Applying VocPrez to operational semantic repositories: the NVS experience

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The Natural Environment Research Council’s (NERC) Vocabulary Server (NVS¹) has been serving the marine and wider community with controlled vocabularies for over a decade. NVS provides access to standardised lists of terms which are used for data mark-up, facilitating interoperability and discovery in the marine and associated earth science domains. The NVS controlled vocabularies are published as Linked Data on the web using the data model of the Simple Knowledge Organisation System (SKOS). They can also be accessed as web services (RESTful, SOAP) or through a sparql endpoint. NVS is an operational semantic repository, which underpins data systems like SeaDataNet, the pan-European infrastructure of marine data management, and is embedded in SeaDataNet-specific tools like MIKADO. Its services are being constantly monitored by the SeaDataNet Argo monitoring system, ensuring a guarantee of reliability and availability. In this presentation we will discuss the pathway of challenges we encountered while enhancing an operational semantic repository like NVS with VocPrez, a read-only web delivery system for Simple Knowledge Organization System (SKOS)-formulated RDF vocabularies. We will also present our approach on implementing CI/CD delivery and the added value of VocPrez to NVS in terms of FAIRness. Finally we will discuss the lessons learnt during the lifecycle of this development.

VocPrez² is an open-source, pure Python, application that reads vocabularies from one or more sources and presents them online (HTTP) in several different ways: as human-readable web pages, using simple HTML templates for different SKOS objects and as machine-readable RDF or other formats, using mapping code. The different information model views supported by VocPrez are defined by profiles, that is, by formal specifications. VocPrez supports both different profiles and different formats (Media Types) for each profile.

VocPrez enhanced the publication of NVS both for human users and machines. Humans accessing NVS are presented with a new look and feel that is more user friendly, providing filtering of collections, concepts and thesauri, and sorting of results using different options. For machine-to-machine communication, VocPrez presents NVS content in machine-readable formats which Internet clients can request directly using the Content Negotiation by Profile standard³. The profiles and formats available are also listed on an “Alternate Profiles” web page which is automatically generated per resource thus allowing for discovery of options. As a result, human or
machine end users can access NVS collections, thesauri and concepts according to different information models such as DCAT, NVS’ own vocabulary model or pure SKOS and also in different serializations like JSON-LD, turtle, etc. using content negotiation.

1http://vocab.nerc.ac.uk/

2https://github.com/RDFLib/VocPrez

3https://www.w3.org/TR/dx-prof-conneg/