

Title: Proposal for future OGC Search capabilities

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Representing: OASIS ebXML RegRep community

Currently the OGC specifications define several services that offer search capabilities. These services need to expose a standard and interoperable search interface that is simple to use, available over HTTP GET and SOAP protocols, supports spatial search, supports federated search, supports SSO authentication and access control and may be configured to meet the specialized search needs of specific OGC services. An important requirement for any such future search interface is that it must define a mapping to the [OpenSearch] specification. The OASIS ebXML [RegRep Query] interface supports most of the requirements above.

The RegRep Query interface supports an ad hoc queries mode where the client may issue an arbitrary query in *any* query expression syntax supported by the server. For example, it can support the existing [OGC CSW CQL/Filter], [Search-WS CQL], SQL, XPATH, XQuery or SPARQL. The ad hoc mode's strength is that it provides relatively flexible queries with arbitrarily complex predicates. This flexibility comes at a cost of increased complexity since clients have to be aware of the choice of query expression syntax(es) supported by the server. This mode is also less suitable for HTTP GET binding since the query expression has to be encoded within the URL which results in unwieldy URLs.

The RegRep Query interface also supports a much simpler parameterized query mode where the client may invoke a pre-configured search algorithm (called parameterized query) by providing the identifier for a parameterized query and values for its supported parameters. Its strength is that it is very simple from the client's perspective and maps very well to HTTP GET URLs. The client needs to specify only parameter values and no query expression. The query expression or implementation is hidden behind the server configuration. The set of available parameterized queries may be dynamically managed via the RegRep interface. The simplicity of RegRep Parameterized Query comes at the cost of inability to specify ad hoc query predicates in a request. Query predicates may only be specified if they are configured as parameters in the search algorithm.

Together, these two query modes each have close analogies to familiar relational database concepts. The ad hoc query mode is functionally analogous to ad hoc SQL queries while the parameterized query mode is functionally analogous to database stored procedures.

Typically, clients use the parameterized query mode as it is much simpler and allows the underlying queries to be carefully controlled at the server. Typically, a specification (e.g. WFS, WMS, WCS...) may define a set of standard parameterized queries and a server that conforms to the specification implements them. Client's that require more flexibility may instead use the ad hoc query mode at the cost of increased complexity.

The RegRep Query interface is being enhanced for RegRep 4 to add spatial extensions. Enhancements include fuzzy search, keyword search, spatial search, declaration of name, description, type, cardinality of query parameters. The RegRep TC is eager to work with OGC to address any missing requirements and proposes that OGC consider using the RegRep 4 Query interface as the foundation for interoperable search within future OGC service stack.

References

[OpenSearch]

http://www.opensearch.org/Specifications/OpenSearch/1.1/Draft_3

[RegRep Query]

<http://docs.oasis-open.org/regrep/v3.0/specs/regrep-rs-3.0-os.pdf> (Clauses 6, 9.1.3, 10)

<http://wiki.oasis-open.org/regrep/documents/plan/regrep4/query> (RegRep 4 enhancements)

Additional details will be presented at the OGC Search Summit

[OGC CSW CQL]

http://portal.opengeospatial.org/files/?artifact_id=20555 (Clause 6.2)

[Search-WS CQL]

<http://docs.oasis-open.org/search-ws/v1.0/cql-1-2-V1.0.doc>

<http://docs.oasis-open.org/search-ws/v1.0/cql-1-2-V1.0.pdf>

<http://docs.oasis-open.org/search-ws/v1.0/cql-1-2-v1.0.html>