Jun 26th, 3:40 PM - 5:00 PM

A template framework for environmental timeseries data acquisition

Argyris Samourkasidis
Wageningen University, argysamo@gmail.com

Ioannis N. Athanasiadis
Wageningen University, ioannis@athanasiadis.info

iEMSs International Congress on Environmental Modelling and Software

9th International Congress on Environmental Modelling and Software
Fort Collins, Colorado, USA, Mazdak Arabi, Olaf David, Jack Carlson, Daniel P. Ames (Eds.)
https://scholarsarchive.byu.edu/iemssconference/2018/

A template framework for environmental timeseries data acquisition

Argyrios Samourkasidis[a], Ioannis N. Athanasiadis[a]
[a] *Information Technology Group, Wageningen University, Hollandseweg 1, Wageningen 6706 KN, The Netherlands*
argysamo@gmail.com;ioannis@athanasiadis.info

Abstract: This work demonstrates a template framework for acquiring and integrating heterogeneous environmental timeseries. The Internet of Things contributes towards the high availability of environmental timeseries datasets. These are available through different protocols and stored under diverse, custom formats, rendering data acquisition and integration a laborious step of the environmental data lifecycle. We designed and implemented a template framework called EDAM to facilitate data acquisition and integration. EDAM is founded on re-usable templates (i.e. an abstract representation of a data file's structure written using programming language agnostic semantics), and requires no strong computer science background. EDAM supports for customized data dissemination, as instructed by output templates. We demonstrate EDAM generality in seven case studies, by scraping online meteorological data, extracting observations from a relational database, and aggregating historical timeseries stored in local files.

Keywords: Environmental timeseries, Internet of Things, syntactic interoperability, data acquisition, templates.