Specifications of the EMSC FDSN-EVENT service

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Summary

I. Aim of the document

The aim of this document is to describe the specifications of the FDSN-EVENT web service developed by the EMSC. This service give access to the events collected in real-time by the EMSC. It hosted on the Seismic Portal and is part of the EPOS platform.

The Seismic Portal

The Seismic Portal has been developed within the NERIES FP7 project. This web site is operational and is a single point of access to explore and download earthquake information. It's available at www.seismicportal.eu.

II. Description of the distributed data and Quality Assurance

The FDSN-EVENT service is accessible at the url : https://www.seismicportal.eu/fdsn-wsevent.html and gives access to earthquake data collected by EMSC in real time. The Annex IV describes in details the data and the contributors.

The earthquake data distributed by the service are collected by the EMSC in real-time. Once received by the EMSC internal system, these data are then published on the Seismic Portal. The Quality Assurance is done in the internal system with the following actions:

- Daily Feedbacks from users that compare with other seismological apps and from contributors that check the data they have sent.
- Global study of seismicity
- The majority of earthquake origins composed by many contributions are reviewed by seismologists.

More details are available in the Annex IV.

III. Web service access

The service FDSN event follows the FDSN specifications describes in

https://www.fdsn.org/webservices/fdsnws-event-1.2.pdf

The service implements additional options.

1. Json output

The output parameters accept the "json" format. This output is a geosjon object organized around a main 'Feature' 'Point' which 'properties' contains an event json object.

- Definition of the event json object

Parameter name	Type	Description
source_id	Str	EMSC event identifier
source_catalog	Str	"EMSC-RTS"
Lastupdate	Str	Date time of the time of publication
Time	Str	Origine time of the earthquake
Lat	Float	Latitude of the epicenter
Lon	Float	Longitude of the epicenter
Depth	Float	Depth of the epicenter
Evtype	Str	ISF event type
Auth	Str	Author of this event
Mag	Float	Magnitude of this event
Magtype	Str	Magnitude type of this event
Flynn_region	Str	Region name from the Flynn-Engdhal naming
Origins	List	Collection of origin json object except for the main node where origins is a FeatureCollection of Point having properties set to a collection of origin json objects.
arrivals	List	Collection of json arrival objects

- Definition of a origin json object

Parameter name	type	Description
Source_id	str	EMSC origin identifier
Source_catalog	str	"EMSC-RTS"
Lastupdate	Str	Date time of the time of publication
Time	Str	Origin time of the earthquake
Lat	Float	Latitude of the epicenter
Lon	Float	Longitude of the epicenter
Depth	Float	Depth of the epicenter
Evtype	Str	
Auth	Str	Author of this event
Ndef	Integer	Number of phases
Nsta	Integer	Number of stations
Gap	Float	Azimuthal gap
Rms	Float	Standard error
Stime	Float	Time uncertainty

Smajor	Float	Semi major axis
Sminor	Float	Semi minor axis
azimut	Float	Major axis azimuth
Sdepth	Float	Depth uncertainty
Mindist	Float	Minimum distance
Maxdist	Float	Maximum distance
Antype	Str	ISF Evaluation mode
Loctype	Str	ISF Location Method
Mags	List	List of json magnitude objects

- Definition of a json magnitude object

Parameter name	Type	Description
Value	Float	Magnitude
Type	Str	Magnitude type
Nsta	Integer	Station count
Error	Float	Magnitude uncertainty
Rang	integer	1

- Definition of a Json Arrival object

Parameter name	Type	Description
id	Str	Arrival identifier
Sta	Str	Station name
Dist	Float	Distance
Evaz	Float	Azimuth
Picktype	Str	ISF type of pick
Direction	Str	ISF Pick direction of
Detchar	Str	ISF Pick onset
Phase	Str	Phase name
Datetime	Str	Date time of the pick
Timeres	Float	Time residual
Azim	Float	Back azimuth
Azres	Float	Back azimuth residual
Slow	Float	Horizontal slowness
Sres	Float	Horizontal slowness residual
Tdef	Str	‘T’ if time is used
Adef	Str	‘A’ if back azimuth is used
Sdef	Str	‘S’ if horizontal slowness is used
Snr	Float	Signal to noise ratio
Amp	Float	Amplitude of the pick
Per	Float	Period of the pick
Stamag	List	List of stamag objects

- ISF parameters

ISF parameters are defined in http://www.isc.ac.uk/standards/isf/ in the origin and arrival block format.

IV. Annex: EMSC Activity Report

Extract of the EMSC activity report of 2018 that describes the data collected ant its statistics.