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SOAP-based services provided by the European Bioinformatics Institute



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Short Abstract: SOAP based Web Services has gained much attention as an open standard enabling interoperability among applications. The European Bioinformatics Institute (EBI) is using this technology to provide robust data retrieval and data analysis mechanisms to the scientific community and to enhance utilization of the biological resources it already provides.

Long Abstract:

Today, biological databases comprise large collections of data that are relatively difficult to maintain outside the centres and institutions that produce them. The European Bioinformatics Institute provides access to more than 200 such databases and to about 150 bioinformatic applications.

These data and tools are mainly accessed using browser-based World Wide Web interfaces. When large amounts of data need to be retrieved and analysed, this often proves to be tedious and impractical. EBI also provides other mechanisms such as email batch job submissions, but this method lacks the interactivity of the web interfaces. Moreover, research is rarely completed just by retrieving or analyzing a particular nucleotide or protein sequence. Database information retrieval and analysis services have to be linked, so that, for example, search results from one database can be used as the base of a search in another, the results of which are then analyzed. When performing these operations using a Web browser, researchers are forced to repeat the troublesome tasks of searching, copying the results for subsequent searches to other databases, and again copy the results for analysis.

On the basis of these observations, the EBI has chosen to use the Web Services technology to expose its services in a programmatically accessible manner. Web Services technology enables scientists to access EBI data and analysis applications as if they were installed on their laboratory computers. Similarly, it enables programmers to build complex applications without the need to install and maintain the databases and analysis tools and without having to take on the financial overheads that accompany these. Moreover, Web Services provide easier integration and interoperability between bioinformatics applications and the data they

require. All that is required at the user side is a lightweight program that communicates with the servers running at the EBI. These services have several advantages. As traditional web browsers cannot be used programmatically, these services provide an easy and flexible way to deal with repetitive tasks such as bulk submission with minimal intervention from the user. Web Services clients allow the programmer as well as the service provider to integrate and build more complex analysis workflows using existing EBI services.

Information about these services, documentation and toolkits are available at <http://www.ebi.ac.uk/Tools/webservices>.