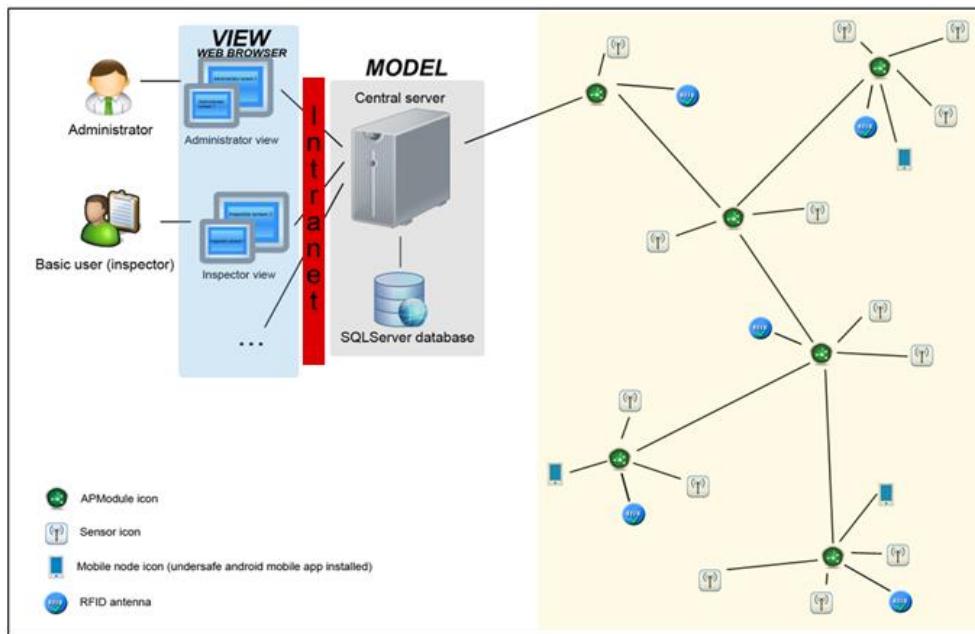
**Figure 8 - sensor scheme**



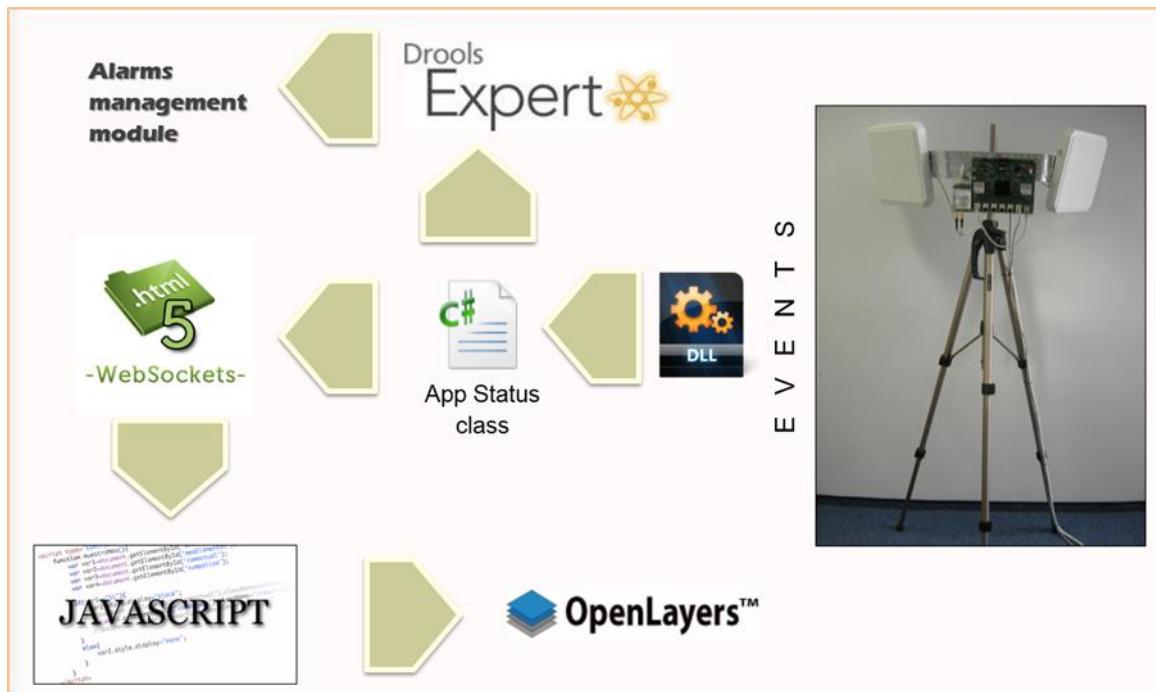
**Figure 9 - flow chart**



**Fig. 10: Final architecture of the UnderSafe system.**



**Fig. 11: Processing path of the AP modules data.**



**Table 1**

Variable	Name	Comments
<b>Temperature.</b>	TEMP	Current temperature.
<b>Relative humidity.</b>	RHUM	Current relative humidity.
<b>Water level.</b>	WATR	Control of the water level in lakes and rivers.

<b>Light sensor.</b>	LIGH	Current light level.
<b>Noise level.</b>	NOIS	Current noise level.
<b>CO2 level.</b>	CO2	Current CO <sub>2</sub> level.
<b>CO level.</b>	CO	Current CO level.
<b>SH<sub>2</sub> level.</b>	SH2	Current SH <sub>2</sub> level.
<b>CH<sub>4</sub> detected.</b>	CH4	Presence of CH <sub>4</sub> detected.
<b>Smoke detected.</b>	SMKE	Presence of smoke detected.
<b>Rock falling detected.</b>	ROCK	Detection of a fallen rock.
<b>Landslide detected.</b>	LDSD	Detection of a landslide.

**Table 2**

Keyword	Initial	Value	Usage
<b>NAME</b>	N	Provides the name for the rule generated from that row. The default is constructed from the text following the RuleTable tag and the row number.	At most one column.
<b>DESCRIPTION</b>	I	A text, resulting in a comment within the generated rule.	At most one column.
<b>CONDITION</b>	C	Code snippet and interpolated values for constructing a constraint within a pattern in a condition.	At least one per rule table.
<b>ACTION</b>	A	Code snippet and interpolated values for constructing an action for the consequence of the rule.	At least one per rule table.
<b>METADATA</b>	@	Code snippet and interpolated values for constructing a metadata entry for the rule.	Optional, any number of columns.

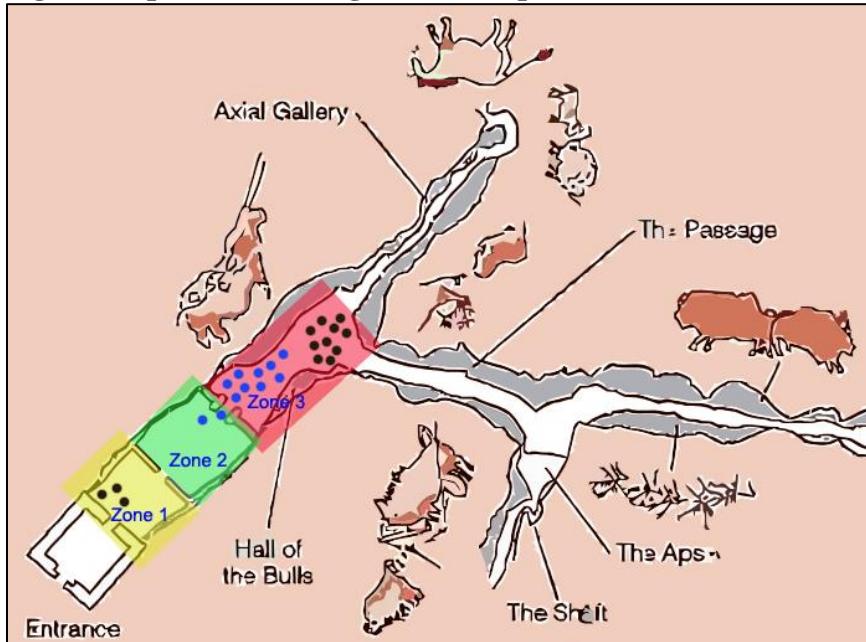
**Table 3**

Name	Type	Parameters	Usage
<b>Code</b>	CONDITION	String	Code of the zone affected by this rule.
<b>Minimum temperature</b>	CONDITION	Number	Activated when temperature is below the given parameter.
<b>Maximum temperature</b>	CONDITION	Number	Activated when temperature is above

			the given parameter.
<b>Minimum relative humidity</b>	CONDITION	Number	Activated when relative humidity is below the given parameter.
<b>Maximum relative humidity</b>	CONDITION	Number	Activated when relative humidity is above the given parameter.
<b>Minimum water level</b>	CONDITION	Number	Activated when relative humidity is below the given parameter.
<b>Maximum water level</b>	CONDITION	Number	Activated when water level is above the given parameter.
<b>Rock falling detected</b>	CONDITION	Boolean	If selected, condition is activated when rock falling is detected.
<b>Landslide detected</b>	CONDITION	Boolean	If selected, condition is activated when landslide is detected.
<b>Minimum light</b>	CONDITION	Number	Activated when light level is below the given parameter.
<b>Smoke detected</b>	CONDITION	Boolean	If selected, condition is activated when smoke is detected.
<b>Maximum noise</b>	CONDITION	Number	Activated when noise level is above the given parameter.
<b>Maximum CO2</b>	CONDITION	Number	Activated when CO2 level is above the given parameter.
<b>Maximum CO</b>	CONDITION	Number	Activated when CO level is above the given parameter.
<b>Maximum SH2</b>	CONDITION	Number	Activated when SH2 level is above the given parameter.
<b>Minimum O2</b>	CONDITION	Number	Activated when O2 level is below the given parameter.
<b>CH4 detected</b>	CONDITION	Boolean	If selected, condition is activated when CH4 gas is detected.
<b>THEN CLAUSE (Type, Code,</b>	ACTION	{Any Database alarm type such as Warning or Danger}, <Any DataBase alarm code such as	The result of the rule activation.

<b>Description)</b>		MIN_TEMP or MAX_TEMP>, <Additional text describing or clarifying this rule activation. It will be shown in the when all conditions got activated.>	
---------------------	--	--	--

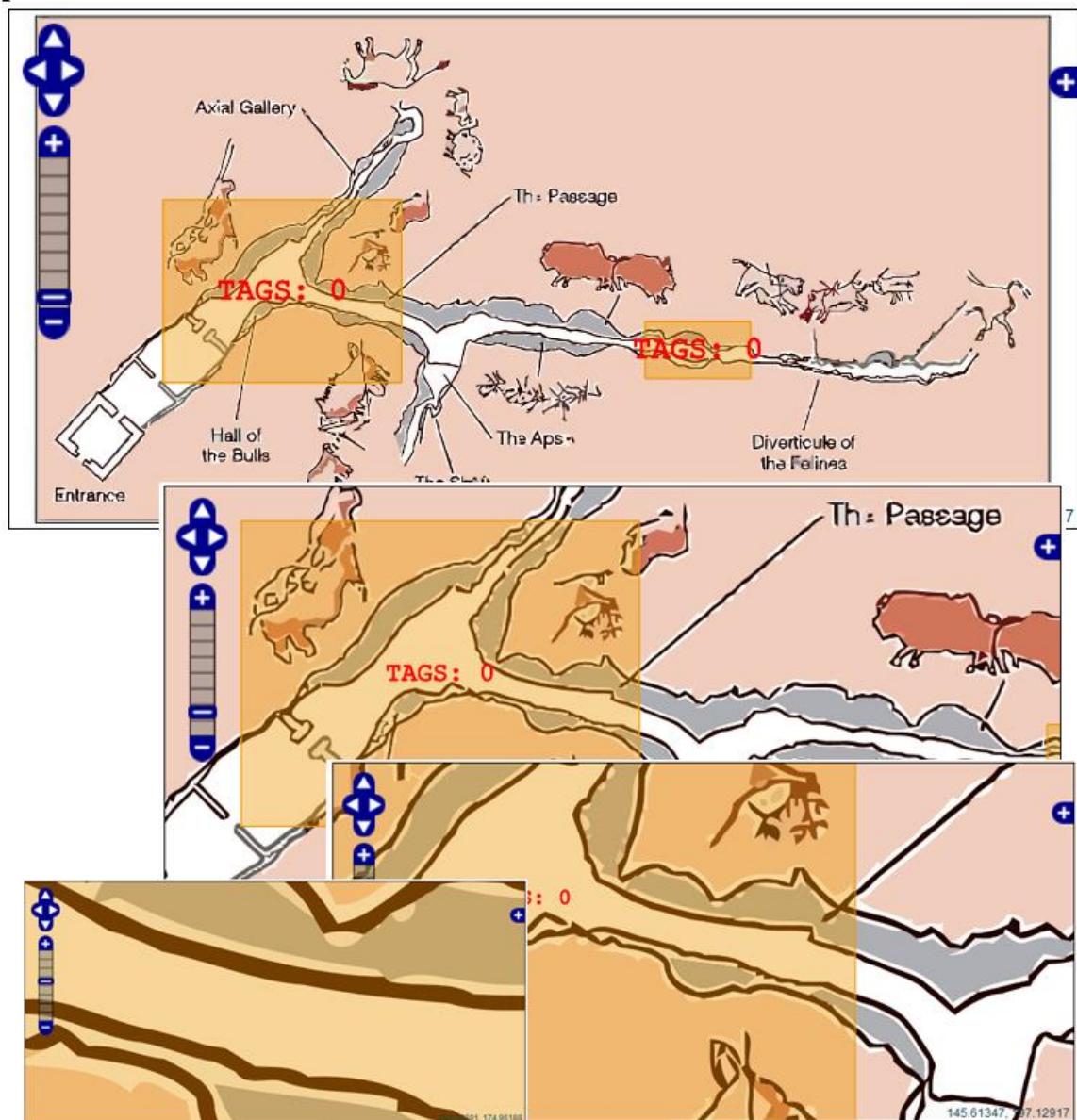
**Fig. 12: Separation from guider example situation.**



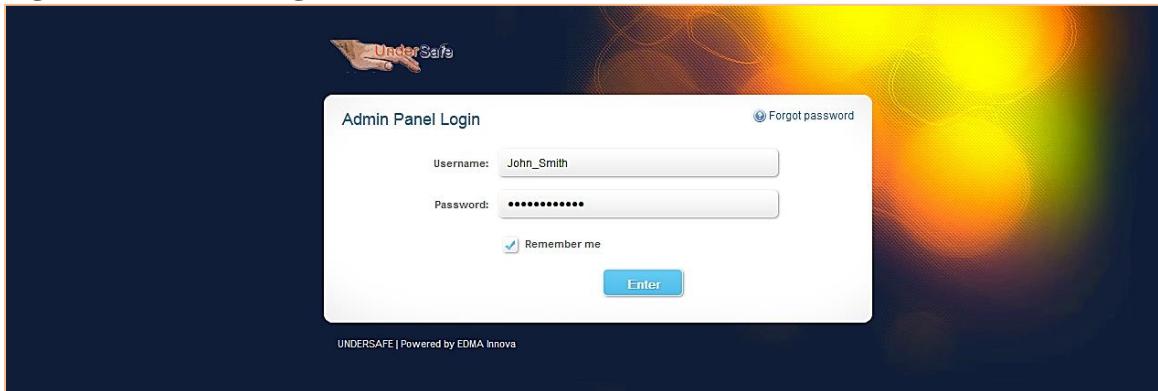
**Fig. 13: OpenLayers and UnderSafe technology, working together.**



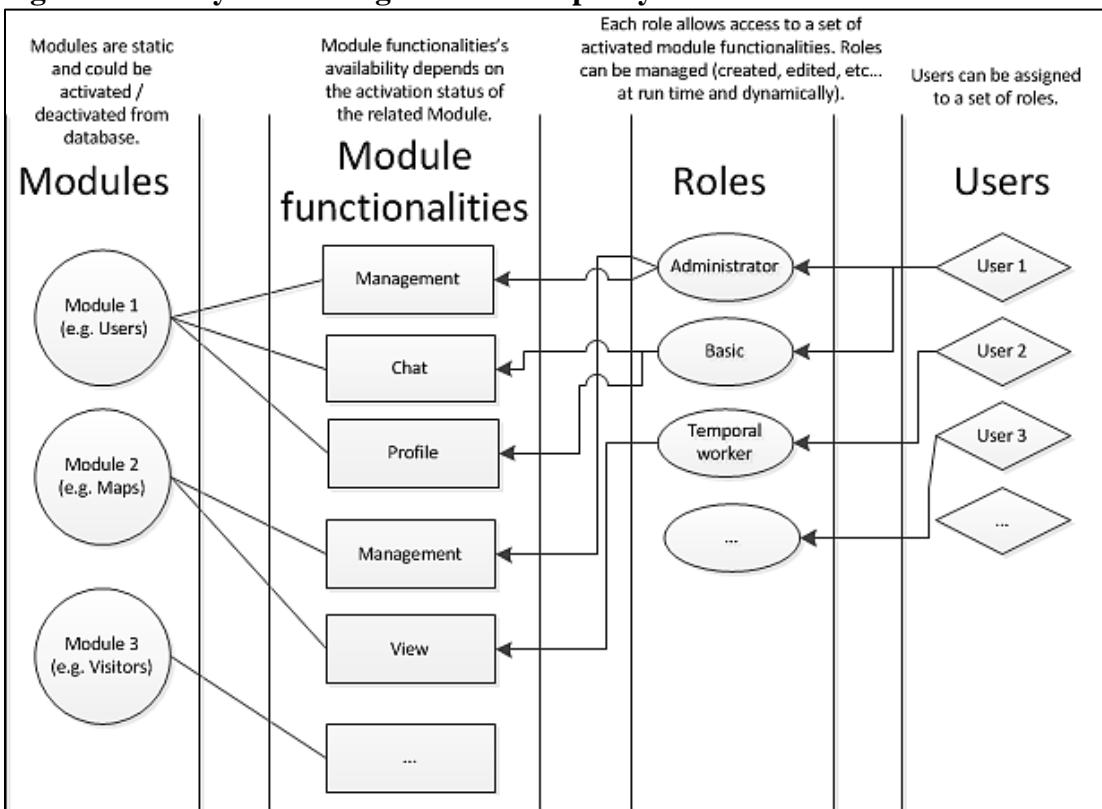
Fig. 14: SVG format and OpenLayers allow an interactive and powerful result where pixels cannot be noticed even with the maximum zoom level.



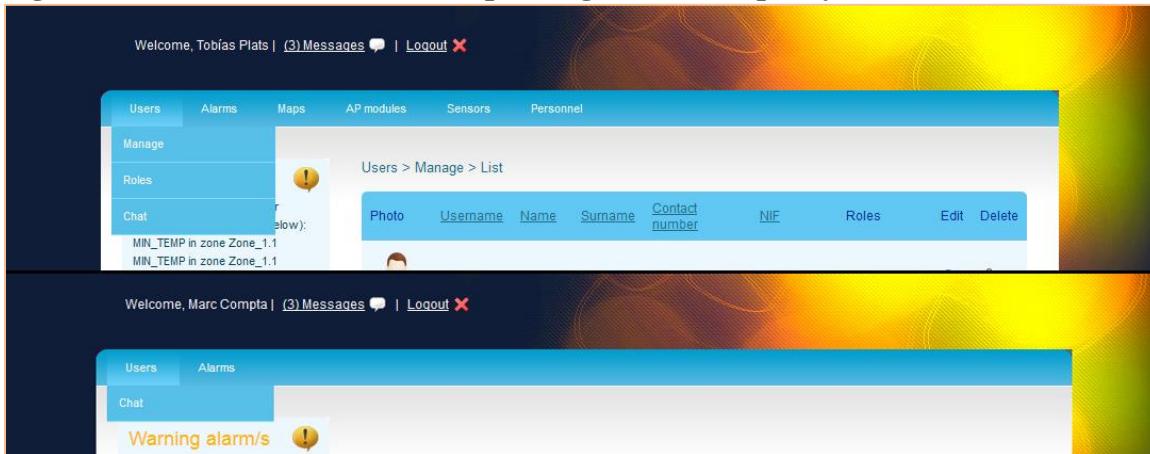
**Fig. 15: UnderSafe login screen.**



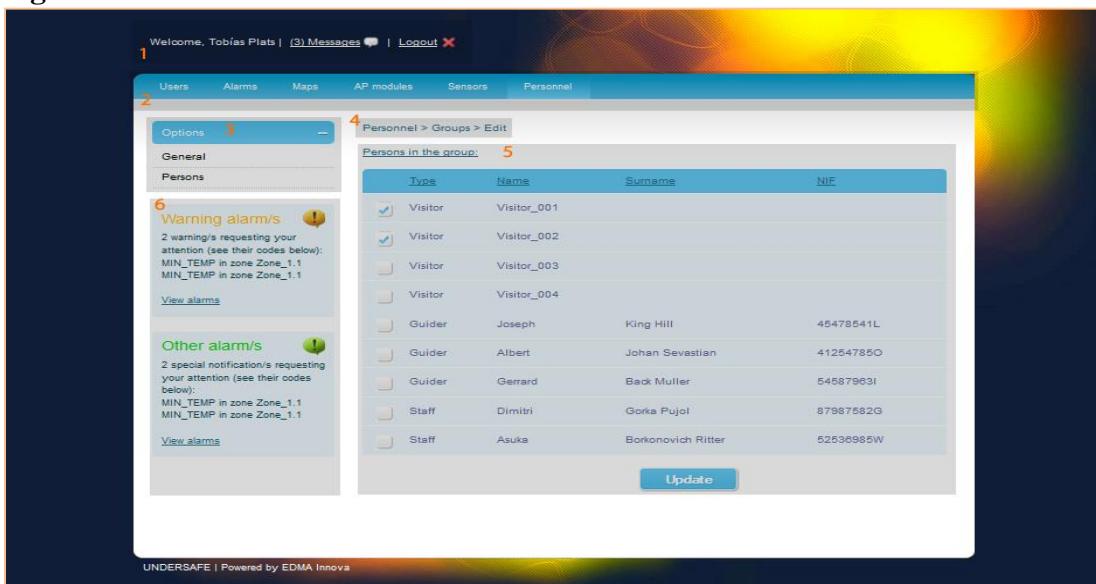
**Fig. 16: Four layers at charge of the roles policy.**



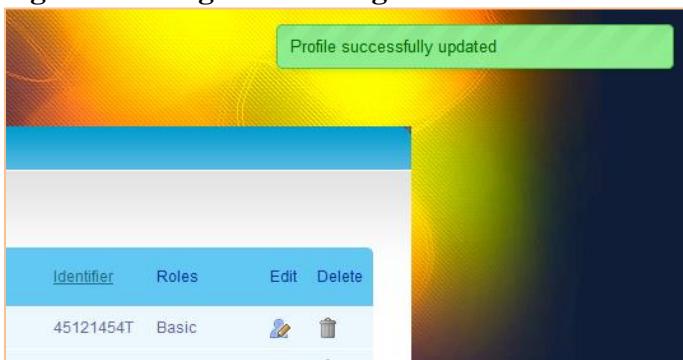
**Fig. 17: Available functionalities depending on the role policy.**



**Fig. 18: UnderSafe main interface schema.**



**Fig. 19: Message confirming a database commit.**



**Fig. 20: Profile screen.**

Users > Profile



Photo (upd):

Username: TPlats

Password:

Name: Tobias

Surname: Plats

Contact number: 441512145

Identifier: 48965213P

**Fig. 21: Users list view.**

Welcome, Tobias Plats | (3) Messages  | Logout 

Users Alarms Maps AP modules Sensors Personnel

Users > Manage > List

**Warning alarm/s** 

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** 

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Photo	Username	Name	Surname	Contact number	NIF	Roles	Edit	Delete
	MCompta	Marc	Compta	654878754	45121454T	Basic		
	RMartinez	Ramón	Martinez	222515248	95888451L	Administrator		
	TPlats	Tobias	Plats	441512145	48965213P	Administrator		
	KCoruño	Kike	Coruño	446989852	85469652U	Administrator		
	PPope	Pedro	Pope	123123456	4987562K	Administrator		

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**Fig. 22: Users edit view.**

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Users Alarms Maps AP modules Sensors Personnel

Warning alarm/s !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Other alarm/s !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Users > Manage > Edit

Photo:

Username: RMartinez

Password: PASSWORD

Name: Ramón

Surname: Martinez

Contact number: 222515248

Roles:  Administrator  Basic

NIF: 95888451L

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**Fig. 23: Users add view.**

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Users Alarms Maps AP modules Sensors Personnel

Warning alarm/s !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Other alarm/s !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Users > Manage > Add

Photo:

Username:

Password:

Name:

Surname:

Contact number:

Roles:  Administrator  Basic

NIF:

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**Fig. 24: Roles list view (up) and Roles edit view (bottom)**

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Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Users > Roles > List

Role code	Permissions	Edit	Delete
Administrator	Users management, Chat, Roles management, Alarms view, Alarms management, Map management, Map view, AP modules management, Sensors management, Personnel management, Groups management		
Basic	Chat, Alarms view		

[Add new item](#)

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Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

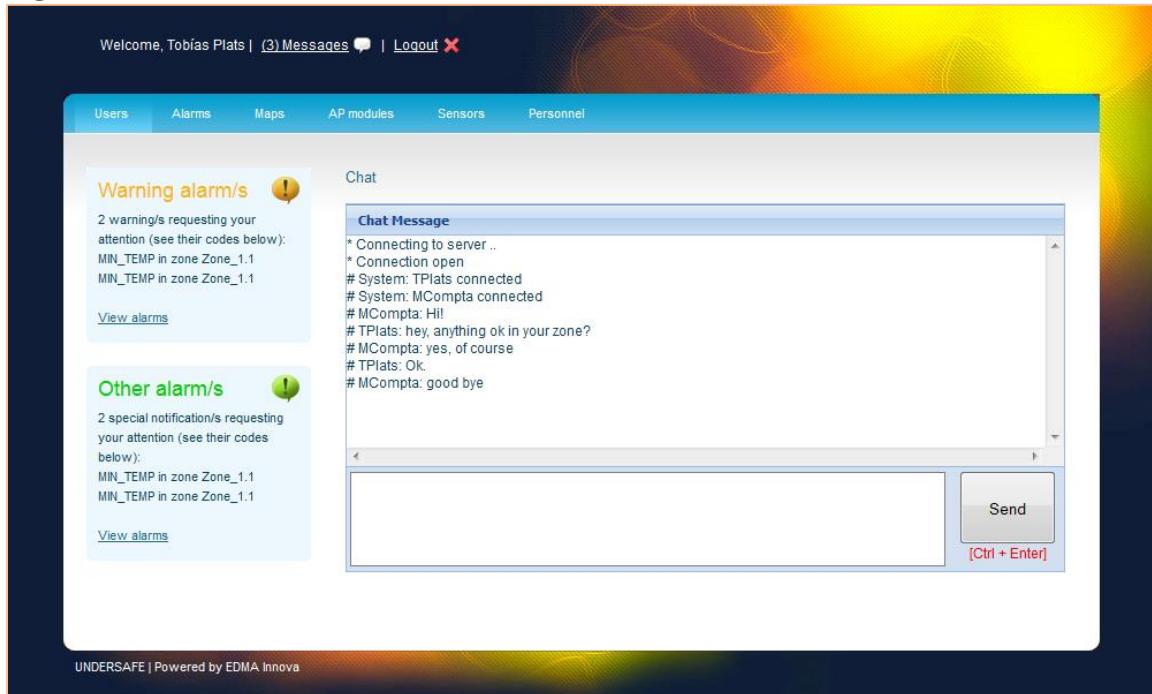
[View alarms](#)

Users > Roles > Edit

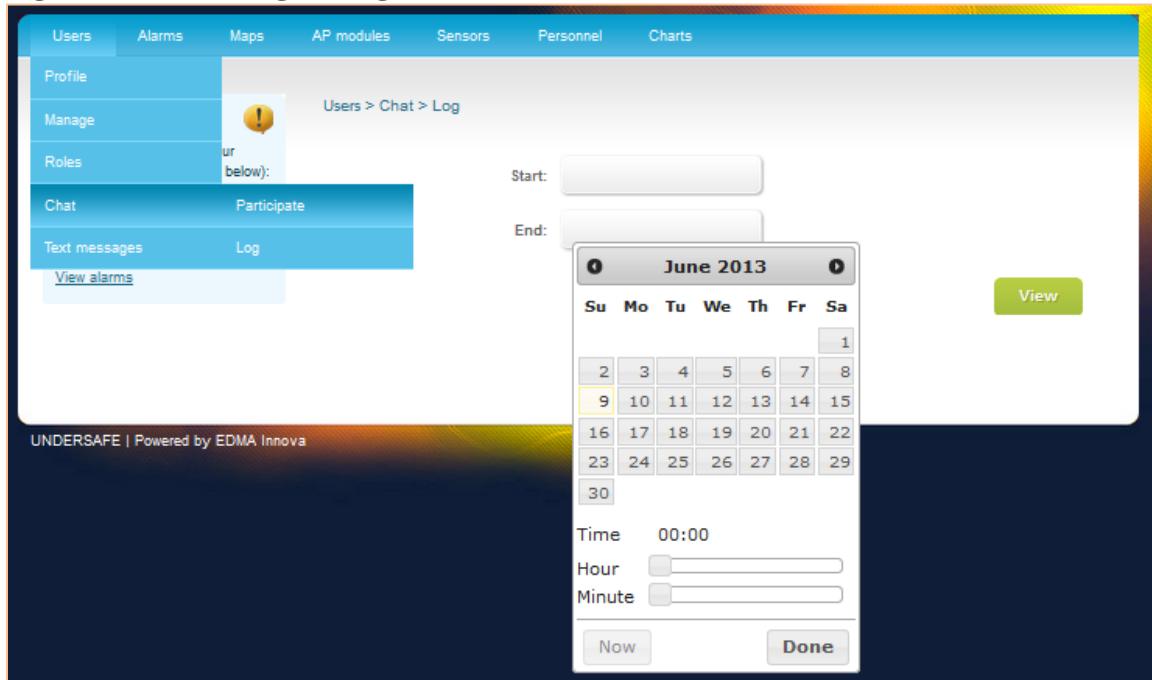
Code:	<input type="text" value="Administrator"/>
Users management	<input checked="" type="checkbox"/>
Chat	<input checked="" type="checkbox"/>
Roles management	<input checked="" type="checkbox"/>
Alarms view	<input checked="" type="checkbox"/>
Alarms management	<input checked="" type="checkbox"/>
Map management	<input checked="" type="checkbox"/>
Map view	<input checked="" type="checkbox"/>
AP modules management	<input checked="" type="checkbox"/>
Sensors management	<input checked="" type="checkbox"/>
Personnel management	<input checked="" type="checkbox"/>
Groups management	<input checked="" type="checkbox"/>

[Update](#)

**Fig. 25: Live chat.**



**Fig. 26: Live chat log, configuration screen.**



**Fig. 27: Live chat log, view screen.**

Username	Sent at	Message
TPlats	09/06/2013 19:43:27	asdfasdfsaf
TPlats	09/06/2013 19:43:30	Test message
TPlats	09/06/2013 19:43:35	Another text message
TPlats	09/06/2013 19:43:38	bla bla bla

**Fig. 28: New private text message functionality.**

Username	Name	Surname
MCompta	Marc	Compta
RMarthez	Ramón	Marthez
TPlats	Tobías	Plats
KCoruña	Kike	Coruña
PPope	Pilar	Pope

**Fig. 29: Text messages inbox.**

The screenshot shows the 'TextMessage > Inbox' page. On the left, there is a sidebar with a yellow warning icon and the text 'Warning alarm/s'. It lists three alarms: 'AWYGUID In zone ENTRANCE', 'AWYGUID In zone ENTRANCE', and 'ABSMOVE In zone ZONE3'. Below this is a link 'View alarms'. The main area has two sections: 'New messages:' and 'Already viewed:'. Both sections have tables with columns for Sender, Subject, Date, View, and Delete. Under 'New messages:', the first row is 'TPlats Another sample message.' dated 09/06/2013 17:57:10, and the second row is 'TPlats Another message.' dated 09/06/2013 17:57:38. Under 'Already viewed:', there is one row: 'TPlats Sample message 1.' dated 09/06/2013 17:56:21. At the bottom, it says 'UNDERSAFE | Powered by EDMA Innova'.

Sender	Subject	Date	View	Delete
TPlats	Another sample message.	09/06/2013 17:57:10		
TPlats	Another message.	09/06/2013 17:57:38		

Sender	Subject	Date	View	Delete
TPlats	Sample message 1.	09/06/2013 17:56:21		

**Fig. 30: Received message detail.**

The screenshot shows the 'TextMessage > Inbox > Detail' page. On the left, there is a sidebar with a yellow warning icon and the text 'Text messages'. Below this is a link 'View alarms'. The main area displays details of a received message. It shows the 'Sender' as 'TPlats', the 'Subject' as 'Another sample message.', and the 'Body' as a large block of text: 'The body of the text message goes here.  
The body of the text message goes here.  
Best wishes.' At the bottom, it says 'Received at: 09/06/2013 19:57:10'. At the very bottom, it says 'UNDERSAFE | Powered by EDMA Innova'.

Sender: TPlats

Subject: Another sample message.

Body:

The body of the text message goes here.  
Best wishes.

Received at: 09/06/2013 19:57:10

Fig. 31: Sent message detail.

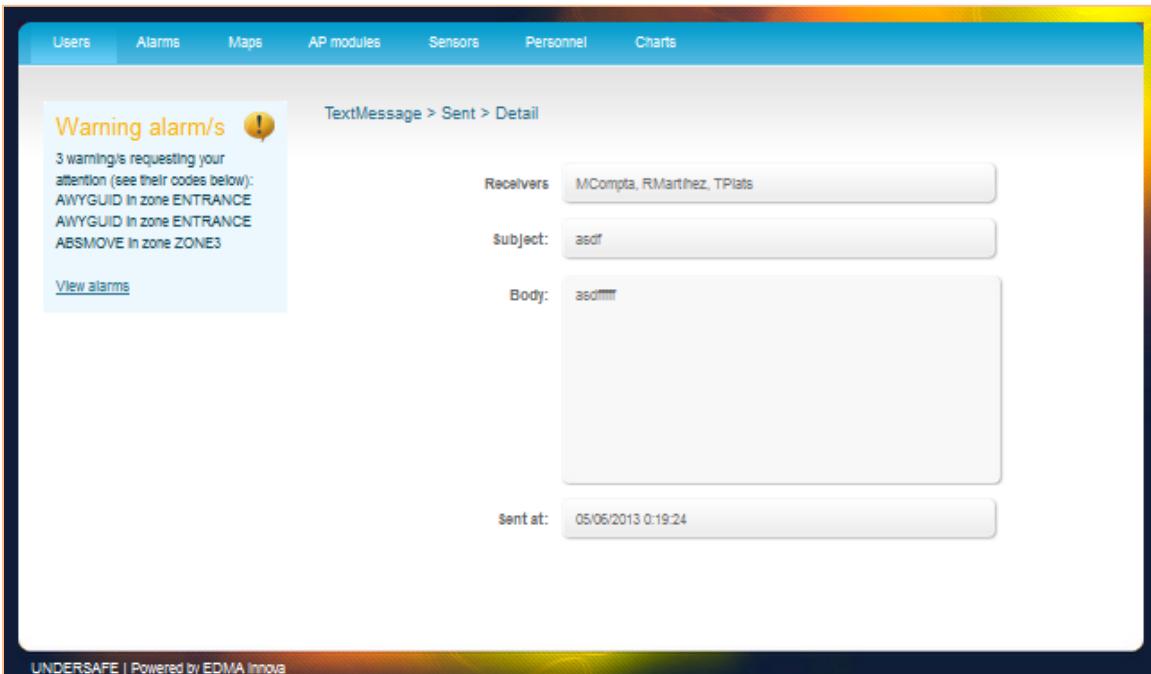


Fig. 32: New received messages notification.

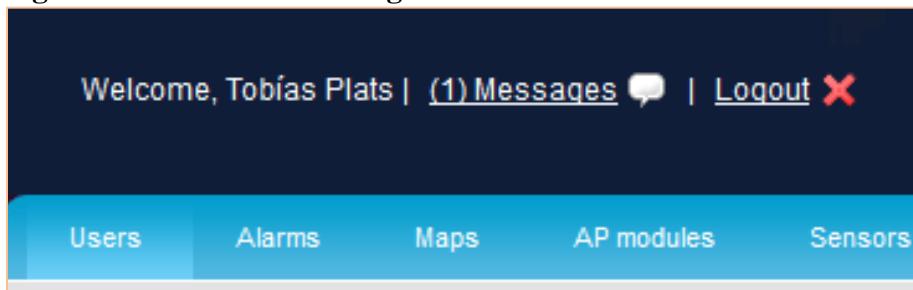
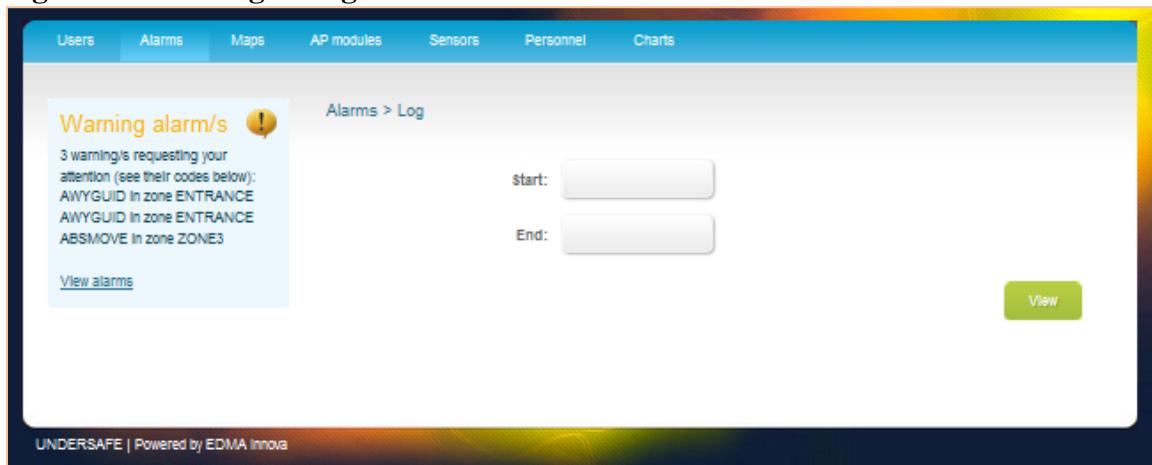


Fig. 33: Alarms log configuration screen to retrieve alarms based on a time interval.



**Fig. 34: Alarms list view.**

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Users    Alarms    Maps    AP modules    Sensors    Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Alarms > Manage > List

Type	Code	Status	Location	Raised at	Solved at	Other information	Edit	Delete
⚠	MIN_TEMP: Minimum temperature reached	Raised	Zone_1.1	16/02/2013 10:07:24	16/02/2013 11:24:45	Description_1		
⚠	MIN_TEMP: Minimum temperature reached	Solved	Zone_1.1	16/02/2013 10:07:24	16/02/2013 11:24:45	Description_2		
⚠	MIN_TEMP: Minimum temperature reached	Raised	Zone_1.1	16/02/2013 10:07:24	16/02/2013 11:24:45	Description_3		
⚠	MIN_TEMP: Minimum temperature reached	Solved	Zone_1.1	16/02/2013 10:07:24	16/02/2013 11:24:45	Description_4		

Add new alarm

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**Fig. 35: Alarms edit view.**

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**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Alarm > Manage > Edit

Code:	MIN_TEMP
Status:	Solved
Type:	Warning
Location:	Zone_1.1
Description:	Description_2

Update

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Users Alarms Maps AP modules Sensors Personnel

Alarms > Status > List

Code	Description	Edit	Delete
Raised	The alarm has been triggered		
Solved	The problem behind the alarm has been solved		

[Add new alarm status](#)

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

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Fig. 36: Alarms status list view.

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Users Alarms Maps AP modules Sensors Personnel

Alarm > Status > Edit

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Code:  Description:  [Update](#)

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**Fig. 37: Alarms statuses edit view.**

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Users    Alarms    Maps    AP modules    Sensors    Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Alarms > Type > List

Code	Description	Edit	Delete
Warning	Notification that does not pose a current potential danger		
Other	This is an alternative status		
Danger	Notification that should be solved urgently		

[Add new alarm type](#)

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**Fig. 38: Alarms types list view.**

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Users    Alarms    Maps    AP modules    Sensors    Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Alarm > Type > Edit

Code:

Description:

[Update](#)

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**Fig. 39: Alarms types edit view.**

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Users   Alarms   Maps   AP modules   Sensors   Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Alarm > Code > List

Code	Description	Notification list	Edit	Delete
MIN_TEMP	Minimum temperature reached	Administrator, Basic		
MAX_TEMP	Maximum temperature reached	Administrator		
MIN_RHUM	Minimum humidity reached	Basic		
MAX_RHUM	Maximum humidity reached	All		

[Add new alarm code](#)

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**Fig. 40: Alarms codes list view.**

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Users   Alarms   Maps   AP modules   Sensors   Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Alarm > Code > Add

Code:

Description:

Administrator

Basic

[Add](#)

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**Fig. 41: Alarms codes add view.**

**Fig. 42: Floors list view.**

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Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Maps > Floors > List**

Code	Description	Width	Height	Edit	Delete
Floor_1	This is the first floor of the cave	300	349		
Floor_2	This is the second floor of the cave	742	374		

[Add new floor](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

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**Fig. 43: Floors add view.**

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Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Maps > Floors > Add**

Image:

Code:

Description:

Width:

Height:

[Add](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

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**Fig. 44: Zones list view.**

The screenshot shows a web-based interface for managing zones. At the top, there is a navigation bar with tabs: Users, Alarms, Maps, AP modules, Sensors, Personnel, and Charts. The 'Maps' tab is selected. Below the navigation bar, a message box displays 'Warning alarm/s' with three entries: 'AVYGUID In zone ENTRANCE', 'AVYGUID In zone ENTRANCE', and 'ABSMOVE In zone ZONE3'. A link 'View alarms' is provided. The main content area is titled 'Maps > Zones > List' and contains a table of zones:

Code	Description	Exit?	Floor	Edit	Delete
ENTRANCE	Entrance of the cave	✓	TOLL		
ZONE1	Zone 1 First ceramics	✗	TOLL		
ZONE2	Zone 2 Second ceramics, Necropolis	✗	TOLL		
ZONE3	Zone 3	✗	TOLL		
ZONE4	Zone 4 Bridge, Elephant leg, Siphon chamber	✗	TOLL		

A green button labeled 'Add new zone' is located at the bottom right of the table. At the very bottom of the page, a footer bar reads 'UNDERSAFE | Powered by EDMA Innov'.

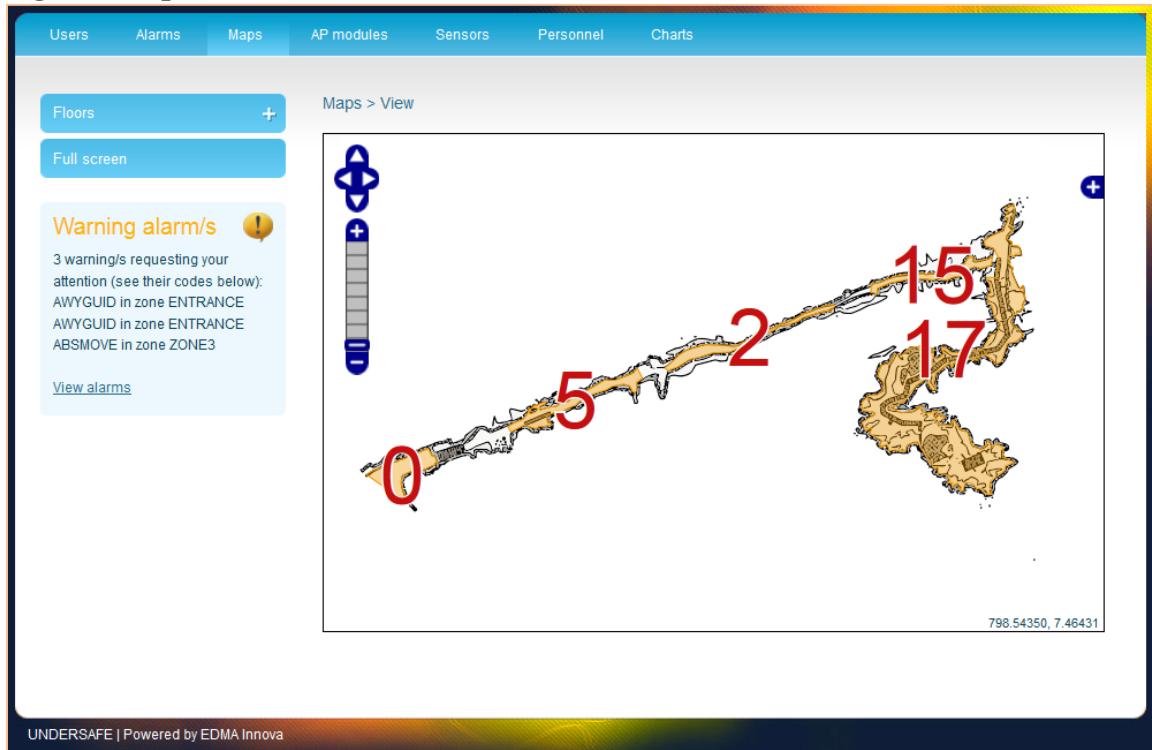
**Fig. 45: Zones add view.**

The screenshot shows a web-based interface for editing a zone. At the top, there is a navigation bar with tabs: Users, Alarms, Maps, AP modules, Sensors, Personnel, and Charts. The 'Maps' tab is selected. Below the navigation bar, a message box displays 'Warning alarm/s' with three entries: 'AVYGUID In zone ENTRANCE', 'AVYGUID In zone ENTRANCE', and 'ABSMOVE In zone ZONE3'. A link 'View alarms' is provided. The main content area is titled 'Maps > Zones > Edit' and contains a form for editing a zone:

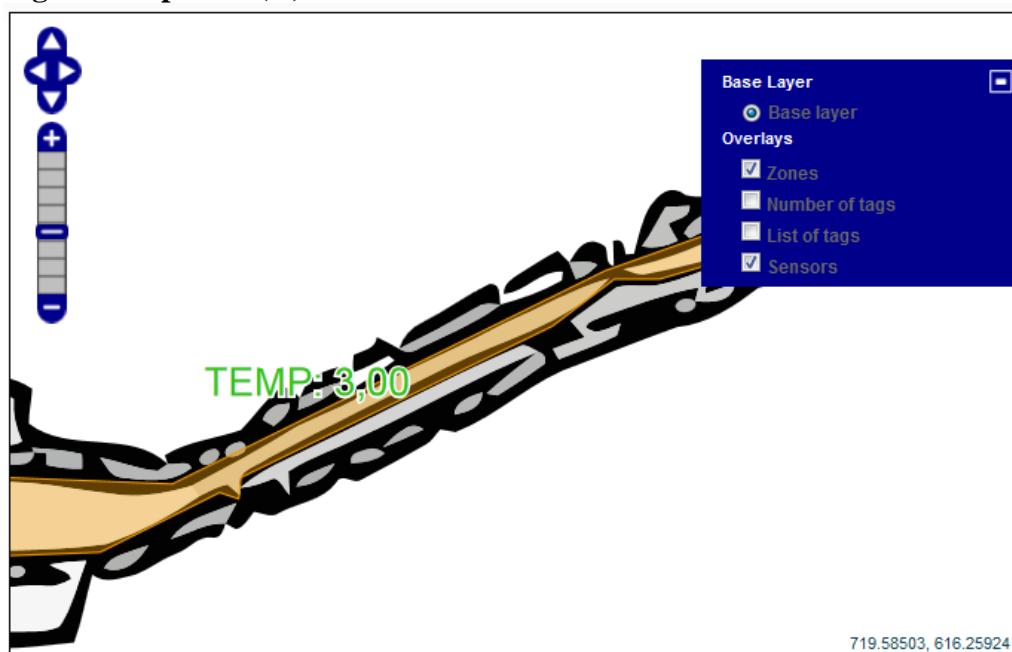
Code: ZONE2  
Description: Zone 2 Second ceramics, Necropolis  
Is Exit:   
Location: POLYGON((618.665 495.14403808594, 613.985 500.6040380)  
Floor: TOLL

A blue 'Update' button is located below the form. Below the form is a map view showing a complex underground structure with various rooms and paths. A vertical toolbar on the left side of the map includes icons for zooming in and out, and a legend.

**Fig. 46: Map view (I).**



**Fig. 47: Map view (II).**



**Fig. 48: Map view, full screen.**

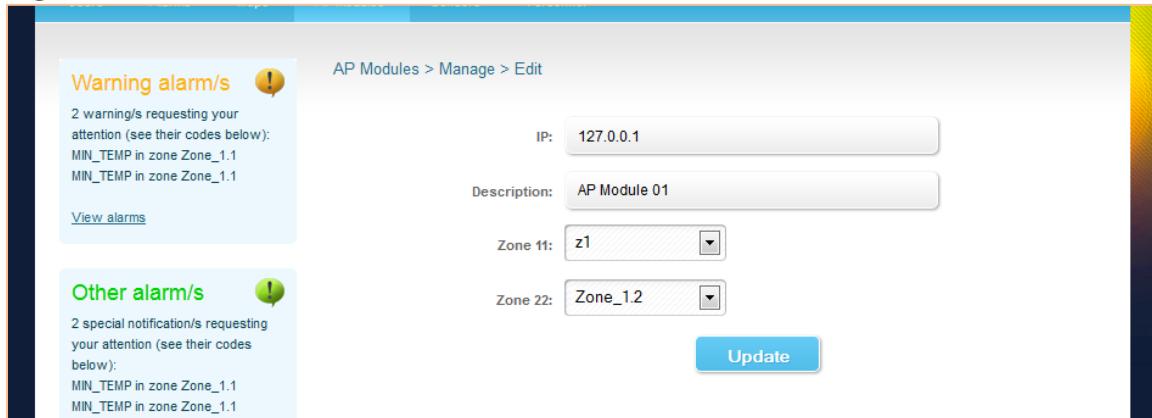


**Fig. 49: AP Modules list view.**

IP	Description	Active	Zone 11	Zone 22	Power	Edit	Delete
127.0.0.1	AP MODULE 1	✗	ZONE1	ENTRANCE	Grid		
127.0.0.2	AP MODULE 2	✗	ZONE2	ZONE1	Grid		
127.0.0.3	AP MODULE 3	✗	ZONE3	ZONE2	Grid		
127.0.0.4	AP MODULE 4	✗	ZONE4	ZONE3	Grid		

[Add new AP Module](#)

**Fig. 50: AP Modules edit view.**



**Fig. 51: Sensor types management (I).**

Code	Description	Edit	Delete
TEMP	Temperature		
RHUM	Relative humidity		
WATR	Water level		
LIGH	Light level		
NOIS	Noise level		
CO2	CO2 level		
CO	CO level		
SH2	SH2 level		
CH4	CH4 detected		
ROCK	Rock falling detected		

**Fig. 52: Sensor types management (II).**

Code	Description	Edit	Delete
LDSD	Landslide detected		
SMKE	Smoke detected		

**Fig. 53: Sensor types edit view.**

Sensors > Sensor Types > Edit

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Code:** TEMP

**Description:** Temperature

**Update**

**Other alarm/s** !

2 special notification/s requesting

**Fig. 54: Sensor list view.**

Sensors > Manage > List

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Type** Active Zoneld Value Edit Delete

TEMP	✓	z1	27,00		
RHUM	✓	z1	12,00		
WATR	✗	Zone\_1.1	34,00		

**Other alarm/s** !

2 special notification/s requesting

**Add new sensor**

**Fig. 55: Sensor edit view.**

Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Type:** TEMP

**Zone:** Zone\_1.1

**Active:**

**Update**

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

**Fig. 56: Personnel list view.**

Welcome, Tobias Plats | (3) Messages | Logout

Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Personnel > Manage > List

Name	Surname	PersonType	RFID	ContactNumber	NIF	Edit	Delete
Visitor_001		Visitor	RFID0123456789				
Visitor_002		Visitor	RFID1470258369				
Visitor_003		Visitor	RFID9632587410				
Visitor_004		Visitor	RFID9873210546				
Joseph	King Hill	Guider	RFID5458745854	958454578	45478541L		
Albert	Johan Sebastian	Guider	RFID5585254698	985236541	412547850		
Gerrard	Back Muller	Guider	RFID2145874693	985236987	54587963I		
Dimitri	Gorka Pujol	Staff	RFID4125879632	999585231	87987582G		
Asuka	Borkonovich Ritter	Staff	RFID5521368544	974582145	52536985W		

Add new person

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**Fig. 57: Personnel edit view.**

Welcome, Tobias Plats | (3) Messages | Logout

Users Alarms Maps AP modules Sensors Personnel

**Warning alarm/s** !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s** !

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Personnel > Manage > Edit

Name:	Dimitri
Surname:	Gorka Pujol
Person type:	Staff
RFID:	RFID4125879632
Contact number:	999585231
NIF:	87987582G

**Update**

**Fig. 58: Person types list view.**

Welcome, Tobias Plats | (3) Messages 📬 | Logout ✖

Users Alarms Maps AP modules Sensors Personnel

Warning alarm/s !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Personnel > Person Types > List

Code	Description	Edit	Delete
Visitor	An anonymous person who only wants to visit the attraction.		
Guider	A person who is at charge of guiding groups of visitors.		
Staff	A person who is at charge of some part of the attraction.		

Other alarm/s !

2 special notification/s requesting your attention (see

[Add new person type](#)

**Fig. 59: Person types edit view.**

Users Alarms Maps AP modules Sensors Personnel

Warning alarm/s !

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

Personnel > Person Types > Edit

Code:

Description:

[Update](#)

Other alarm/s !

**Fig. 60: Groups list view.**

**Personnel > Groups > List**

Code	Start date	End date	Comments	Edit	Delete
GRP_OLD_01	07/01/2013 9:11:22	11/01/2013 18:33:44	Formed mostly by elderly people		
GRP_KID_01	09/01/2013 9:55:02	09/01/2013 18:11:23	Formed mostly by kids		

**Persons in the group:**

**Add new item**

**Personnel > Groups > List**

Type	Name	Surname	NIF
Visitor	Visitor_001		
Visitor	Visitor_002		
Visitor	Visitor_003		
Visitor	Visitor_004		
Guider	Joseph	King Hill	45478541L
Guider	Albert	Johan Sevastian	412547850
Guider	Gerrard	Back Muller	54587963I

**Add new item**

**Warning alarm/s**

2 warning/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

**Other alarm/s**

2 special notification/s requesting your attention (see their codes below):  
MIN\_TEMP in zone Zone\_1.1  
MIN\_TEMP in zone Zone\_1.1

[View alarms](#)

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**Fig. 61: Groups add view.**

The screenshot shows a software application window titled "Personnel > Groups > Add". At the top left is a "Manage" button. Below the title, there are four input fields: "Code:" (empty), "Comments:" (empty), "Start:" (empty), and "End:" (empty). A blue "Insert" button is located at the bottom center. The background features a vertical color gradient bar on the right side.

**Fig. 62: Groups edit view (I).**

The screenshot shows a software application window titled "Personnel > Groups > Edit". It displays the following information: "Code: GROUP1", "Comments: Test group", "Start: 08/04/2012 12:00:00", and "End: 08/04/2012 14:00:00". Below the end time, a date picker is open, showing the month of August 2012. The calendar grid is as follows:

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Below the calendar, there is a "Time" field set to "00:00" and a time selector with "Hour" and "Minute" dropdowns. At the bottom are "Now" and "Done" buttons.

**Fig. 63: Groups edit view (II).**

The screenshot shows a web-based application interface for managing personnel groups. At the top, a navigation bar includes links for Users, Alarms, Maps, AP modules, Sensors, and Personnel. The Personnel link is highlighted.

The main content area has a header "Personnel > Groups > Edit". Below it, a section titled "Persons in the group:" lists personnel entries:

Type	Name	Surname	NIF
Visitor	Visitor_001		
Visitor	Visitor_002		
Visitor	Visitor_003		
Visitor	Visitor_004		
Guider	Joseph	King Hill	45478541L
Guider	Albert	Johan Sevastian	412547850
Guider	Gerrard	Back Muller	54587963I
Staff	Dimitri	Gorka Pujol	87987582G
Staff	Asuka	Borkonovich Ritter	52536985W

On the left side, there are two sections: "Warning alarm/s" and "Other alarm/s", each with a count of 2 and a yellow exclamation mark icon. The "Warning alarm/s" section lists "MIN\_TEMP in zone Zone\_1.1" and "MIN\_TEMP in zone Zone\_1.1". The "Other alarm/s" section lists "MIN\_TEMP in zone Zone\_1.1" and "MIN\_TEMP in zone Zone\_1.1". Both sections have a "View alarms" link.

A blue "Update" button is located at the bottom right of the personnel list.

**Fig. 64: Charts, configuration screen (I).**

The screenshot shows a web-based application interface for generating charts. At the top, a navigation bar includes links for Users, Alarms, Maps, AP modules, Sensors, Personnel, and Charts. The Charts link is highlighted.

The main content area has a header "Charts > Generate". On the left, a box displays "No alarms/s" and a message: "The facilities's global status is completely under control. Presence of abnormal parameters is not advised."

Configuration options include:

- Filter by: Radio buttons for "Zone" (selected) and "Source".
- First level filter: A dropdown menu set to "ENTRANCE".
- Second level filter: A dropdown menu set to "TEMP (id=1)".
- Start: An input field for the start time.
- End: An input field for the end time.
- An "Add" button to add more filters.
- A green "Generate" button.

At the bottom left, a footer note says "UNDERSAFE | Powered by EDMA Innova".

**Fig. 65: Charts, configuration screen (II).**

No alarms/s

The facilities's global status is completely under control.  
Presence of abnormal parameters is not advised.

Charts > Generate

Filter by:  Zone  Source

First level filter: ZONE3

Second level filter: TEMP (id=4)

Start:

End:

Add

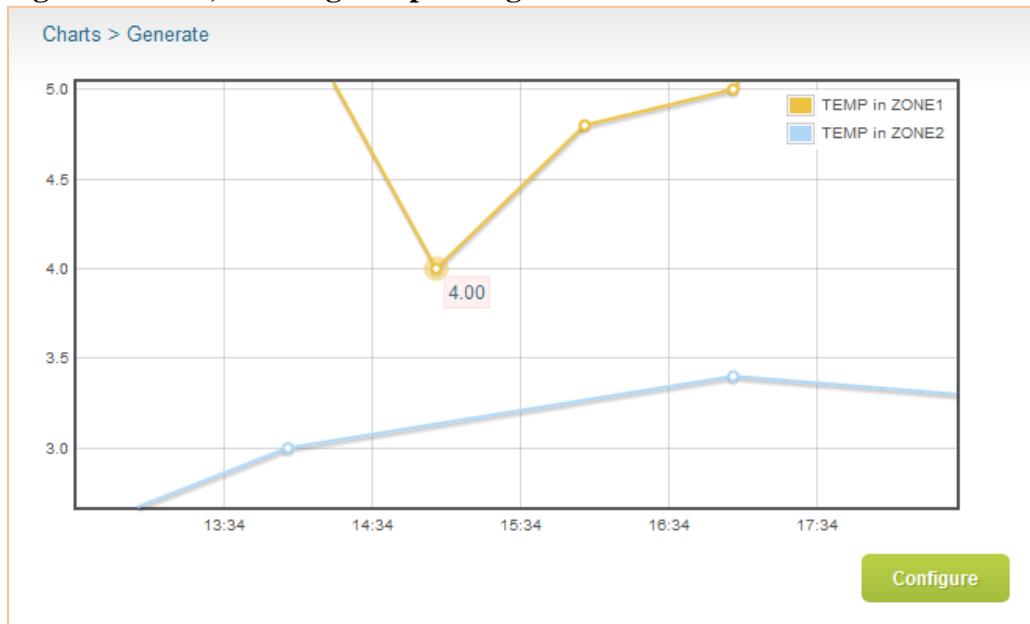
Filter by	First level filter	Second level filter	Start	End	Delete
Zone	ZONE1	TEMP (id=2)			
Zone	ZONE2	TEMP (id=3)			
Zone	ZONE3	TEMP (id=4)			

Generate

**Fig. 66: Charts, plot screen.**



**Fig. 67: Charts, zooming and panning.**



**Fig. 69: Web view.**

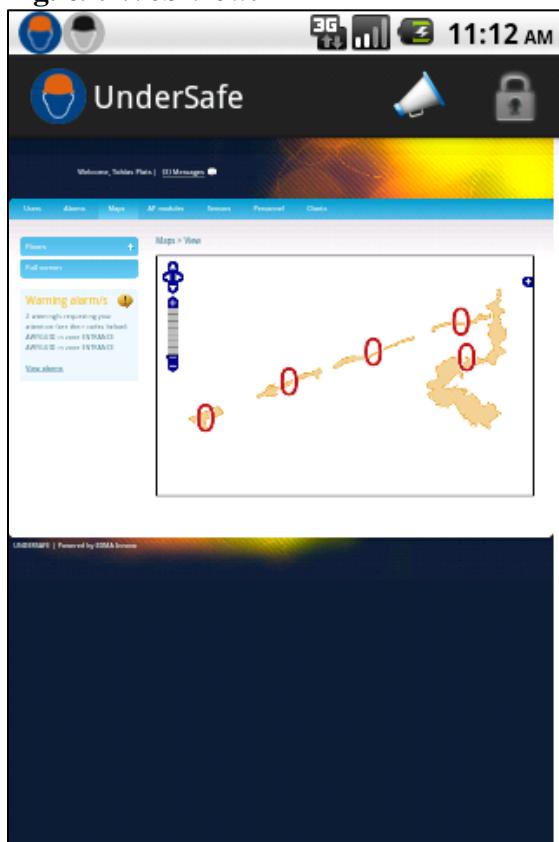


Fig.70: How GCM works.

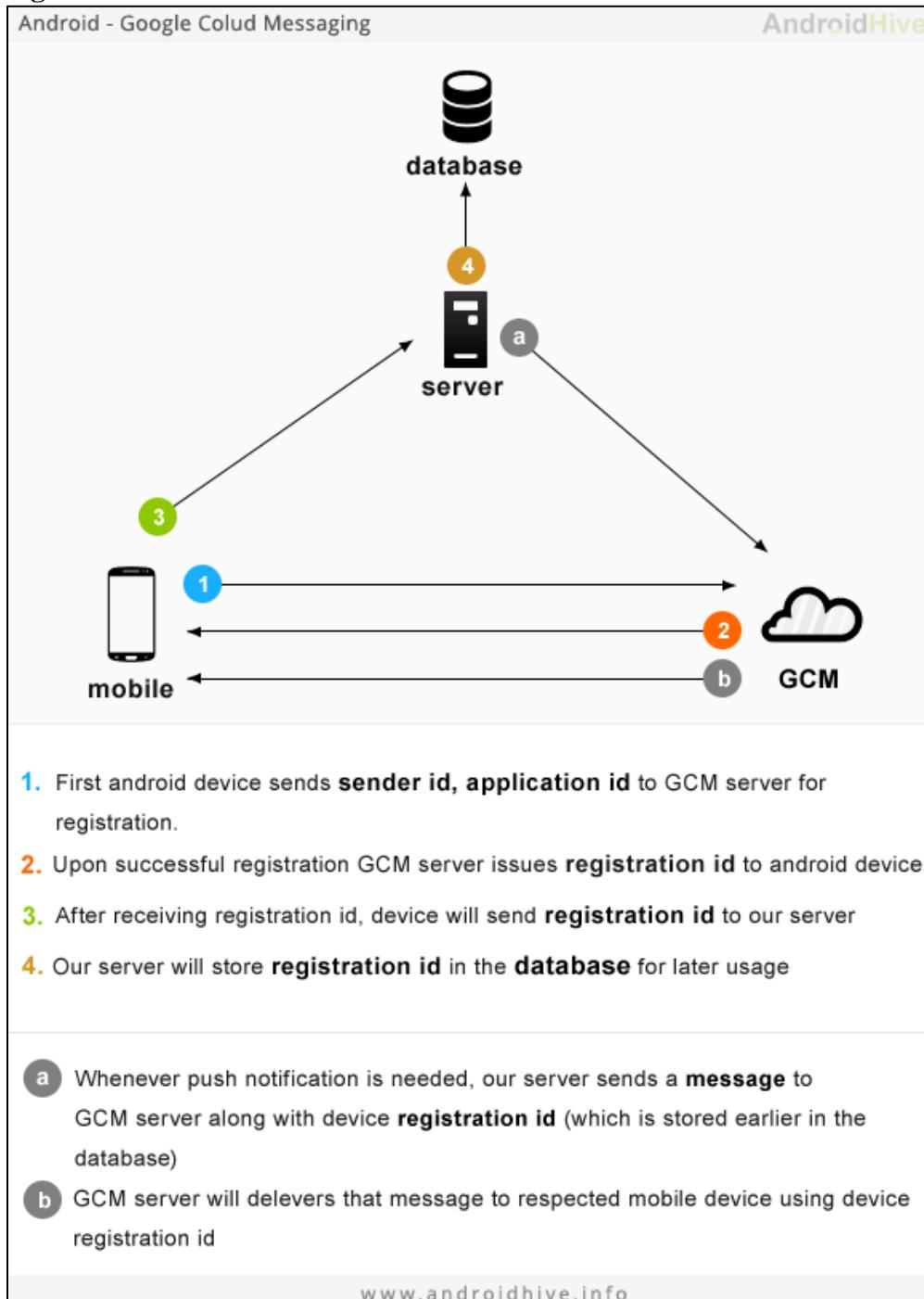


Fig. 71: Alarms on mobile device.

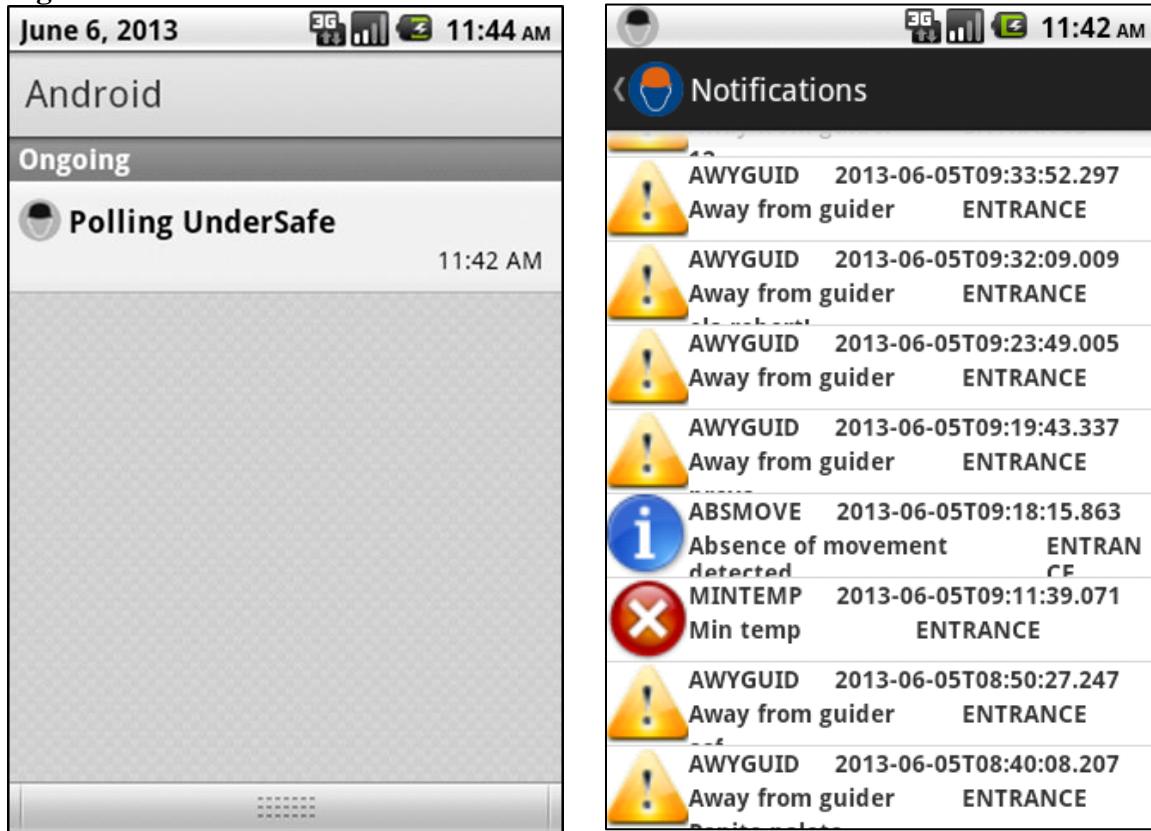
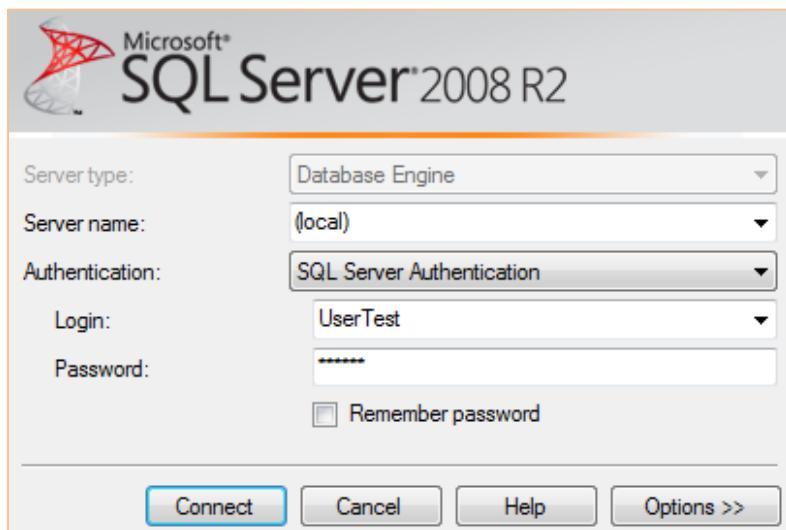


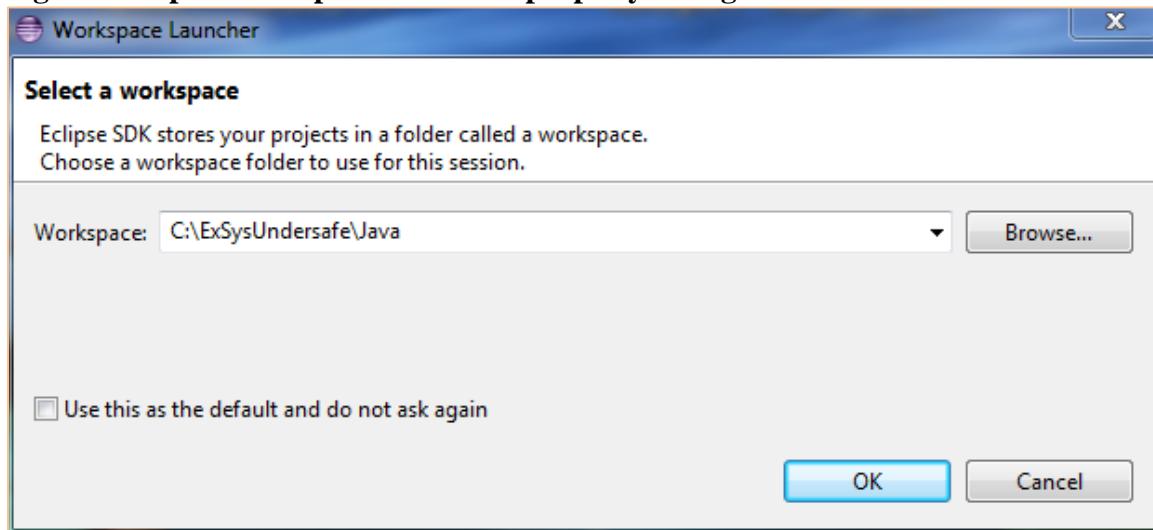
Fig. 72: Microsoft SQL Management Studio initial login window.



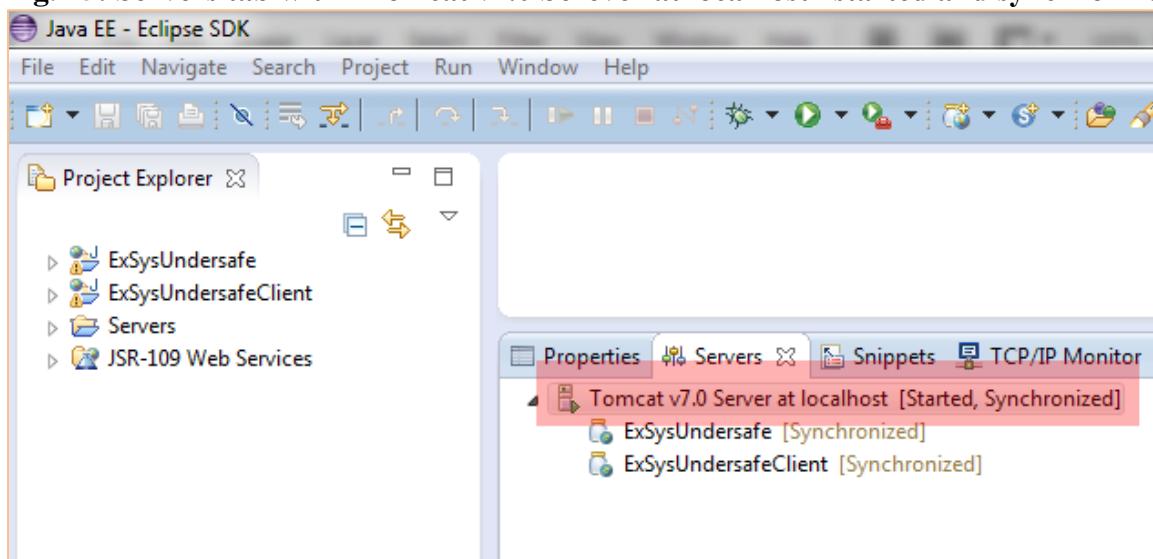
**Fig. 73: Microsoft SQL Management Studio initial login screen, with the recently created user.**



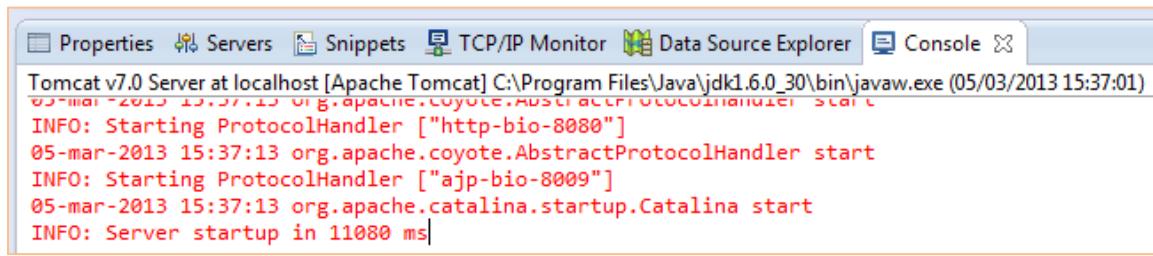
**Fig. 74: Eclipse Workspace Launcher properly configured.**



**Fig. 75: Servers tab with “Tomcat v7.0 Serever at localhost” started and synchronized**

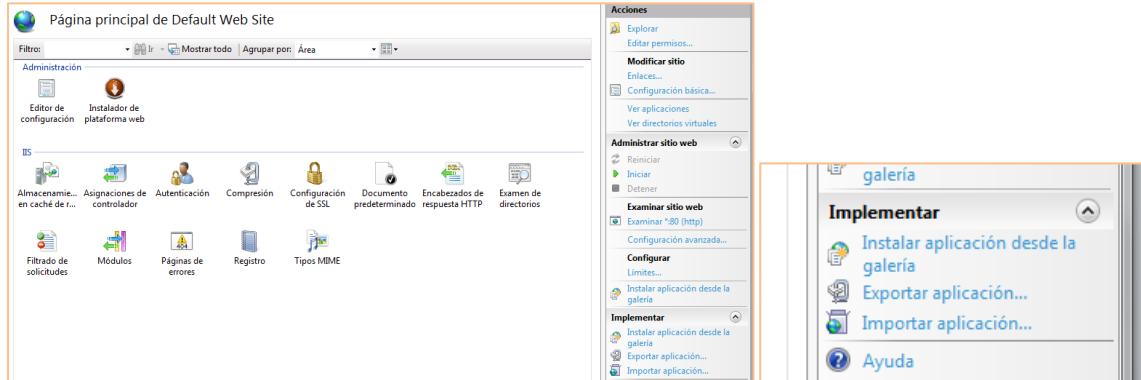


**Fig. 76: ExSysUnderSafe has been properly deployed.**

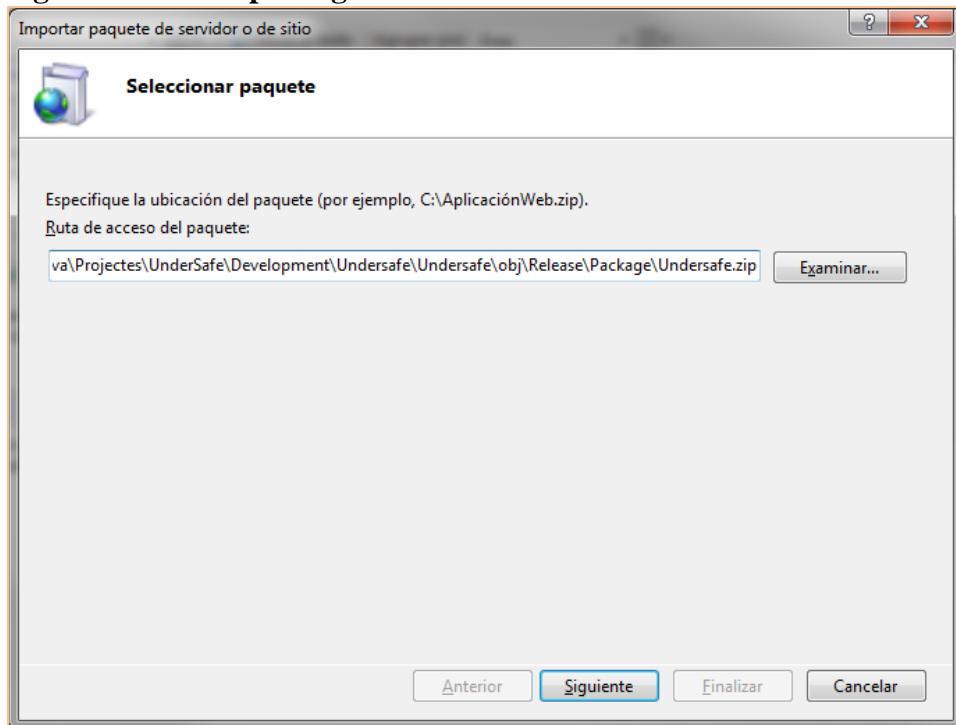


```
Properties Servers Snippets TCP/IP Monitor Data Source Explorer Console
Tomcat 7.0 Server at localhost [Apache Tomcat] C:\Program Files\Java\jdk1.6.0_30\bin\javaw.exe (05/03/2013 15:37:01)
05-mar-2013 15:37:13 org.apache.coyote.AbstractProtocolHandler start
INFO: Starting ProtocolHandler ["http-bio-8080"]
05-mar-2013 15:37:13 org.apache.coyote.AbstractProtocolHandler start
INFO: Starting ProtocolHandler ["ajp-bio-8009"]
05-mar-2013 15:37:13 org.apache.catalina.startup.Catalina start
INFO: Server startup in 11080 ms|
```

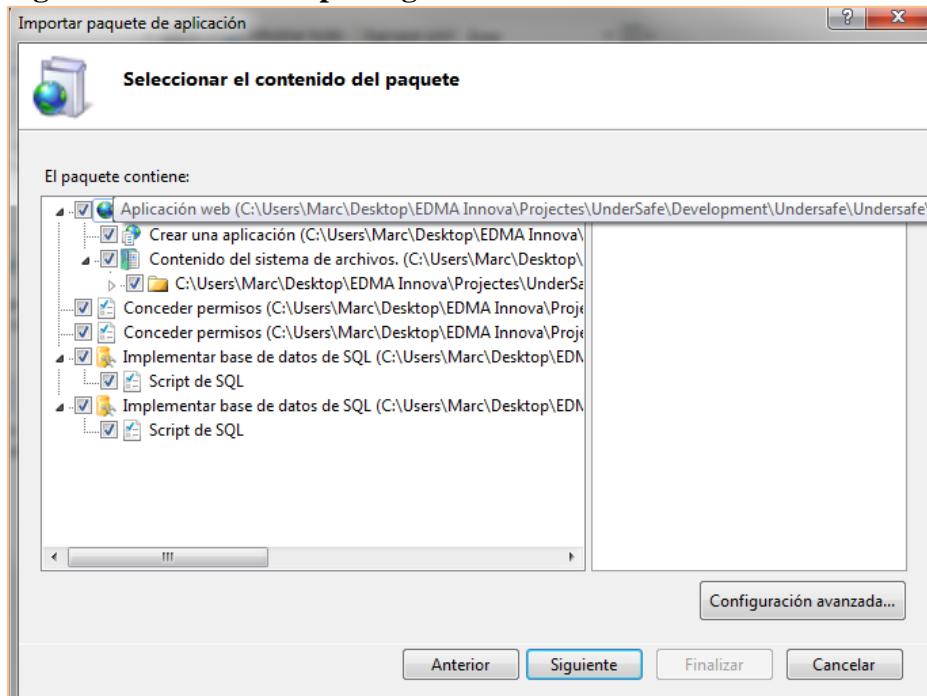
**Fig. 77: IIS main menu window.**



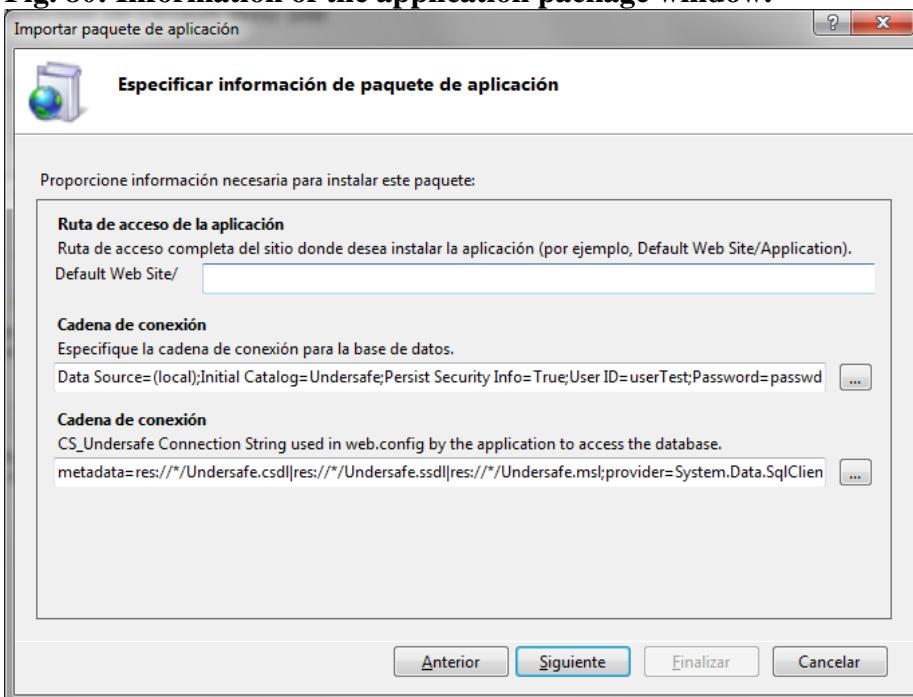
**Fig. 78: IIS select package window.**



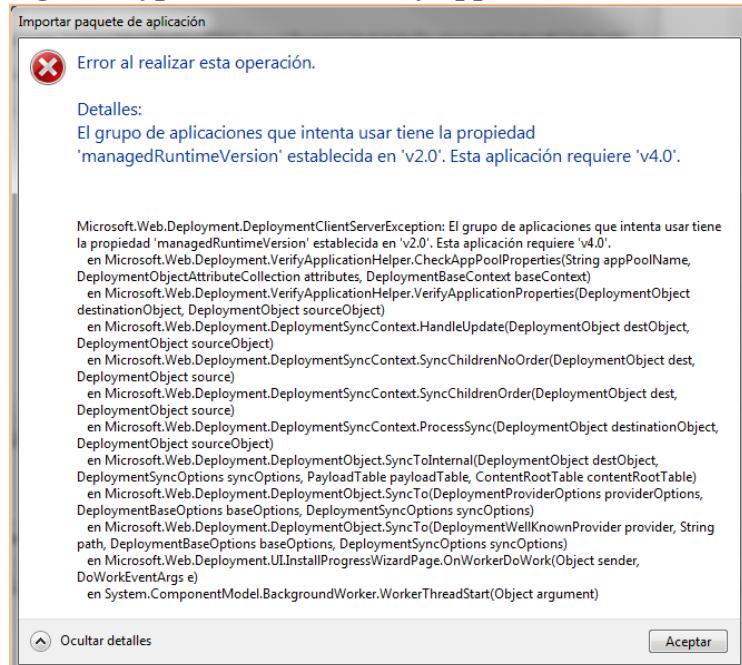
**Fig. 79: Content of the package selection window.**



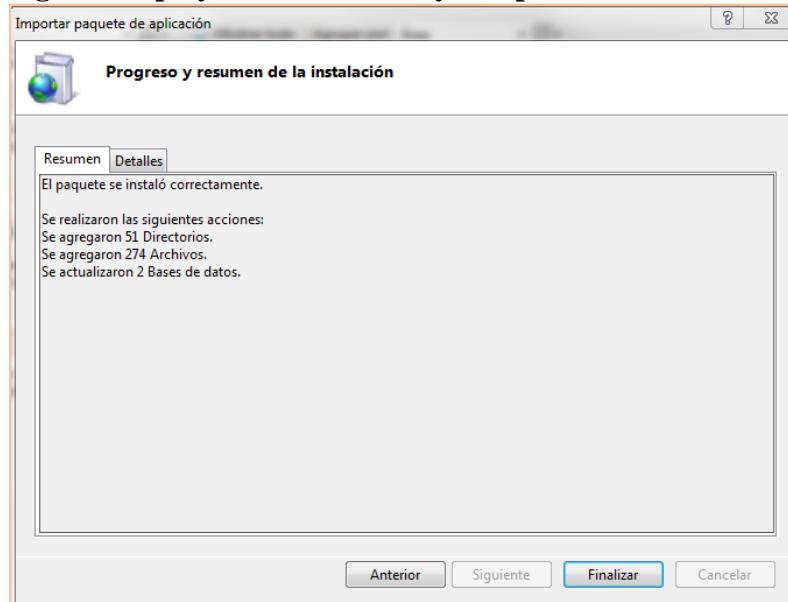
**Fig. 80: Information of the application package window.**



**Fig. 81: Typical error that may appear...**



**Fig. 82: Deployment successfully completed.**



**Fig. 83: UnderSafe login screen.**

