# arches  A System Supporting Heritage Inventory and Management

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The Getty Conservation Institute (GCI) and World Monuments Fund (WMF) are working together to provide the international heritage field with a purpose-built, web-based geographic information system (GIS) to help inventory and manage immovable heritage. The system, called Arches, will be user-friendly, standards-based, and open source, making it cost-effective and readily customizable.

## PHASE 1: MEGA-Jordan and MEGA-Iraq

In June 2010, the GCI and WMF completed development of the Middle Eastern Geodatabase for Antiquities (MEGA)–Jordan, an open source, web-based system in Arabic and English designed to serve as an archaeological site inventory and management system for the Jordanian Department of Antiquities (DoA). The DoA deployed MEGA–Jordan nationwide in December 2010, and the system was made available online for searching and viewing data in April 2011. Users authorized by the DoA have access to a range of functions beyond those available to guest users.

You may access an overview video that demonstrates the full functionality available to registered users at: **getty.edu/conservation/MEGA/overview**

You may access MEGA-Jordan as a guest user at: **megajordan.org**

We recommend that you watch the overview video before exploring the system itself. Tutorial videos about using the system are also available on the MEGA-Jordan homepage.

The GCI and WMF have adapted MEGA for use by the Iraq State Board of Antiquities and Heritage, and made a prototype of MEGA-Iraq available in April 2011. This implementation has been delayed due to administrative changes in Iraq. The MEGA system has established a national standard for baseline archaeological documentation in Jordan and it has the potential to do the same for Iraq.
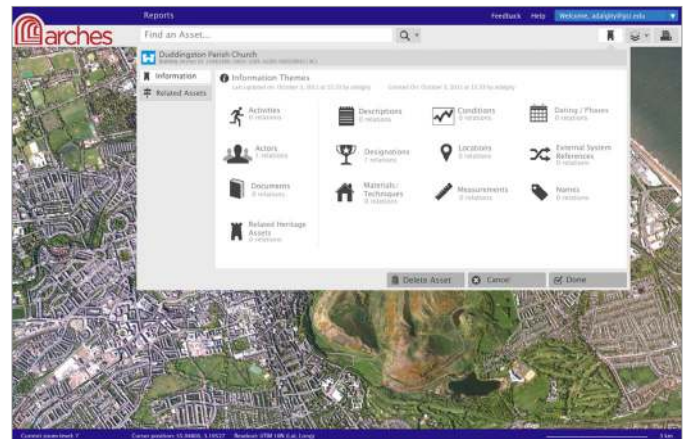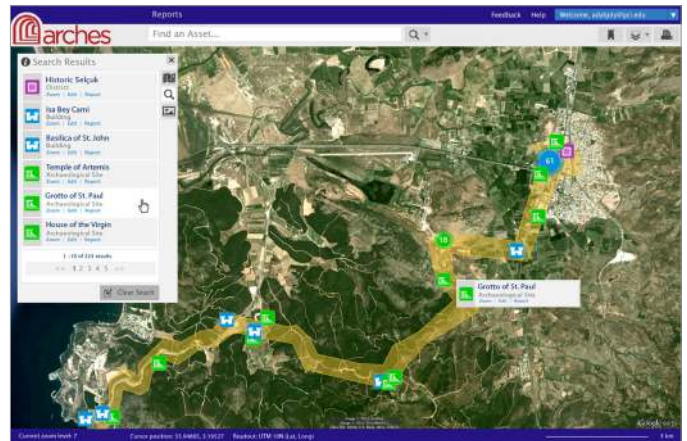
**Arches interface mock-ups from development phase.**
TOP: Polygon Search function
MIDDLE: Assigning Information Units to a Heritage Asset
BOTTOM: Basemap selection from Map Layer library

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## PHASE 2: Developing Arches to Document All Immovable Heritage Types

Building on the experience of developing and implementing MEGA, in June 2011 the GCI and WMF began the development of an open source software system purpose-built to inventory and document all types of immovable heritage, including buildings and other structures, cultural landscapes, heritage ensembles or districts, as well as archaeological sites.

The GCI and WMF are making the system readily customizable for use in any geographic region in the world. The system will have the new name "Arches." To expand its utility and accessibility, Arches will be freely available for use and adaptation as open source software by the international heritage community.

## Release of Arches

The initial version of the Arches open-source code will be released in January 2013 and a more complete version of the system will follow in the summer of 2013. Anyone who wishes to receive updates on the development of Arches and information about planned releases of the open source code, which can be freely modified by anyone, may send an email to:
contact@archesproject.org

The project website is available at: **archesproject.org**

In parallel to the development of Arches, the GCI is customizing the software for use by the City of Los Angeles to manage and publish data on the city's historic resources.

## Requirements for Adopters

Adopters will need to identify a server to host the application and should expect to engage the services of a qualified database administrator or manager to maintain it. Institutions adopting Arches may need to customize the software to meet their particular needs and to address specific geographic, cultural, and administrative contexts. System customization will require expertise in the open source tools that have been used to build the system and an in-depth understanding of GIS and data management. This expertise can be supplied from within the deploying organization or by an outside vendor.

## International Standards Incorporated into Arches and Ways to Prepare for Adopting the System

The GCI and WMF are incorporating international heritage documentation standards in the development of Arches. Institutions with a strong interest in adopting Arches may wish to refer to the following two standards that identify minimum essential data for documenting heritage places:

- Documentation Committee (CIDOC) of the International Council of Museums (ICOM) and Council of Europe, *Core Data Standard for Archaeological Sites and Monuments*
- Council of Europe, *Core Data Index to Historic Buildings and Monuments of the Architectural Heritage*

Both standards are available online at: **archives.icom.museum/object-id/heritage/contents.html**

The GCI and WMF are using these standards to structure data that will be managed by Arches.

Arches will base the relationships between data fields in the system on the CIDOC Conceptual Reference Model (CRM), which has been adopted by the International Organization for Standardization (ISO) as ISO 21127:2006 (Information and Documentation: A Reference Ontology for the Interchange of Cultural Heritage Information). The latest version of the standard is available at: **cidoc-crm.org/official_release_cidoc.html**

In order to comply with standards and ensure consistency, the use of Arches may require that legacy and new data be processed before being incorporated in the new system.

It is also recommended that institutions prepare controlled vocabularies for the documentation of the cultural heritage resources found within their area of interest.

Arches employs established open source software and open data encoding standards. In particular, the system will access and process geospatial data based on the standards and specifications of the Open Geospatial Consortium (OGC). The OGC standards can be accessed online at: **opengeospatial.org/standards/is**

Compliance with the OGC standards will ensure that the system is compatible with other desktop GIS applications (such as ESRI's ArcGIS, Google Earth, or Quantum GIS), common web browsers, and online satellite imagery and maps such as those provided by OpenStreetMap, Google, and Microsoft.