

Virtual Library of Rio Grande do Sul(BVRS): Making Available ISIS Databases on Web

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***Abstract.** In this paper we introduce the BVRS (<http://www.bibvirtual.rs.gov.br>) situating it in its informational context as a central repository of libraries database of Rio Grande do Sul state. Moreover, we detail the lessons learned and future perspectives, as well as the separated databases strategy issues which we opted, always keeping in mind the standards maintenance according to ISIS / MARC21 for a future proof shared databases update.*

Keywords: standard formats; multi ISIS databases; MARC21; searching, xml.

1. Introduction

The BVRS consists in a public web application allowing ordinary users to search, by author, title or subject, the public library state system collection, looking at a specific library, two or more libraries, or the entire state public library's collection records. As a result of these inquiries, users get access to the resultant set of record descriptors, being possible to display the target content when it is available in electronic format. In the cases where the desired material is not available electronically the system provides its exact location in the library which it could be found.

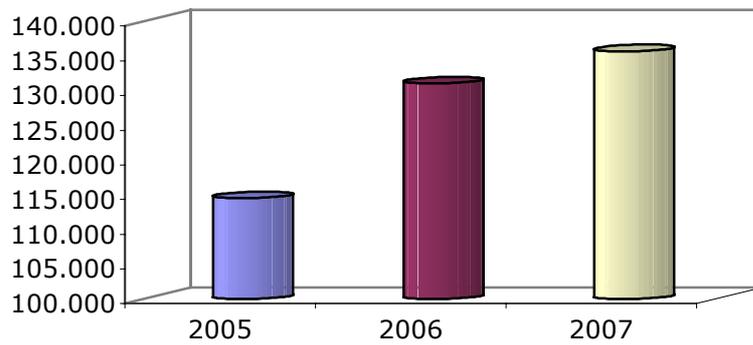
It was established in 2001 with the objective of democratizing access to information stored in libraries state institutions and to promote an easier way to exchange information (records) through the Internet.

In August/2008 the BVRS had an amount of **4,214** visitor sessions, **27,000+** page views in a population of 3,629 unique visitors¹. The BVRS has been also mentioned at UNESCO LIBRARIES PORTAL ²

The size of the entire state collection exceeds the number of 100,000 bibliographical records.

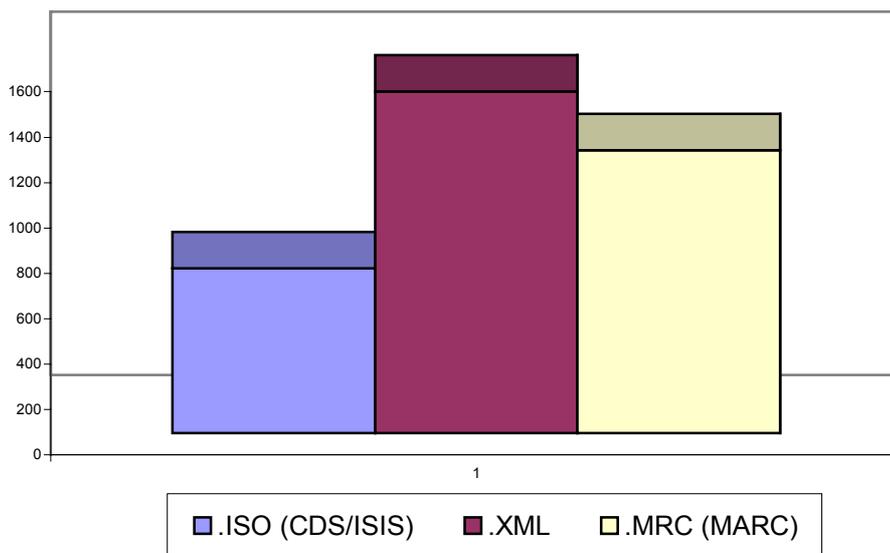
¹ According to Google Analytics Access report.

²http://www.unesco-ci.org/cgi-bin/portals/libraries/page.cgi?g=Libraries%2FPublic%2FLatin_America%2FBrazil%2Findex.html;d=1



Amount of bibliographical records

Beyond the amount of records available, BVRS has a monthly average of 290 record copies which the biggest numbers of copied records are in XML format.



2007 copied records

2. ISIS Databases on Web

In its first phase, the Virtual Library of RS (BVRS) was developed as a pilot project, coordinated by FEE, with financial support from FAPERGS, covering the following libraries

collections: FEE³, IRGA⁴, EMATER⁵ and CIENTEC⁶. The Public Library of State (BPE⁷) has been incorporated to the Project in December 2001.

Currently, in addition to BVRS collections, 12 Public Institutions of the State, it also offers access to catalogues of 11 participants⁸ of the Municipal Libraries State System of Public Libraries (SEBP⁹).

The record exchange is allowed on all collections. Using ISO, MARC, and XML format to perform it. This is an important feature, especially to libraries that are commencing to convert their catalogs to digital format, because it decreases a significant operational cost on bibliographical data entry on the system database. The librarian or person responsible for the administration of a particular collection can consult any catalog available on BVRS, find the desired bibliographic record, download the chosen file format and import to its base (copy cataloging), with complete assurance that all records were previously validated from BVRS.

2.1. Database feeding

All database collections are locally populated on institutions using a sort of different clients/software for data entry. As interface for data entry some libraries use Winisis, others libraries use Mascara (application developed by Control), and, since 2007 the following libraries: FEE, SEFAZ¹⁰, AGERGS of FDRH use IsisMarc to perform updates on databases. IsisMarc was chosen as the new interface data entry client because of constant technical support had become impracticable to the previous software (Mascara). IsisMarc allows to performing a query on a native catalogue of authority, which is a constant need on collections updates, in such a way that would facilitate the inclusion of new records

In 2005 tests were made with CATALIS software, that with minor adjustments in the FST (exchange blank spaces " " to "#") read the records and recorded satisfactory basis due to the fact that also work with MARC21 format. However this application weren't not come to be placed in a production environment server. We had certain need for specific record fields that would still be implemented on software roadmap, and it was considerate as an option to be analyzed further.

Currently, each participating library of BVRS exports its local database collection using Winisis and submits the created file, via email to FEE, this institution coordinates and maintains the BVRS on its own webserver. In FEE records are imported into respective

³ Fundação de Economia e Estatística (Economics and Statistics Foundation) – <http://www.fee.tche.br>

⁴ Instituto Riograndense do Arroz (Rice Riograndense Institute) - <http://www.irga.rs.gov.br/>

⁵ Associação Riograndense de Empreendimentos de Assistência Técnica e Extensão Rural (Riograndense Enterprises Association of Technical Assistance and Rural Extension) - <http://www.emater.tche.br>

⁶ Fundação de Ciência e Tecnologia (Science and Technology Foundation) - <http://www.cientec.rs.gov.br/>

⁷ Biblioteca Pública do Estado - <http://www.bpe.rs.gov.br/>

⁸ Municipal libraries: Alegrete, Alvorada, Cachoeirinha, Nova Petropolis, Sapucaia do Sul, Gravataí, Porto Alegre LEOPOLDO BOECK, Porto Alegre LIGIA MEURER, Porto Alegre ERICO VERISSIMO, Porto Alegre ROMANO REIF and São José do Norte.

⁹ Sistema Estadual de Bibliotecas Públicas – Public Library State System

¹⁰ Biblioteca da Secretaria da Fazenda do Estado – Department of Finance Library

collection, then indexed and regenerated inverted file. After that is transferred to the server. Each library collection has a particular folder, which is individually updated.

2.2. Standardization

To decrease the required amount of time to perform databases updates and publish those updates, it was established that all bases should be formatted with specifications of MARC21 format and populated in agreement with the code of cataloguing AACR2. Thus, de modeled after a basic standard, existing records in the appropriate databases have been migrated using for this the process of import and export with FST. After the migration of data were made adjustments in the appropriate databases with the aim of reducing the inconsistencies.

A practical case: when modeling bibliographical database, control fields have been identified from the 9XX. For example, 991 Type of Registration, 992 Bibliographic Level that on spreadsheet data entry has its input through a pick list or dropdown menu select. This standardization allows entry of data and recovery information tools were being tested because during the development and working fine, due to MARC21 format. From the beginning until the present time BVRS databases have all the same structure, with no waste of working time customizing specific collection to work with specific software. We can change software whenever we want or need, once the software works with MARC21 format.

2.3. Splited DataBases

In 2004, due to the increase on the number of available collections on BVRS (20+), the *Núcleo de Desenvolvimento da FEE*¹¹ has built a new interface for OPAC using the software OpenIsis and developed searches in each base individually. The search and result pages in their first versions, were built using the WXIS software and performed inquiries on single database where all records of libraries participating were stored (one big and huge file). Physically splitting the libraries collections, by folders, allowed storing independence on filesystem. A kind of major security, considering that a base could have a sort of corrupting this would not have influence on a search on other bases.

So, on the mostly recent code rebuild, BVRS had as its main goals: accessibility and speed of access. The HTML code used was compliant with W3C webstandards on search pages gives assurance of a complete access from any plataform (windows, linux, macos), browser (Internet Explorer, Firefox, Safari, konqueror) or device (desktop, pda, cellphone).

2.4. Difficulties and Lessons Learned

As first difficulty that had been faced was the standardization of bibliographical collections. Some of them stored too many records and during the migration (import) process with a FST some information were not imported into right fields due to the source data being stored originally on wrong fields or because of the way of data was entry (not on MARC21 format, no subfields and/or without right field separator, for example).

To implement Leader and 008 control fields on libraries which had not an specific software of interface for data entry, only Winisis, were defined custom fields to store this information. In the spreadsheet input data were defined pick lists to help fill in those fields. And finally set a FST to the reformatting stored data and places it in right positions to export the collection to

¹¹ Development Center of FEE works to provide technology solutions to FEE's needsings.

BVRS (web). It is important to note that many 008 field positions were not defined, cause when we heard about IsisMarc we decided to use it on data entry.

During the development of last BVRS OPAC, the Development Center of FEE team, used to working with relational data base (Oracle, MySQL), faced another difficulty to get used with the textual databases. The base CDS/ISIS is a textual database where information is stored in a single repository, allowing repeatable fields of varying sizes, and subfields, also of varying sizes. This feature provides the importance of creating an archive of indexing appropriate, according to the needs of users, bringing together fields by affinities, indexing only the essence, the more significant entries.

The specific characteristic of each platform (Windows or Linux) in recording files on its filesystem (NTFS vs. ReiserFS or Ext3) avoids the direct exchange of data file between those platforms. It means that a master or inverted file created on a different platform can not be read without a kind of data sanitize. However this issue is predictable and has already a solutions in documentation available on BIREME website, using the CISIS package applications in the conversion of master files and inverted for the desired platform (from one to each other).

With the discontinuity of OpenIsis search engine ,compatible with PHP only up to version 4.3.3, launching of PHP version 5 and migration of server from windows to Linux platform, was made an option to return to WXIS search engine that had a new version launched by BIREME in February 2007. This code migration currently is on final development stage, running on development server.

2.5. Future

As next step we aim finish the migration to WXIS based engine on Linux platform environment. So that all features that today exist (search on different base, export) would still available and others webservices could be offered to public, a the iof Z.3950 protocol implementation, becoming a pioneer in the south of the country to offer this webservice.

Provide decentralized update, where each participating library will handle its database directly into the central bases repository, thus towards to less centralized information control and more update capability. In addition, we plan to provide some kind of web service or API to search inside the bases, which can be used through forms parameters (or through URLs) as wxis-modules scripts, aiming to return manipulable data (XML).

3. Conclusion

Since project beginning we aimed interoperability between different libraries and to quickly populating bases, thus far we provided a solution based on ISIS standard databases using MARC21 format. This standardization has brought many benefits to the workflow and to the library data. Among them, it allowed just one basis initially in the first BVRS version but, even with the growth in number of bases, when we realized the need to maintain the physical separation of them, allowed to keep unchanged in its structure. The standardization was not limited only to the field of information technology, but in its current version BVRS managed to cover the concepts of standardization according to the requirements of the W3C and become fully accessible regardless platform, device or OS.

Keeping up the MARC format as a standard of libraries was possible, even remotely and somewhat offline (one of the libraries update its database sending a CD recorded by mail), maintain a collaborative environment for content. A hype today, collaborative content creation, BVRS put into practice since its creation. MARC21 format provided a future proof database structure, and even data entries able to be handled on any software compatible with this format. The standardization makes possible, in a practical example within the FEE, that a new developer would be added to development team. This member, with a few days of environment, begins migrating back the search application to IsisScript again. Also populating databases of libraries was easier and transfer of technological expertise required was optimized.

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