# Forms to direct interaction with Linked Data Platform APIs

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The Linked Data Platform (LDP) defines how RESTful HTTP with Linked Data is used to evolve the state of server resources. It is particularly concerned with how Linked Data can be dynamic. One area of application of which is to provide API or 'service' functionality. It is desirable that generic browsers that navigate and visualise Linked Data can be extended with additional generic capabilities for discoverable and guided interaction with the same data. A mechanism to assist in the construction of valid requests is a necessary technology to realise a generic read/write Linked Data client.

The following illustration shows a typical sequence of interactions using LDP.
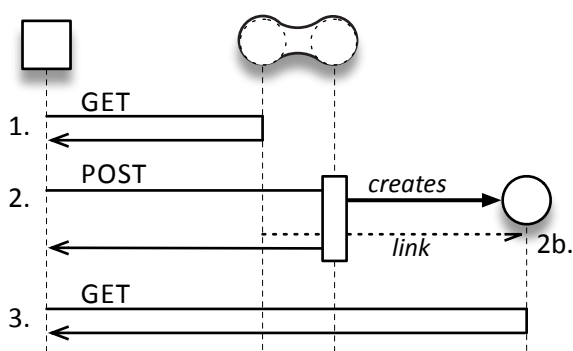
In step 1 the LDP client receives a representation of a resource. The LDP vocabulary used in responses from the server indicates interaction possibilities and protocol details to the client. The primary construct is the LDPC that is defined as a collection of "same-subject, same-predicate triples which is uniquely identified by a URI that responds to client requests for creation, modification, and enumeration of its members" [1]. Using the LDPC[1] as a creating entity, creation is instigated by the client using POST (step 2) and contextualised by the creator resource and then followed by linking to the newly created resource (step 2b). Finally, the location of the new resource is conveyed to the client and the interaction can continue (step 3).

Out-of-band, pre-negotiation techniques for agreeing request content are not conducive to a generic client. Preferably the server should provide the necessary hypermedia to the client that makes this information dynamic and discoverable. We follow a model based on the forms mechanism of HTML to do this. In HTML the rendering of a form collects information from a user, and key-value pairs encode this information for transmission to the server. The client should not assume that request parameters are simply copied across into the created resource.

Similar ideas applied to a RDF context materialises as a POSTed entity requesting creation consisting of triples with the null, relative URI in the subject position and with the key-value in the predicate and object positions. The necessary parameters are made discoverable in the representation of the LDPC. Parameters are associated to specific predicate URIs where additional usage information is also recorded. This includes expressing cardinality information as well as choice based constructions. Clients should formulate requests accordingly based on this information.

References

[1] http://www.w3.org/2012/ldp/wiki/Main_Page

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[1] In the figure the LDPC is depicted as coupled to its subject resource (LDPR); when there is a single LDPC resource for a LDPR these resources may be coincident. In other cases, the LDPR and its LDPC resources are each distinct.