

**NSDI Cooperative Agreement Program
Category 5
Establishing Framework Data Services
Using the OGC Web Feature Service Specification Final Report
04HQAG0164 NSDI CAP Grant**

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The Center for Advanced Spatial Technologies (CAST), University of Arkansas, in partnership with IONIC Enterprise, Oracle Corporation, and the Arkansas Geographic Information Office, proposed a project which builds on standards-based web services development. Web Feature Services extends the capabilities of NSDI Clearinghouse WMS 1.1.1 web mapping capabilities including extension of the web feature services which provide prospective data clients the opportunity to visually explore, query, insert, update, and delete geographic features using HTTP as the distributed computing platform. Developments thus far at CAST have extended the GeoStor Web Mapping Portal with implementation of WMS versions 1.1.0 and 1.1.1, including Style Layer Descriptors. In cooperation with USGS National Map Program, CAST is storing USGS symbology as OGC Style Layer Descriptors.

Over the last three years, CAST has continuously updated OpenGIS Consortium Web Map Services to disseminate themes warehoused in the Arkansas GeoStor. These WMS accessible themes integrated with FGDC metadata now total over 300. Multiple means to discover, view, and download geospatial data in GeoStor has been, and will continue to be an important goal at CAST. Throughout 2005, CAST has deployed a Web Feature Server on a development machine to enable the boundary Framework themes in GeoStor to be returned in OGC Geography Markup Language (GML). It is important to enable more geospatial data accessibility through the WFS interface because unlike Web Map Servers, Web Feature Servers allow users to download the raw data instead of simple map images. The Web Feature Server will ultimately allow users to obtain Arkansas themes through a common interoperable interface rather than the proprietary applet client that is currently deployed with GeoStor.

The goal of this project was to continue our work in disseminating geospatial data through multiple interfaces, by deploying IONIC Red Spider Web to an enterprise web server. CAST deployed the IONIC Web Feature Server and served Framework data themes in Geographic Markup Language (GML) and returned data that conform to the ANSI/INCITS L1 Standard. The Framework data added to CAST's Web Feature Server includes additional boundary themes such as census blocks, census groups, incorporated areas, congressional districts, school district boundaries and city boundaries. Other Framework data made available were hydrography (lakes, rivers, streams and ponds), transportation (all Arkansas roads and railroads), and structures. All of the Framework data available from the CAST Web Feature Server is stored as Oracle Spatial data tables in an enterprise level Oracle database. The CAST Web Feature Server was online from

January 2, 2006 until July 1, 2006. The Arkansas GeoStor system data distribution system and Web Mapping and Feature Services begin transitioning to the Arkansas Geographic Information Office (AGIO) in January 2006. The Arkansas GeoStor system is now operated by the AGIO and has provided Map Services using Open GIS Consortium Clients capable of using Web Feature Services and Web map Services. The Arkansas GeoStor Web Feature Services provides access to all of the Vector layers available in GeoStor. Instructions for accessing the Arkansas GeoStor Web Mapping and Feature Services are available at:

http://www.geostor.arkansas.gov/Portal/htm/map_services_help/OGCclient_Instructions.html