The project KOPAL (German acronym for the phrase "Long-term preservation of digital objects") is an initiative to develop a system for the long-term archiving of digital objects. The project partners, the German National Library and IBM Deutschland GmbH (German National Library and IBM), are developing a system based on the OpenArchiving Initiative (OAIS) standard. The KOPAL system is intended to meet the needs of various target groups, including cultural heritage institutions, universities, and public libraries.

### Project Infrastructure

The project KOPAL is a joint project between the German National Library and IBM Deutschland GmbH. The system consists of several servers. Five of these servers form the technical infrastructure. A sixth server is used for data transfer purposes. As of 2007, the KOPAL system processes around 1 gigabit of data per second. Most accesses are made via a proxy server. Here, the REQUESTOR (a web server) reassigns incoming requests to the KOPAL system and forwards them to the appropriate application (in the case of the KOPAL system, to the appropriate server). The system can handle very large data packets, and requests are processed in parallel by the different application components.

### Projectchronology

#### Future Development

The system is designed to be scalable in terms of hardware and software. This allows the system to be extended to meet the needs of future developments, such as the integration of new data sources, changes in data formats, and new requirements for long-term archiving.

#### Project Completion 2007

The KOPAL system has reached a milestone by completing the project in 2007. It is now available to the public as a service offering.

### Project Milestones

The development of the KOPAL system has been divided into three phases: planning, development, and operation. The planning phase involved the development of the system and the definition of the requirements for the system. The development phase involved the implementation of the system and the testing of the system. The operation phase involved the deployment of the system and the ongoing operation of the system.

#### Partners and Institutions

The KOPAL project is a cooperative development project involving several partners and institutions. These include the Koninklijke Bibliotheek, the Universitätsbibliothek, the D-NB (Deutsche Nationalbibliothek), and others. The project is coordinated by the Niedersächsische Staats-und Universitätsbibliothek in Goettingen (GWDG).

### Links

- [KOPAL Advisory Board](http://www.kopal.langzeitarchivierung.de/index.php.en)
- [DIAS](http://kopal.langzeitarchivierung.de/index.php.en)
- [kopaL](http://www.kopal.langzeitarchivierung.de)
- [Long-term Preservation Metadata for Electronic Resources](http://kopaL.langzeitarchivierung.de/index.php.en)
- [DIAS User Group](http://kopaL.langzeitarchivierung.de/index.php.en)
- [LMER](http://www.kopal.langzeitarchivierung.de/index.php.en)
- [OAIS](http://www.kopal.langzeitarchivierung.de/index.php.en)

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### KOPAL Advisory Board

The KOPAL Advisory Board includes experts from the academic, cultural, and public service sectors. The Board oversees and advises the overall project, develops common strategies, and cooperates with national and international suppliers. The Board consists of the Koninklijke Bibliotheek, the Universitätsbibliothek, and others who have decided to cooperate with the KOPAL project. The Board normally meets in the spring and fall of each year in order to exchange information and discuss the current status of the project. The Board also invites other members to attend this meeting. A further development OFII and ongoing cooperation is planned for the future.
Co-operative Development of a Long-Term Digital Information Archive

The Digital Information Archiving System (kopal), developed in IBM software components, is a solution for the long-term preservation of digital documents. It relies on a stable, flexible software architecture, which is based on standard IBM software components that have been further enhanced for kopal.

The kopal architecture offers a technical and organisational infrastructure with which many research organisations such as archives, libraries, and museums can make their digital collections available over the long term by means of preservation strategies. For the implementation of the corresponding operational system in the future.

Selection

The institution selects digital objects to be long-term archived in its digital information archive and the corresponding metadata to be migrated objects. The metadata are technically handled in a package structure, the Universal Object Format (UOF), as it is used for long-term archives. The UOF can accommodate any type of metadata, which can be interpreted. The metadata are transformed into an archival format, where the metadata are written to the data management system and the associated technical information is preserved. The digital object is transferred to a storage system. The corresponding metadata are stored with the object in the data management system.

Request and retrieval of information

In the request phase, the metadata and technical information are retrieved via the data management system. The user is able to access the contents of an object even if there is not direct access to the individual files of an object, to the individual files of an object, technical information pertaining to the object. The file is delivered in a corresponding format. The UOF documents can be notified that s/he has just accessed the data via the data management system. Through such a system, the user can be notified that s/he has just accessed the data via the data management system.

Utilization of the data

The metadata and technical information are retrieved from the data management system. These data are preserved with the corresponding metadata. The metadata are transformed into an archival format, where the metadata are written to the data management system and the associated technical information is preserved. The digital object is transferred to a storage system. The corresponding metadata are stored with the object in the data management system.

The above workflow at: http://kopal.langzeitarchivierung.de

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The kopal system consists of the kopal Descriptive Core and of kopal tools, which are developed in cooperation with the German National Library and other partners. The so-called Workflow Tool offers the user the reservation of the kopal solution (the "kopal Library for Retrieval and Management") and the kopal services (the "kopal Content Manager", and Tivoli Storage Manager, in which it collects archive packages). In future, it will collect packages from the two institutions, which can be notified that s/he has just accessed the data via the data management system. Through such a system, the user can be notified that s/he has just accessed the data via the data management system. The metadata and technical information are retrieved from the data management system. These data are preserved with the corresponding metadata. The metadata are transformed into an archival format, where the metadata are written to the data management system and the associated technical information is preserved. The digital object is transferred to a storage system. The corresponding metadata are stored with the object in the data management system.

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The flexible interface enables the integration of well-established standard IBM software components into the kopal system. This permits the reuse of the software and data management systems of the two institutions, which can be notified that s/he has just accessed the data via the data management system. Through such a system, the user can be notified that s/he has just accessed the data via the data management system. The metadata and technical information are retrieved from the data management system. These data are preserved with the corresponding metadata. The metadata are transformed into an archival format, where the metadata are written to the data management system and the associated technical information is preserved. The digital object is transferred to a storage system. The corresponding metadata are stored with the object in the data management system.

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