Live Geospatial Data Editing using a Web Browser

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Many factors have simplified our ability to collaborate remotely with such tools as Skype, live chat, social networking sites and desktop sharing tools. Yet, as we have moved into this more collaborative environment, the organizational concerns for security have increased which many times have limited the ability to access data. For example, many organizations have eliminated their direct ftp portals completely. In many of my projects I must be able to share very large data between members of my working group while maintaining a secure environment both for the data and the network. Some of the products that I have used are Microsoft Mesh which is a free product that allows synchronization of data, Microsoft Skydive and Microsoft SharePoint Server. These tools have not worked as effectively as I would like for some of my geospatial projects, such as creating an automatic seamless transfer of data across multiple operating systems. While Mesh has great potential it will not function in the older Microsoft XP environment. Accessing a database directly has a learning curve and potential login issues.

Esri, in their ArcGIS Server, gives you the ability to edit data live in a Web Application if the backend of the server is properly configured. To be able to do the live map editing, you must use a relational database as your storage container which could be SQL Express (free).
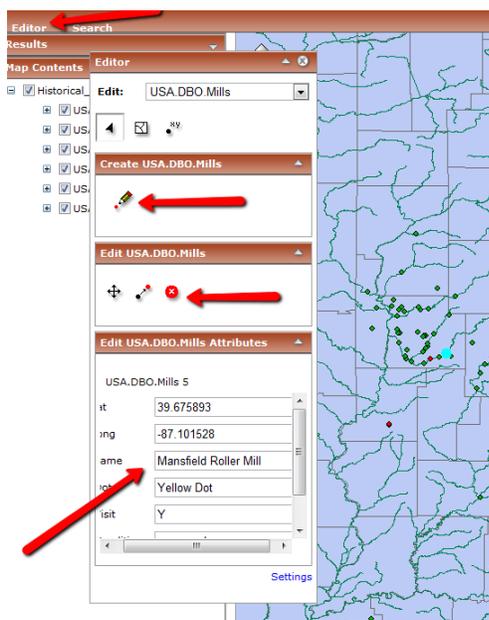
My test example utilizes a Microsoft Server 2008 with IIS running. In my test example, I installed a SQL Express Server (limited to 3 connections), an ArcGIS Server 10, and ArcInfo 10 for desktop operations. I installed ArcMap for the desktop for development of the application on the server. ArcGIS Server must be installed and configured which includes running both post installs, configure the AgsAdmin Group properly, and other server configurations. Install SQL Express and configure it properly and make sure it is communicating with the ArcGIS Server. Using ArcCatalog, connect to the SQL Express Server and create a database. Import data into the database within ArcCatalog (cannot just copy and paste). Using ArcInfo, design your map and save

Figure 1: A portion of a map of historical buildings, showing editor function

the MXD file in the appropriate location on the server. Create a Service using the ArcGIS Server Manager, the service must connect to the MXD as a local file connection and you must select feature service. Build a web map within the application component using the service you created and select editor as one of the tasks and configure the editor function.

Once all the components are created and the installation has been done properly you will have a web map that can be edited using a web browser. This most likely will not be your public facing map but the backend map for members of your workgroup; see Figure 2: example configuration.
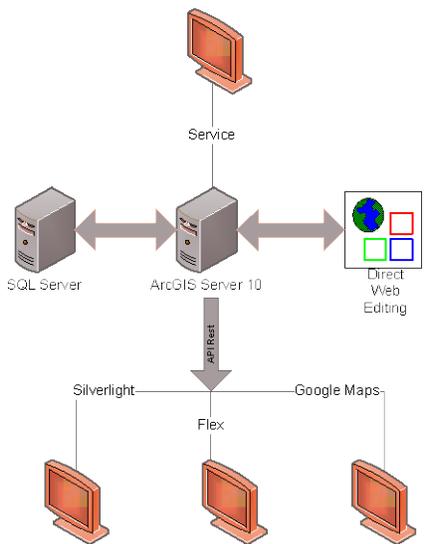

Figure 2: example configuration

You must be careful who has access to the map and the editing capacity. Another map should be created from this same service such as in the Esri ArcGIS Server web application or with an API Rest Service such as Flex, Silverlight, or Google Maps. The backend web map will modify the database which will be displayed on the front end map. Components that can be edited include data about the object, moving the object, and creating a new object to name a few.

The map in Figure 1: A portion of a map of historical buildings, showing editor function; has a data point that has been selected (light blue circle) and any of the attributes that the author has authorized can be edited. There are two separate databases in my web map and, since each has been authorized for editing, the user can select either.

In conclusion, to accomplish this function you must have a relational database, not a personal database, and you must use the local mxd file with the storage location shared appropriately. It is important that permissions have been granted to the appropriate accounts and that the relational database and the ArcGIS Server are communicating.

Currently a virtual workshop is being developed on how to create this type of collaborative map which will include online documentation.

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