

Б У Д И Т Ё Л И

„ОБЩЕСТВОТО НА ЗНАНИЕТО И ХУМАНИЗМЪТ НА ХХІ ВЕК“

СБОРНИК С НАУЧНИ ДОКЛАДИ
ОТ XVIII НАЦИОНАЛНА НАУЧНА КОНФЕРЕНЦИЯ
С МЕЖДУНАРОДНО УЧАСТИЕ
1 НОЕМВРИ 2020 Г.

70

70 ГОДИНИ ОТ СЪЗДАВАНЕТО
НА УНИВЕРСИТЕТА ПО БИБЛИОТЕКОЗНАНИЕ
И ИНФОРМАЦИОННИ ТЕХНОЛОГИИ



ЗА БУКВИТЕ
О ПИСМЕНОХЪ

ОБЩЕСТВОТО НА ЗНАНИЕТО И ХУМАНИЗМЪТ НА XXI ВЕК
XVIII национална научна конференция
с международно участие
София, 1 – 2 ноември 2020 г.

KNOWLEDGE SOCIETY AND 21st CENTURY HUMANISM
The 18th International Scientific Conference
Sofia, 1st – 2nd November 2020

ЗА БУКВИТЕ
ОПИСМЛЕНЕХЪ

Сборникът „Обществото на знанието и хуманизмът на XXI век“ е реализиран в рамките на проект „Стимулиране на научните комуникации в изследователската и преподавателската дейност на преподавателите от УниБИТ в националния и международен информационен обмен – Научни конференции с международно участие по случай Деня на будителите „Обществото на знанието и хуманизмът на XXI век“ – 1 ноември 2020 г.“ (ПЧФНП 2020-05/13.04.2020 г.) по Наредбата на Министерството на образованието и науката, с ръководител доц. д-р Любомира Парижкова.

The Proceedings “Knowledge Society and 21st Century Humanism” has been realized within the project “Stimulation of Scientific Communication in the Research and Teaching Activities of ULSIT Lecturers in National and International Information Exchange – Scientific Conferences with International Participation on the Day of the Leader of the Bulgarian Revival” of the 21st Century Knowledge and Humanism – 1st November, 2020 (PPFPP 2020-05/13.04.2020) under the Regulation of the Ministry of Education and Science, coordinated by Assoc. Prof. Lubomira Parijkova. PhD.

Университет по библиотекознание и информационни технологии
© Академично издателство „За буквите – О писменехъ“, 2020
ISSN 2683-0094

University of Library Studies and Information Technologies
©Academic Publishing House “Za Bukvite – O Pismeneh”, 2020
ISSN 2683-0094

Академично издателство „За буквите – О писменехъ“ не носи отговорност за изказаните мнения, идеи и хипотези на авторите в техните доклади, включени в настоящия сборник.

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DIGITAL MANAGEMENT OF COPYRIGHT AND RELATED RIGHTS FROM THE POINT OF VIEW OF THE MACEDONIAN LEGISLATION

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Abstract: The aim of the study was to examine the characteristics of the system for electronic records of copyright and related rights and the additional provisions of the Law on Copyright and Related Rights of the Republic of Macedonia. The computer system used by the collective management associations and the media is analyzed. The results of the study showed the dependence of effective legal remedies on the quality of appropriate technical means. The conclusion contains adequate measures to improve the system.

Key words: copyright and related rights, collective management, media, performers.

Introduction

Interoperability between different media is a dominant feature of contemporary society, also characterized by a high level of interactivity between the users and the means of communication. Consequently, it is vital to find and articulate a new foundation for copyright and related rights that will afford the essential legal protection for authors, artists, users, etc. Collective Management and Collective Copyright and Related Rights Organizations encounter numerous challenges in the digital environment. Digital rights management offers right holders individual supervising and measurement of broadcast copyright works and objects of related rights through the media, thus permitting better transparency [1, 2]. Collective management organizations, which have made an outstanding influence since the second half of the 19th century towards endorsing culture and the progress of the media industry in our societies, and which have remained authoritative organizations to this day, are currently facing a strong trend of modification. The media is at the forefront of the fluctuations caused by the influence of digital technology. The landscape of digitalization and its inferences for broadcasting are progressively being explored. There is also a growing need to examine the significances of the changes caused by the impact of digital technology on broadcasting, as well as the suitable modification strategy [1, 2, 3]. The purpose of this paper is to examine the legal framework of the model of the system for electronic evidence of broadcast copyright works or objects of related rights, as well as the technology used in practice, especially in the context of the rights management of performing artists (this paper is a continuation of the study of Chapkanov, D et al.)¹. Several key findings

concerning the improvement of the electronic evidence system in legal and technical terms are presented at the end.

1. Macedonian Legal Framework

Pursuant to Article 135-a from the Law on Copyrights and Related Rights (“Official Gazette of the Republic of Macedonia” No. 15/10, 140/10, 51/11, 147/13, 154/15 and 27/16) (hereinafter: LCRR) [4], for the purpose of the electronic evidence, data processing, monitoring and oversight of broadcasted copyrighted works and objects of related rights, the collective management organisations are obligated to provide and to install at the radio and TV stations systems for electronic evidence of the broadcasted copyrighted works and objects of related rights (hereinafter: systems for electronic evidence).

1.1. Rights and Obligations according to the Law on Copyrights and Related Rights

On the basis of Article 135-a of the Law on Copyrights and Related Rights (Official Gazette of the Republic of Macedonia No 115/10, 140/10, 51/11, 147/13, 154/15 and 27/16) (LCRR) [4], for the purpose of electronic evidence, data processing, monitoring and control of broadcast copyright works, or objects of related rights, collective management organizations are obliged to provide and install a system for electronic evidence of broadcast copyright works, or objects of related rights (hereinafter referred to as the Electronic Evidence System) in the radio and television organizations. The electronic evidence system is an integrated information and communication solution with a secure level of protection through which electronic recording, data processing, monitoring and control of broadcast copyright works, or related rights objects (objects of related rights are performances by performing artists, producers’ phonograms and programs of radio and television broadcasting organizations). This means that all music works as well as vocal and instrumental performances of performing artists (singers, backing vocals, instrumental performers, etc.) broadcast by radio and television organizations are recorded through the electronic evidence system. Radio and television organizations are obliged to provide their own compatible system ensuring connection to the electronic evidence system and to enable the collective management organizations to install the electronic evidence system. The electronic evidence system ensures, in particular: – identifying copyright works, or related rights objects (vocal and instrumental performances by performing artists, singers, backing vocals, instrumental performers, etc.), at the time when they are broadcast on a program on radio and television organizations, with allowed time deviation; – recordings of broadcast copyright works or objects of related rights (vocal and instrumental performances by performing artists, singers, backing vocals, instrumental performers, etc.); – daily, monthly and yearly reports and other periodic reports on broadcast copyright works, i.e.

objects of related rights (vocal and instrumental performances by artist-performers, singers, backing vocals, instrumental performers, etc.), by specified parameters (number of copyright work broadcasts, i.e. vocal and instrumental performances of performing artists, broadcasting time, duration of broadcasting, identification of the radio and television organizations on which the work is broadcast, daily report for radio and television organizations documented data broadcast copyright works or musical performances in the electronic evidence system); – electronic notification on interruption of the operation of the electronic evidence system to the person in the collective management organization and the person in the radio and television organization; and – storage of data from the electronic evidence system for five years as of the date of their evidence.

Rights and obligations of radio and tv organizations related to maintenance of the electronic evidence system Pursuant to Article 135-d of the LCRR [4], the radio and television organization shall be obliged to appoint a person to monitor the work of the electronic evidence system in the radio and television organization. The person shall be obliged to monitor the work of the electronic evidence system and to maintain the installed system in the radio and television organization in communication with the electronic evidence system in the collective management organization. If the person detects that the electronic evidence system does not function in the radio and television organization, he / she shall be obliged to take immediate measures to eliminate the interference to the operation of the system and notify the person responsible for monitoring the work of the electronic evidence system in the collective management organizations. The person shall be obliged to follow the instructions for removing the interference to the operation of the computer system in the radio and television organization provided by the person in charge of monitoring the work of the electronic evidence system in the collective management organizations and to enable him / her access to the computer system of radio and television organization.

Supervision of the electronic evidence system operation Pursuant to Article 135-e of the LCRR [4], the Ministry of Information Society and Administration carries out technical supervision of the operation of the electronic evidence system. The description and technical characteristics of the electronic evidence system, the services it provides, protection measures, minimum technical requirements to be fulfilled by the radio and television organization to ensure compatibility with the electronic evidence system and other matters relevant to the operation of the system shall be prescribed by the Minister of culture, in accordance with the Minister of information society and administration.

1.2. Authorized use of a system for electronic evidence

Pursuant to Article 135-b from the LCRR [4], a permit for using the system for electronic evidence upon a request by the collective management organisation

is issued by the Ministry of Information Society and Administration based on an opinion provided by the Ministry of Culture.

If the Ministry of Culture issues permits for collective management to two or more collective management organisations with the same or different type of rights the organisations are obligated within 60 days from the day the last collective management permit is issued to sign a contract that regulates the manner of mutual provision and installing of a system for electronic evidence, and the Ministry of Information Society and Administration based on an opinion provided by the Ministry of Culture shall issue a permit for mutual use of the system for electronic evidence .

The Ministry of Culture issued to the Association for Music Copyrights “ZAMP” – Skopje a Decision, dated 2 January 2015 allowing the use of a system for electronic evidence of copyrighted works broadcasted by radio and TV stations – Verteks Media Logger produced by the Company Verteks Broadcast Solution from Prilep.

The Ministry of Culture issued the Organisation for Collective Management of the Rights of Producers of Phonograms and Music Art Performers “MMI” – Skopje a Decision, dated 24 February 2015, allowing the use of a system for electronic evidence of broadcasted phonograms and recorded music performances that are of broadcasting type as such – GRID CEE.

2. System’s Features

The system for electronic evidence is an integrated ICT solution with an adequate level of protection for electronic evidence, data processing, monitoring and oversight of the broadcasted copyrighted works and objects of related rights. The system is graphically presented on picture 1.

The radio and TV stations are obligated to provide their own compatible system that could be connected to the system for electronic evidence and to allow the collective management organisations to install a system for electronic evidence .

The system for electronic evidence (Figure 1) provides primarily:

- identification of the broadcasted copyrighted works and objects of related rights at the time when they are broadcasted by the given radio or TV station within the allowed time deviation in compliance with article 135-e paragraph 2 of LCRR [4];
- evidence s of the broadcasted copyrighted works and objects of related rights;
- daily, monthly and annual reports and other periodical reports on the broadcasted copyrighted works and objects of related rights following certain parameters (how many times the copyrighted works and objects of related rights were broadcasted; at what time; duration; identification of the radio and TV organisations that broadcasted the work, a daily report on the radio and TV stations that recorded data about the broadcasted copyrighted works and objects of related rights in the system for electronic evidence);
- electronic notification of the contact point at the collective management organisation and of the contact point at the radio and TV station in case of failure of the system for electronic evidence; and
- storing data from the system for electronic evidence for five years from the day of their evidence.

Vertex Media Logger is software developed by Vertex Broadcast Solutions Company. It consists of 4 components: Vertex Media Audio Fingerprint Initial Database Creator, Vertex Media Logger Client, Vertex WCF Service and Vertex Media Account.

2.1. Vertex Media Audio Fingerprint Initial Database Creator

This component helps create Audio Fingerprint Initial Database of the works that will be provided by the collective management organisation. This component makes audio fingerprints of all the works that will be submitted and which have ID3Tags. The software will memorise in the database also the ID3Tag's data as well as the names of the files and their paths and it will take a time segment from each work with duration as configured by the user. Such a database will be used at the official start-up of the system.

The entire system is created in a way that enables it to automatically update that database and to “learn” in time.

Vertex Media Logger Client

This application collects information about broadcasted works and it does that in two ways, with two different ways of collecting that information.

The first module operates with direct analysis of the audio files that are

broadcasted and it is installed directly on the radio stations' PlayOUT.

The second module analyses the audio stream live, and the stream could be supplied as a physical audio input, an internet stream, etc. It could be installed at TV stations.

2.2.1. Preparation for installing at radio stations

This component is installed at radio stations. It is installed on the radio stations' PlayOUT. This is a Windows service with the following functions:

- monitoring the programmes that are intended for “play out” of audio files: Winamp, Traktor, Dj-Pro lite, – files that are followed by: mp3, wma, wav and ogg, etc.
- it creates an audio fingerprint from each broadcasted work,
- it reads data from the ID3Tag,
- the name of the played out file on the programmes that the service monitors as well as the local path of the file,
- it cuts off a section of the broadcasted work from a certain place of the work (that is configured by the user) and with a certain length (that is configured by the user),
- these data along with the ID of the radio station are sent to the Vertex WCF service, and
- upon a request by the Windows WCF this service sends the entire file to the Windows WCF service in order to create an audio fingerprint and to add it to the database.

Minimum required hardware and pre-installed software:

- P4 or a compute of a more recent date, min 512MB RAM,
- permanent Internet connection,
- no antivirus, for undisturbed functioning,
- Windows XP SP2, Windows Vista, Windows 7 or Windows 8 and
- pre-installed .NET Framework 4.0 – which is distributed for free.

2.2.2. Preparation for installation at TV stations

This component at the TV stations is installed on a computer which has this service installed, and which receives the signal that is broadcasted. This is a Windows service with the following functions:

- at given points of time (configured by the user) it samples a certain length of the signal (which is also configured),
- it uses this section of the signal to make an audio finger print and
- these data along with the TV station's ID are sent to the WCF service.

Minimum required hardware and pre-installed software:

- P4 or a compute of a more recent date, min 512MB RAM,
- permanent Internet connection,
- no antivirus, for undisturbed functioning,

- Windows XP SP2, Windows Vista, Windows 7 or
- Windows 8 and
- Pre-installed .NET Framework 4.0 – which is distributed for free.

2.3. Vertex WCF Service

This WCF service covers all the data sent by the clients. Its functioning depends on the client's performance from which it receives the data.

2.3.1. Functions when it receives the data from a client installed at the radio stations:

- it receives data (the package) sent by the client,
- it records the data in the log file and
- based on the audio finger print it tries to find the work. If it finds it, the work provides its local ID allocated at the database. If it fails to find the work the client is requested to send the complete work for the purpose of updating the database. The work acquired in such a way makes a set of audio fingerprints and the database is updated. If there is an ID3Tag it is added to the database along with the file name and the local path. These data enrich the entire system's database. Every new work makes the system more capable for recognising.

2.3.2. Functions when it receives the data from a client installed at the TV stations:

- it receives data (the package) sent by the client,
- it records the data in the log file and
- according to the audio finger print it tries to find the work. If it finds it, the work provides its local ID allocated at the database. If it fails to find the work there is no allocated local ID in the logo and it does not treat it as a musical work but it is stored as historical data and could be played out when needed.

Minimum required hardware and pre-installed software:

- server PC, i7, or DualXeon, 16GB RAM,
- Windows Server 2008 or a Windows Server of a more recent date,
- Pre-installed .NET Framework 4.0 – which is distributed for free.
- Pre-installed IIS 7.0,
- no antivirus, for undisturbed functioning and
- permanent broadband Internet connection with unlimited flow.

2.4. Vertex Media Account

This software has the following functions:

- enables database management of works in the sense of verifying the validity of the data in the database,
- database clean-up,

- preparation of reports on the needs of the collective management organisation,
- providing access for the authors to data about the broadcasting of their works,
- helps the Ministry of Culture and the Ministry of Information Society and Administration supervise the operation of the system, and
- provides access to the system for the Ministry of Finance – Public Revenues Office.

Minimum required hardware and pre-installed software:

- P4 or a compute of a more recent date, min 512MB RAM,
- permanent Internet connection,
- no antivirus, for undisturbed functioning,
- Windows XP SP2, Windows Vista, Windows 7 or Windows 8 and
- Pre-installed .NET Framework 4.0 – which is distributed for free.

Conclusion

Concerning the above mentioned aspects of the system, in the context the proposals for its improvement, prepared by the Ministry of Information Society and Administration within its competences, in the future following technical and other features of the system for electronic evidences should be taken into account:

- The software has to be acquainted with the broadcasted works in real time or with maximum of 30 seconds delay.
- Every broadcasting company should have its own user name and password for logging into the system where in real time it will be able to see which work is broadcasted at a certain moment in the programme or live. Such an insight will show the editors-in-chief at the broadcasting companies that the collective management organisation has software that provides real data and keeps proper records of the broadcasting of copyrighted works and objects of related rights.
- Each author should have his/her own user name and password for logging into the system where the media that at a certain moment broadcast a work linked to the user logged in the system will appear in real time.
- For any logged-in user (collective management organisation, broadcasting company or an author) the system should offer different reports about a given period in the past and about its broadcasting (how many times it was broadcasted, when it was broadcasted, the duration of the broadcasting, the broadcasting companies used for the broadcasting, the author, work's performers, title of the work).

The above points would also directly contribute towards enhanced enforcement of copyright and related rights in Macedonia, particularly in terms of collective management in the framework of the digital economy.

Notes

¹ **Chapkanov, D., Naumovski, G., Manchevski, Gj., Klimovski A.** (2016) Analysis Of The System Of Electronic Evidence For Broadcasted Copyrighted Works And Objects Of Related Rights In Macedonia, *Socioeconomica – Naučni časopis za teoriju i praksu društveno-ekonomskog razvoja*, Issue 9, pp. 13 – 22.

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