

Automated Web service configuration: an attempt

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The Internet provides a multitude of (Web) services. Individual services will not always offer the exact functionality that is required; therefore, such services often need to be combined. **Automated** configuration on demand has the following advantages:

- improved flexibility of systems
- maintenance is simplified, as only basic services need to be maintained
- no need for identifying the demand for complex services beforehand
- locally absent services can be obtained from external domains, and be used

Automated configuration requires agreement on APIs, annotation, and security measures. Our approach focuses on automated template-based configuration of annotated Web services. The same principles are used in this field as in our work on automated configuration of software agents. The goal is to develop a fully automated configuration service that can be used without depending on human intervention. Templates are specified in a simple extension of OWL-S, in which functionality, data, and control can be described separately. OWL-S is also used as the standard for annotating all Web services involved.

The configuration process consists of three processes: a service retrieval process, a configuration design process, and a configuration assembly process. Currently the service retrieval process is local, but for instance UDDI can be used to access and search open, global repositories of Web services. The configuration design process creates a “blueprint” for a Web service configuration, based on the given requirements, the templates, and the services available. The configuration assembly process creates a new OWL-S specification, based on the blueprint, including a WSDL specification that can be used for execution.

Prototypes have been developed for the domain of Web-portal creation for BibTeX files. In these prototypes, an automated configuration process uses specific annotated Web services, such as BibTeX file retrieval, BibTeX to RDF conversion, and portal creation, to create specific Web portals on demand.

About the Authors

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More information on this project can be found at:
http://www.iids.org/research/web-service_configuration