The Italian profile (guidelines) of the CAP, CAP IT, the implementation of the public warning system in Italy and IT-Alert

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Presidency of the Council of Ministers - Civil Protection Department
✓ The National Civil Protection Service of Italy
✓ CAP IT the Italian profiles (guidelines) of Common Alerting Protocol
✓ IT-Alert
✓ Italian Alert Hub
Italy: a Country prone to disasters

**Earthquake**
Most of Italian territory is prone to seismic risk

**Volcanoes**
10 volcanoes, 2 active and 8 quiescent.
Vesuvio and Campi Flegrei at very high risk

**Hydraulic and Hydrogeological risk**
82% of Italian municipalities are exposed to hydro-geological risk

**Forest Fires**
30% of the Italian territory is exposed to the risk of forest fires

**Tsunamis**
Italy has been affected by historical tsunamis

**Drought**
Due to climate change the drought risk has increased
The National Civil Protection Service of Italy

From 1992 to 2018 the civil protection System has evolved through other regulatory measures.
To safeguard human life and health, goods, the national heritage, human settlements, animals and the environment from both natural or man-made disasters.”
Disaster cycle management and main activities

FORECASTING
Risk scenario identification and study

OVERCOMING EMERGENCY
Resumption of normal living conditions

PREVENTION AND PREPAREDNESS
Risk reduction

EMERGENCY MANAGEMENT
Relief and assistance
A system based on functions

Civil protection in Italy can be equated to a **FUNCTION** within a **COMPLEX** and **COMPREHENSIVE SYSTEM** and **NOT** to **A TASK assigned** to a **single administration**

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**Organisational structure during an emergency**

- **President of the Council of Ministers**
- **Italian Civil Protection Department**
- **ALL MINISTRIES**:
  - Interior
  - Foreign Affairs and International Cooperation
  - Environment, Protection of land and sea
  - Health
  - Economy and Finance
  - Defence
  - Economic development, employment, welfare
  - Infrastructure and Transportation
  - Education, University and Research
  - Agriculture and Forestry Departments
  - Cultural heritage and activities
  - Justice
  - Regions
  - Inter-municipal level
  - Municipalities
- **NATIONAL AND REGIONAL VOLUNTEER ORGANIZATIONS**
  - Fire Department
  - Police
  - Prefectures
  - ANPA
  - 118
  - Financial Police
  - Army
  - Navy
  - Air Force
  - Carabinieri
  - GRTN
  - Coastal Guard
  - ANAS
  - Highway companies
  - Railway system
  - INGV
  - CNR
  - Other research Institutes
  - Professional Orders
  - Local Police
  - Education
  - University and Research
  - Agriculture and Forestry Departments
  - Cultural heritage and activities
  - Justice
  - Regions
  - Inter-municipal level
  - Municipalities
Standards and Interoperability

Given the conformation and the number of components of the Civil Protection System, communications and communication methods are crucial both from a semantic and a technological point of view. The Department of Civil Protection, in order to favor the exchange of information and the applicative and semantic interoperability, adopts the Open Standards.

Open Standards are standards made available to the general public and are developed (or approved) and maintained via a collaborative and consensus driven process. Open Standards facilitate interoperability and data exchange among different products or services and are intended for widespread adoption.
We are member of OASIS since September 2020

One of the first initiatives in terms of interoperability and open standards is the proposal to issue Italian CAP profile (guidelines) approved by OASIS.

Why an Italian profile (guidelines) of Common Alerting Protocol?

The CAP is a widely used standard all over the world, our goal is to strictly adhere to the standard by defining it for Italian specificities by defining controlled vocabularies for the correct translation of the information in English language contained in the CAP messages, for a representation and homogeneous interpretation of the information, the definition of geodata and specific parameters and event for use on the Italian territory.

CAP IT should work anywhere!
These Italian specifications of the Common Alerting Protocol have the sole purpose of organizing CAP messages on the Italian territory and do not invalidate the standard to which they strictly refer.
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The EU-Alert standard is ETSI TS 102 900 V1.3.1

Currently the active countries are:
Netherlands – Greece – Lithuania – Romania
Italy under activation
It’s described by the Decree of the President of the Council of Ministers of 19 June 2020: "Methods and criteria for activating and managing the IT-alert service". This decree implements the Directive (EU) 2018/1972, of the European Parliament and of the Council, of 11 December 2018, which establishes the European Code of electronic communications and, in particular, article 110 relating to the provisions concerning the establishment of public warning systems in the Member States.
IT-alert is the public warning system of civil protection. It’s a multichannel system that will send messages through Cellbroadcast, App and WebServices.
Type of messages:

Systems that send CAP messages:
- INGV Tsunamis
- DPC radar platform

- Receiving messages
- Verification of messages
- Deliver CAP IT Message

- CellBroadcast Mobile Operators
- IT-alert App
- WebServices

- Users connected to mobile phone antennas
- App
- Other consumers

Writing messages

Umberto Rosini
http://www.protezionecivile.gov.it/radar-dpc/#/pages/dashboard
IT-alert architecture

Umberto Rosini
EU-Alert standard compliance
Compatibility with mobile phones of foreign citizens in Italy and vice versa

Timeliness
Possibility of reaching a very large number of users in a very short time

Geographical location
Based on the distribution of the mobile network telephone cells

No additional load on the network
The messages also arrive in case of saturation

One-way information flow
It does not impact user privacy

No action
No preventive action by users is required
IT-alert Mobile App

**Functionalities**

- Message consultation based on geolocation or defined locations
- Insights into the good civil protection practices of the "I don't risk" initiative (www.iononrischio.it)
- Map display with indication of the affected areas
- No authentication and user profiling

**Technological aspects**

- Native IOS / Android app and web version
- Hybrid on-premise / cloud architecture based on microservices
WebServices

Interoperability

- IT-alert uses the **Common Alerting Protocol (CAP)**, Italian profile (guidelines) **CAP IT**
- **RSS / Atom channels** (standard methodology for emergency messages), **API Rest** and **GitHub** platform

![REST:API](image1)

Use cases

- App "IO" (the Italian App of Public Services www.io.italia.it) and regional civil protection apps and web sites / services
- Streaming on TV and Radio and on road / motorway led signs
  Control and intervention systems on the territory (civil protection, firefighters, law enforcement, municipalities)
The Italian AlertHub is released to aggregate alerts and alarms from different entities both used by IT-alerts and in other contexts and to allow the reuse of the CAP messages delivered.

We will reuse and we will contribute to the Filtered Alert Hub Project!