



## Memento Time Travel for the Web

*The Web is ephemeral. Many resources have representations that change over time, and many of those representations are lost forever. A lucky few manage to reappear as archived resources that carry their own URIs. For example, some content management systems maintain version pages that reflect a frozen prior state of their changing resources. Archives recurrently crawl the web to obtain the actual representation of resources, and subsequently make those available via special-purpose archived resources. In both cases, the archival copies have URIs that are protocol-wise disconnected from the URI of the resource of which they represent a prior state. Indeed, the lack of temporal capabilities in the most common Web protocol, HTTP, prevents getting to an archived resource on the basis of the URI of its original. This turns accessing archived resources into a significant discovery challenge for both human and software agents, which typically involves following a multitude of links from the original to the archival resource, or of searching archives for the original URI. This paper proposes the protocol-based Memento solution to address this problem, and describes a proof-of-concept experiment that includes major servers of archival content, including Wikipedia and the Internet Archive. The Memento solution is based on existing HTTP capabilities applied in a novel way to add the temporal dimension. The result is a framework in which archived resources can seamlessly be reached via the URI of their original: protocol-based time travel for the Web.*

Abstract from: Van de Sompel, H., Nelson, M.L., Sanderson, R., Balakireva, L., Ainsworth, S., Shankar, H. (2009) Memento: Time Travel for the Web. Arxiv preprint. <http://arxiv.org/abs/0911.1112>

More information about Memento:  
<http://www.mementoweb.org>

Memento introduces Content Negotiation for HTTP in the *datetime dimension*, in addition to the existing negotiation dimensions specified in RFC 2295: media type, language, character set, compression. This allows an HTTP client to request a previous version of a resource, by expressing a version datetime as the value of a special-purpose `X-Accept-Datetime` HTTP header. If the server that hosts the resource maintains previous versions itself (as content management systems do), then that server can honor the client's request by redirecting it to a version that was active at the datetime specified by the client. If the server that hosts the resource does not maintain previous versions, then that server can still help the client by redirecting it to a web archive that does hold previous versions of the resource. In addition, Memento introduces an API for archives that allows requesting which archival versions it holds for a given resource.

<b>Real Time</b> <b>November 2 2009, 16:25 UTC</b>	<b>Time Travel</b> <b>October 12 2009, 16:25 UTC</b>
<a href="http://lanlsource.lanl.gov/hello">http://lanlsource.lanl.gov/hello</a>	
<a href="http://en.wikipedia.org/wiki/MS_Oasis_of_the_Seas">http://en.wikipedia.org/wiki/MS_Oasis_of_the_Seas</a>	

The result is the capability to navigate the past Web in the same way the current Web is navigated. Archived resources are tightly integrated into the Web.