

EC Supported Z39.50 Projects

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Introduction

The purpose of this paper is to give an overview of the projects and other initiatives, with relation to the implementation and testing of the Z39.50 protocol, that have been initiated and supported by the Libraries Programme of EC.

This paper has been prepared for the workshop: *Z39.50 Information retrieval in an open network environment* at the IFLA conference in Copenhagen 1997.

The paper gives a short introduction the work programme of the Libraries Programme and the relation to the implementation of Z39.50. The most relevant implementation project are mentioned and the input to the standardisation activities are also referred.

Background for the Libraries Programme

Telematics for Libraries was one of the seven areas introduced under the first Telematics Applications Programme in the third framework programme (FP3) of the European Commission. The objective of the Libraries Programme is to provide better access to European library resources and facilities and to stimulate and expand the co-operation and resource sharing between European libraries. FP3 was launched in 1990

and the workprogramme for libraries was defined with input from a number of exploratory studies and projects conducted in the late eighties. The workprogramme for libraries was updated (re-written) and continued as a separate action in the new Telematics Applications Programme in the fourth framework programme (1994 -1998). The budget for libraries under FP3 was around 25 million ECU, and the budget for libraries in FP4 is 30 million ECU.

The main activity of the libraries programme is to support project developing and implementing systems for libraries and/or library users, but the support for project co-ordination (called concertation) and the support of the so called *accompanying measures*, addressing generic problems and issues (i.e. copyright and standards), is another important part of the programme.

The support for the projects is up to 50% of the total project budget, and a number of common criteria apply for all the projects - like the requirement for participation from different European countries and the requirement for an active involvement of libraries in all the projects.

All the projects are selected as a result of an independent evaluation of the project proposals received in response to the *calls* from the programme. Five calls have been published under FP3 and FP4 and more than 50 projects have been launched so far. Another batch of around 20 projects and accompanying measures have been selected for funding as a result of the call published by the end of 1996. These projects and actions will be launched in the second half of 1997. The normal project duration is around two years but a few of the projects have a duration of up to 36 months. Many of the projects launched under FP3 are still on-going but the majority of these projects will finish this year.

The majority of the projects addresses topics and issues described in the workprogramme. The topics and issues are organised according to "Themes" (FP3) or "Call Topics" (FP4) and the Themes and Call Topics are, again, organised according to action lines. The interconnection of different library systems and the use of network facilities was a key issue from the start, and action line II (FP3) and action line B (FP4) are dedicated to issues related to the implementation of network facilities for international library co-operation.

Around 50% of the budget available for projects were initially allocated to these action lines (FP3 had three other action lines, and FP4 had two other action lines).

Libraries programme FP3

Theme 9 from the FP3 Libraries workprogramme: *Retrieval function - Interconnected OPAC's* defined under Action Line II: *International interconnection of systems and related international standards*, addresses the technical and practical problems and issues related to interconnection of library catalogues.

The two first calls, CfP'91 and CfP'92, resulted in two theme 9 projects: **SOCKER**: *SR Origin Communication Kernel* (CfP'91) and **EUROPAGATE** *European SR - Z39.50 Gateway* (CfP'92).

Theme 9 was reformulated for the third call: *SR target development and their interconnection* (now called Theme 9bis) in order to focus the projects on developments of systems for the target (server) side. Three projects were accepted from the third call: **SR Target**: *SR Target development as a Paragon for Catalogue systems* and **ARCA**: *Access to remote catalogues by implementing SR Target functions* and finally **ONE**: *OPAC network in Europe*.

Libraries programme FP4

The workprogramme was, as mentioned earlier, re-written for the fourth framework programme. The action line addressing issues and problems relevant when interconnecting different library systems was maintained, but the focus was changed from specific technical implementation issues to service issues related to the establishment of networked library services. The action line was named: *Telematic applications for interconnected library services (action line B)*, and call Topic 4: *Creating and testing interconnected library services, integration applications for at least two different library service functions*, was the call topic with the closest relation to Z39.50 implementation projects.

Three projects addressing CT4 was accepted from the first FP4 call: **ELISE II**: *Electronic Library Image Service for Europe phase II*, **UNIVERSE**: *Large Scale Demonstrators for Global, Open Distributed Library Services* and **CASA**: *Cooperative Archive of Serials and Articles*.

The early projects from FP3 have Z39.50/SR implementation as the main theme, while the later projects from FP3 and the projects from FP4 typically have implementation of Z39.50 as one of more themes. Many of the projects, addressing problems and issues in the other action lines, do also implement Z39.50. Z39.50 is, in most of these projects, implemented by using existing Z39.50 software. The table (hereunder) gives an overview of the projects implementing/using Z39.50.

Projects implementing/using Z39.50:

Acronym	Objectives	Use of Z39.50
SOCKER	Z39.50 kernel software + integration	Z39.50 V3 client software
EUROPA-GATE	Z39.50/SR gateway between OSI and TCP/IP networks	WWW and e-mail to Z39.50 gateway
SR TARGET	Generic tool-kit, for Z39.50 server functionality	Z39.50 server tool-kit, WWW to Z39.50 gateway
ARCA	Z39.50 client + Z39.50 server tool kit + integration	Z39.50 client, Z39.50 server tool kit.
ONE	European Z39.50 network	Z39.50 tool kit
ELISE-II	Image retrieval service	Image catalogue searching via Z39.50
UNIVERSE	Library services around logical union catalogue	Z39.50 for parallel catalogue searching
CASA	Network of databases for serials	Z39.50 for catalogue searching
CaseLibrary	User interface tools	Z39.50 client
DALI	Multimedia document retrieval	Z39.50 for catalogue searching
VAN EYCK	Storing and retrieval of photographic images	Z39.50 for image catalogue searching
OLUIT	Object Oriented user interface tool	Z39.50 client
EURILIA	Access to aerospace collections	Integrated Z39.50 client/catalogue searching

The projects

SOCKER (1992 - 1996)

The SOCKER project has developed a “general purpose” SR/Z39.50 client called the kernel software. This software implement the “protocol machine” for a SR client. The software provides an API (Application Programme Interface) to be used when integrating the software in other systems. This software has, as a part of the project, successfully been integrated in two different environments: A CD-ROM workstation and a Network Entry Point for DANBIB (The central system from the Danish Library Centre). The CD-ROM workstation has a Graphical User Interface and can access local (CD-ROM) based databases as well as remote OPAC’s via the network. The Network Entry Point for DANBIB gives the DANBIB users the possibility of accessing databases (OPAC’s) outside the DANBIB system. The first version of the kernel software is based on SR (Z39.50 V2) but the project is has now upgraded the software with a number of facilities from Z39.50V3. The “kernel” software is available for other implementors.

EUROPAGATE (1993 - 1996)

The original objective of EUROPAGATE was to solve the foreseeable problem arising from the implementation of catalogue Clients and Servers supporting different standards (SR and Z39.50) - or more precisely between Clients and Servers implemented in different networks. The project has developed and implemented a gateway between Clients and Servers (or Origins and Targets) based on different communication stacks (OSI and TCP/IP). The gateway supports also E-mail queries formulated in CCL (Common Command Language) as well as a number of administrative functions necessary for a commercial operation of the gateway. Conversion between a few different MARC formats have also been implemented. A WWW/Z39.50 gateway has also been implemented and the project has tested the use of "minimal" OSI- software successfully. The project has now been finalised and the software is available "free of charge" for other projects who want to implement similar functionality.

SR TARGET (1995-1996)

SR-TARGET is based on the results from SOCKER and another project from the Libraries programme: JUKEBOX. SR-TARGET has developed a "General Purpose" SR target software tool kit. The purpose of this general purpose software or "tool box" type of software is to provide software to be used when upgrading existing databases and catalogues with Z39.50 target functionality. The software has been integrated with three different existing catalogues of sound collections. A central WWW/Z39.50 gateway has also be implemented in this project.

ARCA (1995-1997)

The ARCA project will implement a stand alone Z39.50 client with a Graphical User Interface and this project will also develop a general software package (tool kit) to be used when upgrading existing library

catalogues to act as Z39.50 targets. This software “tool-box” will be integrated in two existing library systems (ISIS and SABINI). The interoperability between these systems and the client will be tested.

ONE (1995-1997)

The ONE project involves national library facilities in Austria, Denmark, Finland, Germany, the Netherlands, Norway, Sweden and UK.

This project will establish an open service infrastructure for searching library catalogues in Europe which can be extended to include resources worldwide through the Internet, and can be further expanded to allow ordering of publications found through searching.

The project will define the functional requirements for a OPAC network in a European context and a protocol (Z39.50) profiles for the participation institutions. The technical interoperability between the participating systems will be tested and a trial service for both librarians and end users will be established. A set of software tools, intended to be portable to a wide range of system platforms, have been developed. These tools will provide additional functions such as conversion between different formats for bibliographic records and character set conversions and will be integrated in some of the participating systems.

The project will also develop and install a *Neutral Entry Point* which can be used to access the network from “outside” the participating institutions.

The project will also investigate and define the requirements for international services and the need for legal and financial arrangements between service providers.

ELISE II (1996 -)

ELISE II will develop and implement an “image retrieval service” by interconnecting a number of heterogeneous image banks and catalogues. The service will be based on a open and extensible system and Z39.50 will be used for accessing the catalogues of images participating in the project (paintings from museums). The project will also implement facilities for retrieving the images and for charging of the users.

UNIVERSE (1996 -)

UNIVERSE will build on the results from a number of previous projects supported by the Libraries Programme (DALI, EUROPAGATE, etc.), and will establish a distributed open system for catalogue searching, document delivery and ILL facilities. These facilities will be centred around a “Logical union catalogue” and interfaces to a number of external document delivery services will be established. Z39.50 will be used for searching external catalogues (parallel searches) and Z39.50 Item Order will be used for ordering documents from some of the participating document delivery services.

CASA (1996 -)

The CASE project will implement facilities for updating and searching distributed catalogues of serials holdings in different European countries. The system will be based on the existing serial databases from the different national ISSN centres. A common user interface, for end users and librarians/cataloguers, will be implemented and Z39.50 will be used for searching the distributed catalogues.

Standardisation

The ISO protocol for search and retrieve (the SR standard) was approved in 1991, more or less at the same time as the first library SR projects started. The projects were (and still are) encouraged to participate in standardisation activities and to give feed-back to the various standardisation bodies. Many of the early projects participated in the EG-LIB group who, in the start of the nineties, developed a number of profiles for the use of SR in different network environments.

An American standard with the same purpose: Z39.50 was approved (as an American standard) in 1992. These two standards were, on paper, not that different, but Z39.50 implementations used the Internet (TCP/IP) as the transport network while the early SR implementations used ISO networks.

As a result of the emerging success of the Internet **and** the lack of ISO network implementations, the Internet soon became the preferred network, also for SR implementations. The further development and maintenance of these two protocols were continued in parallel, but it was decided, after the new version of Z39.50 had been approved (as an ANSI standard) in 1995, also to forward this version to ISO as the new version of the SR protocol. This version has now been approved as the new SR standard, so north American and European implementors are now using the same protocol in the same network environment. The ZIG group (the Z39.50 implementors group) who discuss and maintain the Z39.50 protocol are still very active and many European projects and implementors participate and contribute to the work in this group.

EFILA (The European Forum for Implementors of Library Automation) was created in 1995. This group is a “spin-off” from the EG-LIB group, but the form is more informal and the focus is on sharing implementation experience. This group liaise with the ZIG group, and offer to host ZIG meetings in Europe.

Future perspectives

It must be fair to claim that the Libraries Programme has contributed successfully to the implementation and use of the SR/Z39.50 protocol. The programme was “born” at the same time as the SR and Z39.50 protocols were approved and the focus on implementing general purpose software and tool kits have resulted in a number of stable and well tested software packages, that are used by implementors all over the world (including Australia and north America!).

The challenge will now be to use this software (and the protocol) to establish real international library services for the users of the libraries. The ONE project will test the technical interoperability of a number of

important European catalogues, but the “administrative” requirements for the establishment of a permanent service will also be established as a part of this project.