



# An Open Source Heritage Inventory and Management System

Arches is a new open source web-based geospatial software system, freely available for cultural heritage organizations to inventory and manage their immovable heritage.

August 2013

Developed jointly by the Getty Conservation Institute (GCI) and World Monuments Fund (WMF) for independent deployment by any cultural heritage institution, Arches is a web-based system that combines state-of-the-art software development with the insights and perspectives of heritage professionals from around the world. Institutions that deploy Arches can create digital inventories that describe types, locations, extent, cultural periods, and materials of heritage resources and establish the numerous and complex relationships between those resources.

Arches has been designed with the following overriding principles:

**Purpose built:** Arches has been specifically designed for the international cultural heritage field and can be used to inventory and document all types of immovable heritage.

**Economical:** As an open source system, Arches is available at no cost and allows adopters to share resources for individual customization and maintenance.

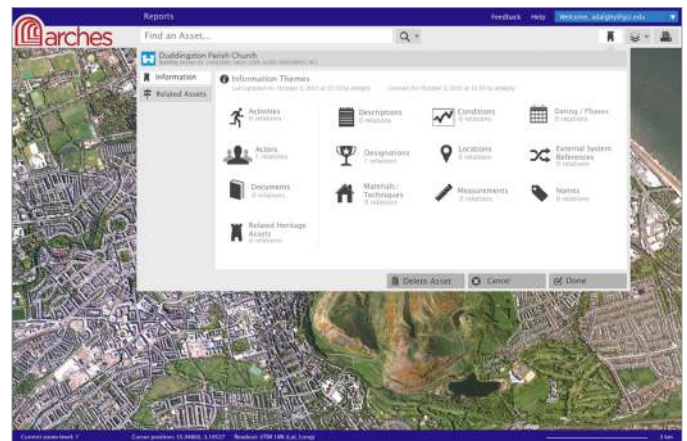
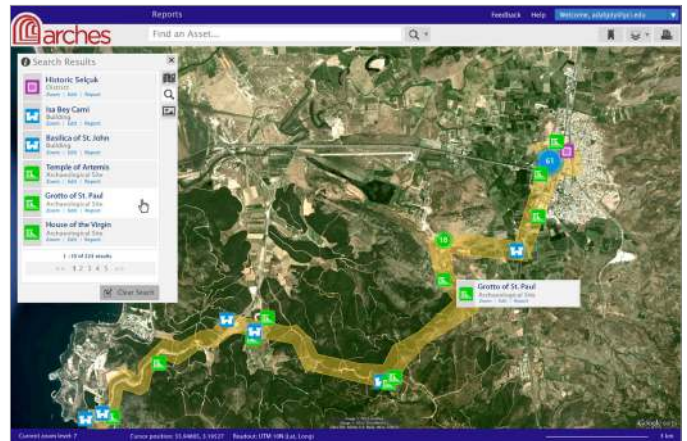
**Customizable:** The software code is open, and the system is structured in modules to be easily extended. It is capable of presenting its user interface in any language or in multiple languages and configurable to any geographic location or region.

**Standards based:** Arches incorporates internationally adopted standards for heritage inventory, semantic modeling, and information technology, leading to better practices in the creation and management of heritage data and facilitation of data exchange and longevity in spite of advances in technology.

**Broadly Accessible:** Web-based for the widest possible access, Arches is user friendly, requires minimal training for most users, and the application is freely available for download from the Internet.

## 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



Arches interface mock-ups from development phase. Polygon Search function (top), Assigning Information Units to a heritage resource (middle), and Basemap selection from map layer library (bottom).

Visit: [archesproject.org](http://archesproject.org)

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 have incorporated 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](http://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 bases 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](http://cidoc-crm.org/official_release_cidoc.html)

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

It is also recommended that institutions prepare controlled vocabularies for 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](http://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.

## Release of Arches

The initial version of the Arches open source code was released in January 2013, and a more complete version of the system is now available. Anyone who wishes to receive updates on the development of Arches may sign up on the project's website at: [archesproject.org](http://archesproject.org)

In parallel to completing the initial 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.



The Getty Conservation Institute



WORLD  
MONUMENTS  
FUND