

This conceptual model represents the concepts and relationships that define an overall context for sharing of coordination information in an emergency. The model uses “Who (organizations or people) does What (activity) Where” scenario as a basis to derive high-level concepts and relationships and it is developed based on data schemas from some existing Emergency Information Systems. A brief description of the model’s constructs and their properties is provided in following.

WHO

Organization

Organizations represent any local/national/international, government/non-government organizations or any local agencies or offices such as local churches. Organizations normally present a set of capabilities. In an emergency, they provide services based on their capabilities and current emergency needs, and in return they may need services from other organizations or people. They normally assign a person as a point of contact to each service. The organizations may have general contact and location information as well.

Property: Name, Type, Website, and Status (active/inactive)

Relationship with¹: Organization, Capability, Service, contactDetails, contactPerson, locationInformation

Person

Person represents the individuals who are affiliated with organizations involved in an emergency (contactPerson), volunteers (unaffiliatedPerson), or the ones affected by the emergency (affectedPerson), who are the primary beneficiaries of emergency services. Person, similar to an organization, provides a set of capabilities. An affectedPerson may need emergency services and an unaffiliatedPerson may be the one who volunteers to provide such services or to be available as a resource to other organizations which provide services to affectedPerson or affectedGroup.

Property: Name, BrithDate, Status (available/assigned)

Relationship with: Capability, Service, locationInformation

conactDetails

ContactDetails may represent general contact information for an organization or specific information for a contact person in that organization. It may represent contact information for any person involved in an emergency as well. contactDetails can be published or private, and each may have different contact strategies for various locations to which the object moves.

Property: Phone, Fax, Email, Radio (in radio communication, it could be information such as CallSign), Language (an option of different language), Status (valid, invalid)

¹ Mainly relationships initiated by the object have been listed here

Relationship with: locationInformation

unaffiliatedPerson

Property: Identification (anything that uniquely identifies the person), Certification (for volunteers, for example, who provide medical services)

WHAT

Capability

Capabilities represent the type of activities that the person or organization can undertake or the resources they can provide. The details of available resources are represented by resourceDetails.

Property: WorkingSector (to specify the nature of services that can be provided), resource

Relationship with: resourceDetails

ResourceDetails

Property: Equipment (vehicles, communication facilities, etc.), Man Power (human forces), Fund (any financial support)

Relationship with: locationInformation (to trace the resources in emergency operations)

Service

Service is a set of activities that is carried out by an organization or a person. An example for a service could be a humanitarian project that is to improve education facilities in a given jurisdiction, or the medical care that a volunteered physician provides to the victims of an earthquake. Services use the available capabilities to respond to an emergency. locationInformation represents the location where the service takes place.

Property: Title, Description (objective), Date (Start/End date of the operation), Status (active/operational/suspended)

Relationship with: locationInformation, Capability, Emergency

Emergency

Emergency can happen unexpectedly, such as an earthquake, or can be the result of significant vulnerabilities in the society such as HIV/AIDS or lack of education facilities. The services address the needs in different phases of an emergency. locationInformation represents the location where the emergency takes place.

Property: Name, Type, phase (mitigation, preparedness, response, recovery)

Relationship with: Organization, Person, locationInformation

WHERE

locationInformation

It represents the geographical location of the objects. There are different frames of reference for locating things: Address, Position, placeIdentifier, and placeIndicator. locationTrajectory represents a set of specific locations that the object is assigned to traverse, if the route is known in advance.

Property: Timestamp (the date/time when the location is assigned to the object), status (valid, out-of-date)

Address

Property: Number, Street (Broadway), Neighborhood (Morningside Heights), CityDistrict (Manhattan), City (New York), District (King's County), Region (New York), Country (US), PostalCode ²

Position

It is normally used to identify the current location of moving objects.

Property: Lat (latitude), long (longitude)

PlaceIndicator

A unique ID assigned to a settlement, generated based on the national hierarchy from national to village level.

Property: PCode

PlaceIdentifier

The name used to identify places such as refugee camps.

Property: Name, Type, Code (normally different than PCode)

locationTrajectory

Property: Location, TimeSpan (estimated arrival and departure time to/from that location)

² Based on IETF - A Presence-based GEOPRIV Location Object Format at <http://www.ietf.org/rfc/rfc4119.txt>