

Digitizing Materials Using the Library Information System - NIBIS

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Aleksandra Adžić

aleksandra@nbss.rs

*Stevan Sremac
Public Library Niš*

ABSTRACT: The digitization of library materials is a complex process, and it consists of several segments that need to be harmonized, so the process could be conducted without difficulty. In this paper, one part of the library and information system NIBIS which supports the digitization of library materials is presented.

At the time when modern librarianship, among the other things, implies the presentation of library materials in a digital form, Stevan Sremac Public Library started digitization of all funds using its own library and information system (system was created and developed in cooperation with the librarians of Stevan Sremac Public Library; all the tests were carried out at the Library). With all the advantages of this system, relying on data that have already been entered in to the electronic database, developers have created an other segment of this software for digitization of library materials in a relatively simple manner.

The segment for digitizing library materials was created after sublimation of experiences from librarians who already have digitized their archives, but also conforming to the actual conditions in the Library.

KEYWORDS: digitalization, the library system, NIBIS

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1 Introduction

In Stevan Sremac Public Library preparations for the beginning of digitizing library materials were carried in 2011. In the following year, the latest generation of scanner (ATIZ) was purchased and after that the plan for digitization was made. Considering the fact that in the Library of Niš almost all issues of the newspaper "Narodne novine" are stored, a decision was made to introduce to the public all

issues of this newspaper, in a digital form. The plan of the digitization principles has been made, so the priority is given to the Native Collection which must be protected from ruination. The special care was paid to mode in which the material, that needs to be protected, will be presented to users. Considering the Law on Copyrights, special attention was paid to the selection of the material that will be digitized.

In the same year, 2012, the authors of NIBIS¹ created another segment of this software, so the digitization

¹ NIBIS is developed in the Information Center of Innovation Technologies at the Faculty of Mechanical Engineering, University of Niš

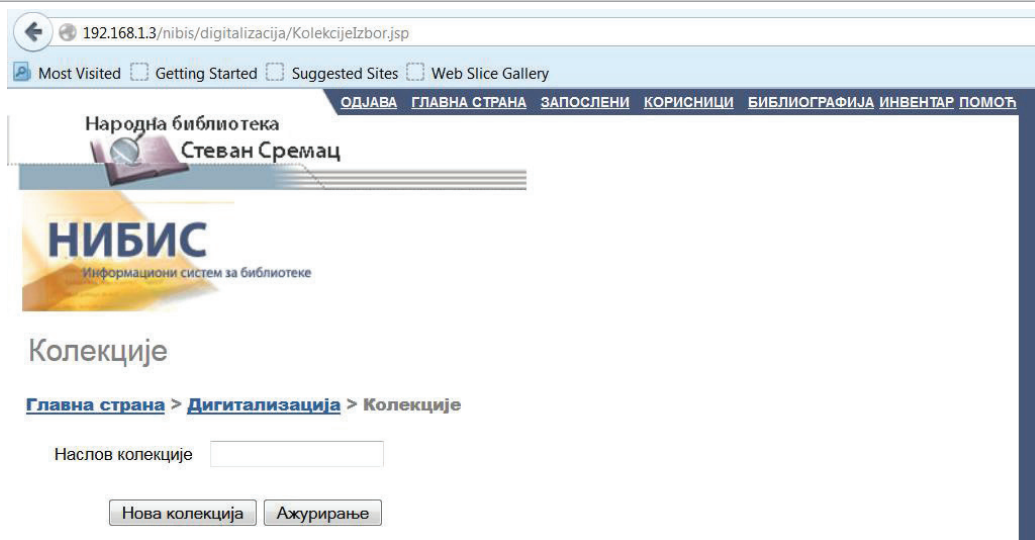


Figure 1. Layout of the page Collections.

of library materials could be performed in a manner and under the conditions that librarians already are accustomed to. In addition, in the system all metadata from the bibliographic processing are used; they are assigned to the digital copies. This paper will present the way in which librarians perform the transfer of metadata between two segments of this system, as well as the assignment of metadata to digitized publications. Many Serbian and international libraries were consulted in order to achieve the final appearance and functionality of the software. The experiences of libraries that use various types of software have been collected: Public Library of Jagodina, City Library of Čačak, Belgrade Public Library, Digital Library of Serbian Republic, The system Cobiss, Polish National Library, National Library of France, The digital library of scientific institutes of India and others. Particular attention was paid to the way of searching digital copies in various libraries, then the quantity and type of data that will be visible to the user so the required publication could be identified, also consultations were conducted about: data security, ways of saving backups, ways to present the digital collections on the Internet, possibility to avoid typing metadata, etc.

The authors of the software created assignment for the digitization of library materials taking in to consideration the fact that the librarians of the Niš Public Library are accustomed to a simple graphical interface that NIBIS already possesses in all its

other segments. Entire text is written in Serbian Cyrillic, so the software includes filling fields and choosing data from optional menus (Adžić 2015).

The segment of the library and information system NIBIS which supports the digitization of library materials relies on data that already exist in an electronic database. Therefore, each library unit that digitizes must be previously bibliographically processed in NIBIS, so its metadata could be taken over. When the bibliographic description is entered into the system, selected publication is searchable and fully usable in the section for digitization.

In the system NIBIS all library materials could not be digitized in the same mode. As there are differences in the bibliographic processing depending on the type of the publications, digitization of library materials in library and information system as well is performed depending on the type of publication. In this paper digitization of monographic and serial publications will be presented. However, the first steps of digitizing are the same for all types of publications.

Before you take first step in order to present the publication in a digital form, you imply that the library units have already been scanned, then that the digital copy further has been processed using the selected program for image processing (if necessary) and placed in the precisely defined folder on the server computer. Every digital copy must have .jpg format and each file must have the

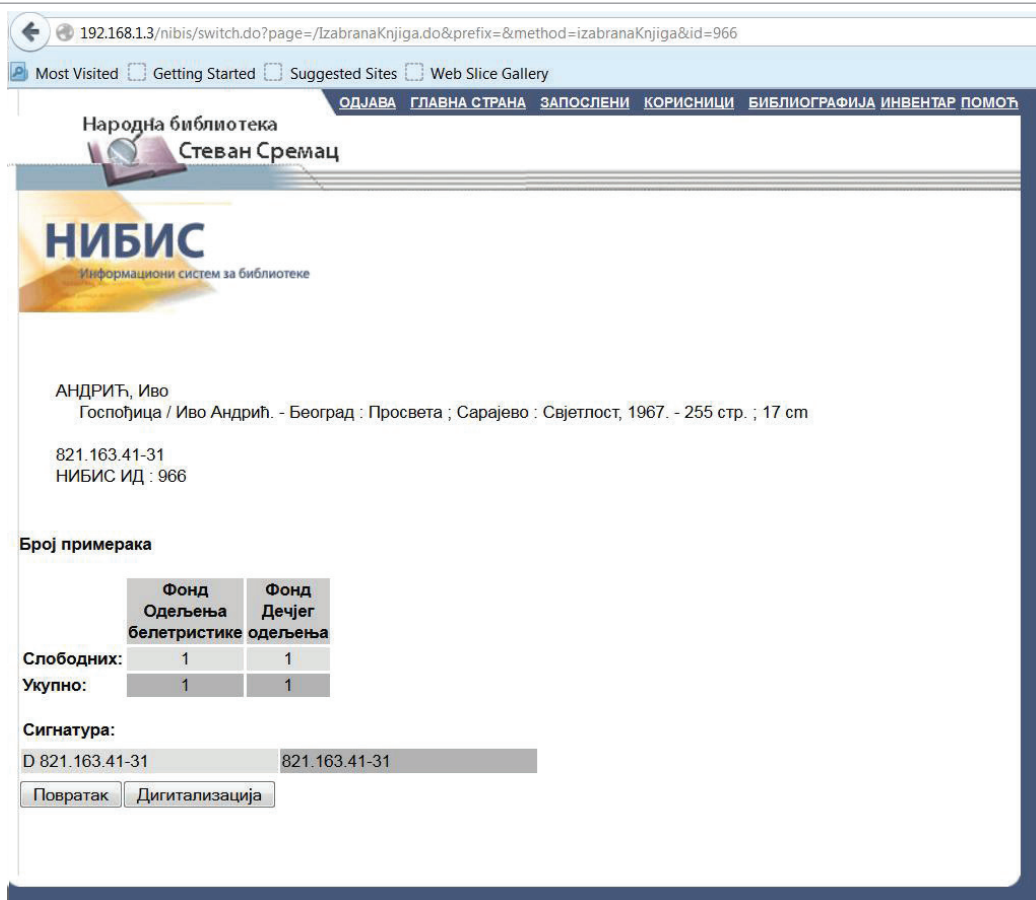


Figure 2. Layout of the page after clicking on a publication which should be digitized, with display of metadata used in the segment of digitizing

special digital copy that shows the front page of the publication. This digital copy must be named *naslovna.jpg*, while all the other digital copies must be named in the form of three-digit number (eg. 001.jpg, 002.jpg, etc.).

2 Introducing the software for the digitization of monographic publications

By choosing the option *Digitization* on the main page, you are linked to the page with two options for selection: *Collections* and *Bibliographical units*. By choosing the option *Collections*, you are guided to the page on which there is a field for entering the name of the collection. On the same page there are two buttons- *The new collection*, if there is a need for creating another collection in the

system and *Update*, if there is a need for changing some data in the existing collection.

By choosing the option *Bibliographical units*, the page for the basic search of the processed units appears. In this section, using standard search by author, title, publisher, keyword, language, type of material and /or year of publishing, a publication for digitizing can be found. When the librarian selects the publication, software leads him to the next page which shows its bibliographic description. On that page a single button that leads further is located – *Digitization*.

After the librarian clicks on the link of the publication which will be digitized, a new window opens so, in marked fields, the following should be typed: title, description, folder, difference, one-sided/double-sided, number of pages and type.

Title- in this field the title is already copied from

The screenshot shows a web browser window with the URL 192.168.1.3/nibis/switch.do?page=/UnosKnjigeForward.do&prefix=&method=unosKnjigeForward&knjigaId=966. The page header includes navigation links: ОДЈАВА, ГЛАВНА СТРАНА, ЗАПОСЛЕНИ, КОРИСНИЦИ, БИБЛИОГРАФИЈА, ИНВЕНТАР, ПОМОЋ. The main header features the logo of the National Library of Stevan Srećak and the NIBIS logo (Информациони систем за библиотеке). Below the header, the title "ГОСПОЋИЦА Нибис ИД: 966" is displayed. A breadcrumb trail reads: Главна страна > Дигитализација > Библиографске јединице > Дигитални запис. The main content area is titled "Дигитализација" and contains a form with the following fields: "Наслов" (Title) with the value "Госпођица", "Опис" (Description), "Фолдер" (Folder), "Разлика" (Difference) with the value "0", "Једнострано" (One-sided) with a dropdown menu set to "Једнострано", "Број страна" (Number of pages), and "Тип" (Type) with a dropdown menu set to "Изаберите тип". To the right of the form is a "Колекције" (Collections) dropdown menu showing "Не припада колекцији", "Народне новине", "ОВИМ ПОБЕЂУЈ!", and "народне новине". At the bottom of the form are three buttons: "Упамти" (Remember), "Садржај" (Content), and "Брисање" (Delete).

Figure 3. Layout of the page which contains fields for data entry

the bibliographic processing, so there is no need for typing. However, in the very same field, if necessary, changes are allowed (e.g. when we type titles in the bibliographic processing, the omission can occur, whereby the corrected contents cannot be copied to the segment of bibliographic data);

Description—in this field librarian closely describes a publication (where the publication is located, what its condition is, whether it is signed by the author, whether this is a jubilee publication...). A necessity for filling in this field and what data should be entered here is free assessment of the librarian;

Folder—in this field should be entered entire trajectory that shows the location of the processed publication on the hard disk. The trajectory is not generated automatically, because each collection has its own position on the hard disk. The librarian is obliged to type in the exact trajectory to the location of the desired collection;

Subtraction—in this field subtraction of the actual number of pages of the publication should be entered as well as the number that marks the first page of the publication. Often, the first page of the publication is not numbered with number one, or the preliminary pages are marked with Roman numerals or letters, etc. so, in front of the page where the pagination is number one, there are several pages that need to be digitalized. This causes the difference between marked number of pages and the actual number of digital copies (in the system, main page counts as a preliminary page). In this case, librarian should enter the numeral that shows number of pages in front of the page marked with the number one. This is particularly useful in cases when user does not want to flip through the entire publication to find the information he needs. He can go directly to the page that he's interested in. Thereby the program,

using the numbers that are already entered into this field, will automatically calculate the page on which the information is located.

The number of pages— in this field librarian should enter the actual number of pages of the publication.

The type— from the drop down menu the type of the material which will be digitized: books, newspaper or journal should be chosen.

In a special field, on the same page, the collection which the resource belongs should be chosen.

At the end of this page three click buttons are displayed- *Remember*, *Content*, and *Deleting*.

Remember—by selecting this button, in the electronic database the entered data will be saved;

Content—this is not the required field. However, if we want to display the contents of the digitized publication, in order to directly perform searches by title, subtitle, etc., the entire contents must be entered directly by typing. In a separate field the following should be entered: chapter title, headings within the chapter, sub headings. In the given field, user must type the page number of the title, in order to directly visit the page where that title is. In this field the real number of pages should be entered, not the one that is written on the right of the page. All titles maybe updated later, on another page, on which all copied data may be further modified.

Deleting—the entered data shall be deleted.

Up to this page all the activities are the same for all types of library materials.

3 Digitization of serial publications

This part of the software has been developed in accordance with bibliographic description of serial publications. Before the beginning of digitizing serial publications the preparation which includes the systematic setting up of files and folders on the hard disk should be done. First of all, the names of the digital copies should be in the form of three-digit numbers xxx.jpg (001.jpg, 002.jpg, 003.jpg, etc.). After that, new folders should be created. These folders should contain digital copies. The names of the folders should be created according to the given template:

day-month-year (for example, for the newspaper issued 15.09.1999 the folder named 15-09-1999, with digital copies named 001.jpg, 002.jpg, etc. should be created.). Usually, each newspaper or journal has several folders formed this way. All these folders are located in one folder, named by the newspaper or journal where these issues belong (e.g. The world of computers).

Digitization of serial publications is performed, in the first segments, with exactly the same activities as well as the digitization of monographic publications. Up to option *Type*, all fields should be filled in an identical manner and on the same way. Thus, according to given criteria, searching newspapers or journals is performed. After that, the requested publication should be chosen from the displayed list. After clicking on the button *Digitizing*, the new page, which greatly resembles on the page where the selection for monographic publications is done, appears. In this case, after selecting the type of library material, the option *Newspaper* or *Journal* should be chosen, while on the bottom of the page appears another button for new selection- *Newspaper issue*.

After the digital copy of the requested newspaper and the path to it is chosen, then after all the other fields are filled in, the collection to which it belongs is selected and the type (newspaper, journal) is defined, the librarian clicks on the button *Issues of the newspaper*. A new window, containing the field *Next year*, opens and in a separate field, on the same page, there are two tables: first table with buttons that indicate the months of the year and second table with buttons that indicate days of the month. On this page, in the field *Next year*, the year of the given issue has to be entered. After that, from the drop-down menu, entered year must be chosen and, right after that, from the first table, the month of publishing has to be selected. Finally, from the second table, day of publishing serial publication has to be chosen. In this way, within a single window, with three steps, we have defined the exact date of publishing serial publication. The selection is performed by clicking on the button that indicates the month, where the button is colored blue, and then by clicking on the button that indicates the date of publishing serials, where by the button is also colored blue.

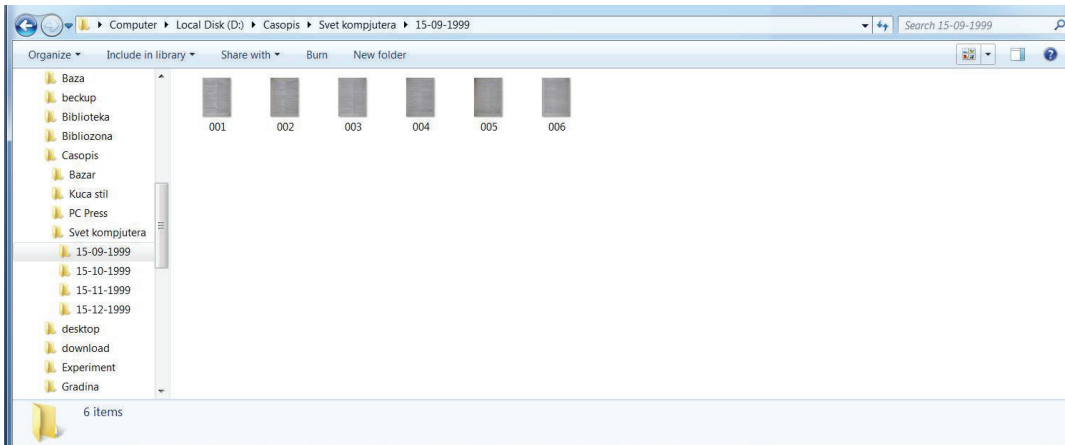


Figure 4. The hierarchy of folders and files, i.e. the way of storing digital copies on the hard disk of server computer

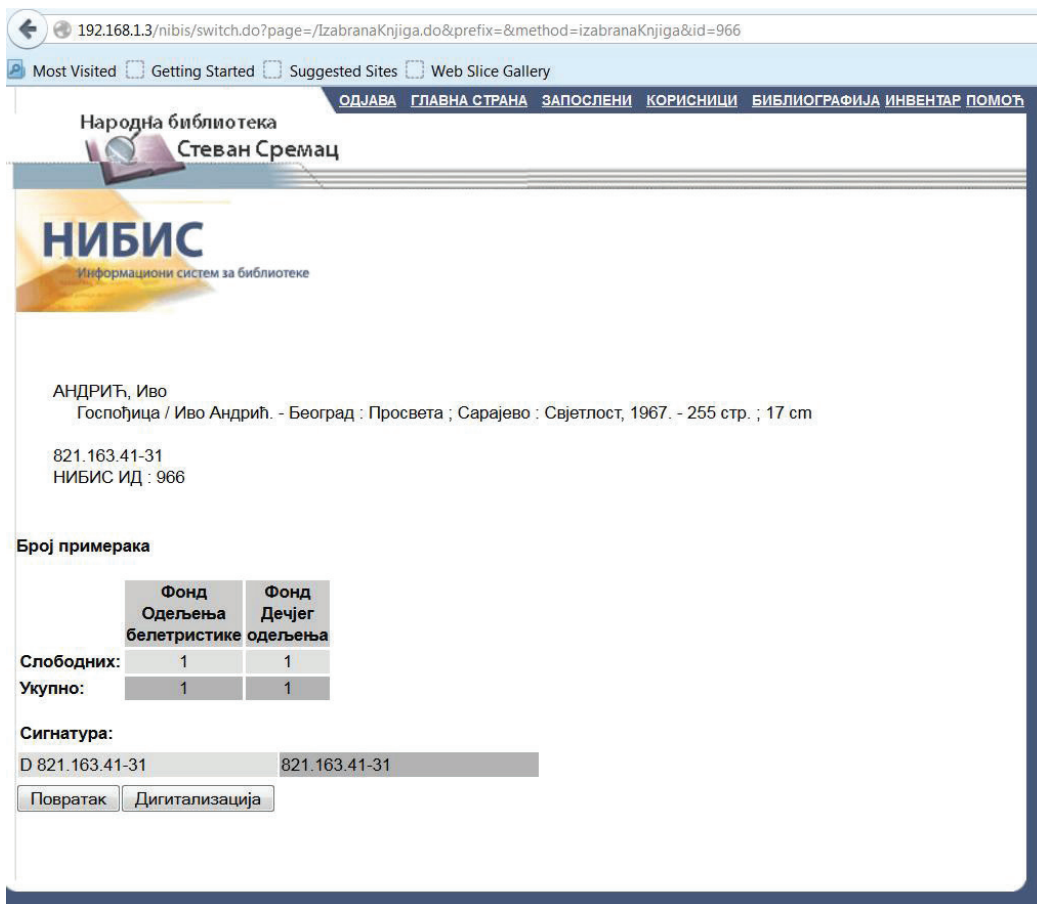


Figure 5. Layout of the page which contains fields for data entry to digitize serial publications

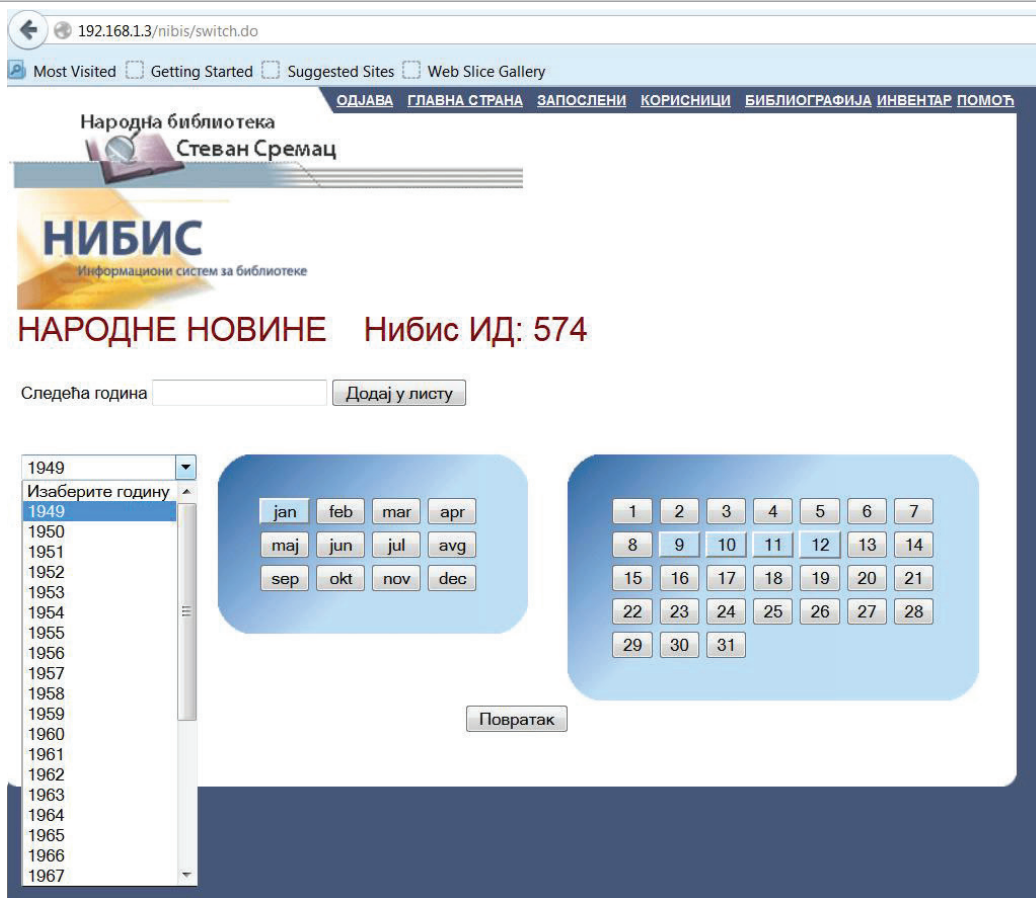


Figure 6. The layout of the page for entering the exact date of publishing serial publication

The information about the number of issues that has been entered into the system, within the year or within the month, is obtained directly from these two tables: buttons that indicate entered issues within the month colored blue.

In Stevan Sremac Public Library digitalization of the newspaper "Narodne novine" began. The cooperation between librarians, IT and management of the Library resulted in the decision to digitalize all issues of the newspaper "Narodne novine" since 1949, considering the fact that the Library contains almost all issues of this newspaper. Copies that Library does not have will be borrowed from the publisher of this newspaper. The digitization of other library materials is planned, and priorities are dictated by the condition, age, status of the publications, etc. The digitization of library materials that belongs to Department of native and special funds, in Stevan Sremac Public

Library started by presenting thematic library material, "The emperor Constantine" and "The Milan Edict". Further, old and rare library material from the local history collection will be digitalized.

4 The segment of the system for users

The entire material that is digitalized in the Library is visible and usable at any time, with any computer that has an Internet connection, with any browser. Directly from the homepage of the official website of the Library (www.nbss.rs) there is a link to the page with the digital collections. By selecting the option *Vebnibisa* new page, that connects Website and the electronic database of the Library, opens. On that page, *Digital collection* option should be selected and afterwards the new page, with all digital collections that library

possesses, will be opened. After the collection is selected, it is possible to access the page where the digitized copies should be chosen.

If user does not want to access to all collections at the same time in order to find the one that he needs, he can search for exact digitalized publication from the same segment of the software from which he searches the electronic catalog, because the software uses all bibliographic data that are once entered in the system. The searching can be performed by all keys, but it is necessary to mark the option *Search the material that is digitalized*, in order to display digitalized publications in the search result. After that, from the hit list, the desired publication should be selected and all information about the publication will be displayed. *Back button*, located at the bottom of the page, enables going back to the previous page, and the button *Digital version* leads the user directly to the digitized copies. The digitized copies can be switched in order in which pages are digitalized. Besides this, software can take the user directly to the requested page. If the user wants larger or smaller layout of the page, by simply selecting the option plus (+) or minus (-), this can be adjusted.

Unfortunately, the digital copies in the electronic database of Stevan Sremac Public Library are not searchable by full text yet. We hope that soon all digital copies will be converted into text format with the help of OCR program, so the collections will be searchable throughout the text. For that purpose, the experience of other libraries can be used. We might take into account adopting the way in which, for instance, this segment of the software Public Library in Čačak develops on a daily basis. Searching by full text is especially important in cases where there is a need to find as many information from a particular area, also when the pieces of requested information are located within some chapter, or when it is important to find resources

from dictionary, encyclopedia, lexicon, etc.

5 Conclusion

Library and Information System NIBIS was upgraded and improved in order to digitize library collections. In Stevan Sremac Public Library digitization is performed on its own. The segment of the software NIBIS, that enables digitization of library materials, as well as all the other parts of this software, will be upgraded in accordance with the progress of information technology. The entire library and information system NIBIS is created in accordance with the latest developments in information technology, but also with the inclusion of all bibliographic standards. The part of the software that implements the digitization of library materials was developed after extensive research and consultations with experts from Serbian and regional libraries. Many options were constructed based on experience, many options were made following the recommendations from the practice, because there are no standards at the national level. Digitization of library materials is not quite so young and new to us, it is not possible that in Serbia there are no conditions, knowledge, capabilities and so on, so the question remains: why in Serbia no one seriously dealt with area which is everywhere in the world in such an expansion that many experts believe that it will have primacy over the traditional library, in order to declare at least harmonized guidelines and standards for all information systems. I sincerely hope that this will be solved as soon as possible in order to achieve more organized and easier work activities. Until that happens, in Stevan Sremac Public Library digitization of library materials will be reconciled with the most important standpoint –users' standpoint.

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