

# Survey Software: A Data Collection Tool Based on the Principles of the Decision Board Analysis

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*Abstract:* - In 2002 the Criminal Records Bureau (CRB) was established in the United Kingdom to help ensure safer recruitment decisions could be made for posts involving vulnerable persons. Specifically, the CRB may be utilised to facilitate safer recruitment decision-making practices by providing employers with wider access to an applicant's criminal record information through a disclosure service. The disclosure service consists of both standard and enhanced checks, giving details of an applicant's personal and criminal record information. However, how these checks are impacting upon recruitment decisions is yet to be examined. In order to identify how recruitment decisions are being made based upon CRB information, a computerised data collection tool based on the Decision Board Analysis Technique (DBA) entitled Survey Software Version 5 has been created. This software has the ability to administer a series of questionnaires and surveys. In doing so, data is simultaneously recorded, sorted and processed at the time of input. Databases, files, reports and forms are incorporated within the program, expanding its functionality. Further, an in-built security system, including a password protected interface, helps to ensure that all information that is entered into the software can be kept confidential. The focus of this paper is to explore the creation of Survey Software Version 5 as a tool in data collection surrounding the information utilised in the recruitment decision-making process.

*Key-Words:* - Criminal Records Bureau, Decision-Making, Data Collection, Computerised Survey Software, vulnerability.

## 1 Introduction

From the beginning of the 21st century legislative requirements, along with social, company, and public policies have begun to call attention to the importance in the protection of vulnerable persons. Such policies continue to evolve and disseminate at a rapid pace. However, as these changes have started to take effect, ex-offenders (individuals who have a criminal record) have begun to experience a violation of their human rights, civil liberties and discrimination both whilst in employment and seeking employment [1].

In support of this view, studies have shown that there is a general reluctance for recruiters to employ ex-offenders due to the risk of any reprisals resulting from such a decision [1]. Additionally, previous research has found that the majority of equal opportunity policies held by employers fail to take into account ex-offenders [2]. This indicates that the relationship between protecting vulnerable persons whilst ensuring fairer recruitment decisions

for all members in society, including ex-offenders may be unjust.

Research has shown that employers from a range of organisations seek criminal record information from a candidate before choosing whether or not to offer employment [1]. This indicates that despite an occupation not having any potential risks to vulnerable persons; having a criminal record may still be a bar to employment for some ex-offenders.

With a growing concern that employment regulations and procedures are failing the most vulnerable in society, new efforts have been made to reinvent the nature of employment and recruitment decision-making. Specifically, this has been in the form of a government agency labelled the CRB.

## 2 The CRB

In March 2002 the CRB (an Executive Agency of the Home Office developed under Part V of the Police Act 1997) [3] was launched to enable

organisations in the public, private and voluntary sectors to make safer recruitment decisions. The main purpose of the CRB is to allow employers to identify candidates who may be unsuitable for certain work through criminal record searches and as part of their disclosure service.

At present, the CRB provides 2 types of checks; these are called Standard and Enhanced disclosures. Both are available in cases where an employer is entitled to ask questions under the Exceptions Order to the Rehabilitation of Offenders Act (ROA) 1974 [4]. This ruling permits the employer to ask a candidate to reveal details of all convictions whether spent or not, in order to protect the vulnerable members of our society.

The Standard Disclosure shows applicants current and spent convictions, reprimands, cautions and warnings held on the PNC (which contains the complete repository of the national criminal record collection). In addition, the Protection of Children Act (POCA) [5] list (stating individuals who are banned from working with children), the Protection of Vulnerable Adults (POVA) list (people who are banned from working with vulnerable adults) and the information that is held under Section 142 of the Education Act 2002 [6] (teachers who are considered to be unsuitable to work with children) are all included in the search [7].

The Enhanced Disclosure provides the same information as the Standard Disclosure but additionally allows the submission of any further relevant non-conviction record information the police force may have in relation to the candidate in question. This information may be utilised to make more accurate decisions in the recruitment process, which may facilitate the protection of vulnerable persons. The context of this additional intelligence may include comments or information that have been authorised by the Chief Officer of police regarding the individual. This information may not be held on the PNC, but is thought to be necessary information that should be taken into account when making a recruitment decision. Therefore in a case where an applicant may have been accused of a serious offence but not charged (such as Ian Huntley) the details of such a history and non-conviction information could aid recruitment decisions and help to prevent abuse or even save lives.

This legislative framework provides a unique link between social welfare, vulnerable persons and the justice system. Although, it may be suggested that by allowing all employers to access the disclosure service, discrimination of ex-offenders will be heightened. For example, some theorists

have suggested that growing requests for disclosures indicate the potential for; social exclusion, discrimination and subsequently a barrier for ex-offenders to gain employment [8, 9].

## 2.1 Decision-making

“The study of decision-making processes is not recent. It has been evolving with contributions from a number of disciplines for over some 300 years. Such contributions have ranged from providing mathematical foundations for economics to routine applications in many areas such as finance, medicine, military, and even cybernetics” [10, pg. 1].

Making decisions has become a fundamental part of modern life, as a result of economic, social and technological developments. Specifically, people are faced with making decisions surrounding their personal life, including: relationships, family, health, education and careers [11]. Decision-making may be defined as the process of choosing a preferred option or a course of actions from among a set of alternatives on the basis of given criteria or strategies [12, 13].

Decision-makers, in any setting are usually faced with a series of complex and interrelated problems that can impact upon the decision being made [14]. For instance, important decisions have been reported as consisting of: more than one decision at any given time, interdependency of decisions and reliance upon the environment in which the decision is being made [15, 16, 17]. Decision-making in organisational or corporate settings have also been found to be problematic [18]. Specifically, in these settings the outcome of a decision is thought to be left unidentified for a substantial period of time. Therefore, the link between the decision made and its impact may not be fully acknowledged [19]. As a consequence, if an incorrect decision has been made, attempts to prevent similar incorrect decisions being carried out may be overlooked due to the time frame in which the outcome has emerged. One of the ways that has been suggested to test the immediate effects of decisions is through computer-simulation based interactive learning environments [19]. This is thought to provide a way to practice decision-making and immediately test potential decision outcomes in a ‘non-threatening way’ [20]. Through computer simulations it is suggested that the decision-maker is able to validate their assumptions, practice exerting control within their job role and learn from immediate decision feedback [19].

A traditional view of the decision process is that the decision-maker collects all the information that is available to them, evaluates it and considers the

information as a whole before coming to a conclusion [12]. However, Todd (2000) [21] suggests that when a challenging decision needs to be made, individuals often make inferences, choices and decisions hastily, without deliberation.

Early research suggests that factors in the decision-making process introduce uncertainty [22]. Uncertainty elicited by the decision-making process may be caused by the content and degree of the information made available in order to make the decision. Therefore, the outcome of the decision may not be standardised, indicating an ambiguous decision being made [23]. Further, studies concerning decision-making in relation to the welfare of vulnerable persons have found that most are dependent on the information made available within a particular case and the decision-makers personal discretion [24]. In addition, research suggests that an individual will use whatever information they have available to them to make an appropriate decision. In particular, the notion that content of recall (such as previous experiences) may act as the basis for judgment when trying to make a decision [25].

### 3 Recruitment Decisions

Previous studies have found that an employer is likely to refuse employment to an ex-offender for reasons other than their aim of protecting vulnerable persons [1]. Such reasons included; the employer had received enough applicants to do so, to avoid negative publicity, they believed that ex-offenders were unreliable, untrustworthy and lacked the skills, attitude and discipline needed to work [1]. In support of this finding, social policy and welfare suggests that individuals may be excluded from society when they are not part of social networks which support others in society such as; poor people, the homeless and ex-offenders [26]. Additionally, Fletcher (2003) [27] found that some employers treat some offences as automatic bans for employment, something that the CRB tries to discourage employers to do and an aspect of recruitment which could lead to serious ethical and social concerns for the ex-offender.

Gigerenzer (1991, 1996) [28, 29] proposes that the decision-maker aims to make 'good' decisions and thus analyse the content of all the information that is made available to them in relation to the recruitment decision. This may be done in conjunction with a decision-makers personal knowledge of information, indicating that recruiters may make different decisions based on the same applicant due to individual differences.

Therefore, recruitment decisions may not be based on the impact it may have upon the applicant or the vulnerable person involved, but may be dependent on the decision-maker them self as opposed to making a decision in the interest of social policy and welfare. Therefore it is feasible to call into question how recruitment decisions are being made after the creation of the CRB.

### 4 Method of Data Collection

In order to conduct research into recruitment decision-making processes based on a range of applicant information it is necessary to acquire a method which allows; the identification of the factors that are taken into account in the decision-making process, analyses of the rationale behind the decision made, and the ability to permit comparisons to be made between different decision-makers with regards to their processes.

One way of examining the recruitment decision-making process is by asking employers to provide detailed accounts of how they arrived at their recruitment decision [30]. Although Nisbett and Ross (1980) [31] found that individuals are not always aware of the factors that have influenced their judgements and decisions. In addition, research shows that by simply asking decision-makers how they arrived at a decision may not necessarily be accurate, as they might provide information on what they thought was the process as opposed to what actually occurred [30].

Research suggests that computerised questionnaires and surveys are more advantageous than using other methods for data collection [32, 33, 34, 35, 36]. Some of the advantages of using computerised forms of data collection tools include; ease of administration, elimination of data entry errors, flexibility of presentation, ease of scoring, immediacy of results, reduction in research time and reduction in costs [32, 47, 38, 39, 40, 41]. Aday and Cornelius (2006) [42] assert that:

“Computer-assisted self-interviewing is a promising innovation that is likely to greatly expand the scope and possibilities of the older generations of data-gathering approaches. It will be used more and more as computers become more common-place in homes and work environments” [42, p. 105].

Advantages of using computerised forms of self-reporting instruments include:

- Ease of administration - Questionnaires can be presented to participants through the 'click of a button' [42]

- Elimination of data entry errors - Data is entered by participants [42, 43, 44].
- Flexibility of presentation - Questionnaire may be presented in terms of researchers design preferences or even in accordance with each participant type [42, 44]
- Item-branching capabilities - Linking previous answers to new questions [42].
- Ease of scoring - Data maybe scored automatically by computer program [42].
- Immediacy of results - Results may be calculated via computer program [42].
- The potential for a reduction in costs and time - Questionnaire may be given to participants simultaneously [42, 44].
- Respondent's enjoyment motivation and preference of computerised as opposed to paper-and-pencil survey formats [42, 44, 45, 46].

Therefore the decision was made to create a computer software programme which can incorporate aspects of confidentiality and security, whilst being able to detect components within the recruitment decision-making process.

## 5 The Base of the Program

The computer program that has been created for the present study has been based upon an idea by Wilkins & Chandler (1965) [47].

Specifically, Wilkins (1964) [48] identified that both the quality and quantity of information, alongside the manner in which it is processed is crucial to the act of decision-making, and consequently behaviour patterns. An early form of detection of how decisions are made was exhibited by Wilkins and Chandler in 1965 [47]. They developed a tool which enabled the researcher to detect the:

“Methods of using information and to relate the type and quantity of information used to the types of decisions made and to the degrees of confidence expressed in the decisions the type and quantity of information used in the decision-making process in relation to specific decisions” [47, pg. 1].

This data collection tool was entitled an Information Board (IB). The IB involved presenting decision-makers with category headings of information in which they were required to reveal different pieces of information that would potentially aid their decision-making process.

In order to make a tool that was replicable to participant's real-life situations in which they would have to make decisions in the work place, Wilkins

& Chandler [47] used ‘real life’ information from actual case histories. These were taken from reports presented the participant's colleague. By doing this they were able to ensure that the information used for the purposes of the study could have in fact taken place in participants ‘real-life’ work setting. Participants were asked to make a series of decisions based on the information that they were given. These decisions were of “exactly the same kind as those normally and frequently made in the ordinary work routines” (pg. 1) of the participants [47].

The IB was later used to develop the Decision Board Analysis tool (DBA) [49]. The DBA technique was used to analyse decision-making in terms of the weighting factors involved in decision processes and to “elicit more than an analysable stream of consciousness” [50, p. 55]. The DBA involves presenting the reader with a series of category headings from which to choose from, in order to reveal information so that they are able to make a decision based on the information that they have selected [39].

By utilising the DBA technique, the decision-maker is permitted to make a recruitment decision based upon as little or as many pieces of information that they feel is necessary to make an appropriate recruitment decision. Specifically, the decision-maker is required to: select any number of information headings, in order of relevance, until they believe that they are able to make a decision, based on the information provided. In addition, the DBA allows both the identification of information used in the decision-making process by each individual decision-maker, and the differences between the decisions made. Subsequently, comparisons may be made between the choices made by different decision-makers and the types of information that are taken into account to make the same decision.

The DBA method may be applied to a range of scenarios in cases where decision-making is being investigated [48, 49, 50, 51]. Smith (1999) has found that users of the decision board have reported that it is a user friendly method [50].

Support for the use of a decision board for the study of decision processes has been prevalent [51]. Mintz and colleagues (1997) argue that the decision board can be used to trace the processes of decision-making, identifying the decision-makers choices and strategies involved in the decision-making process [51]. Specifically, they assert that:

“The core structure of a decision board platform is a matrix of decision alternatives and decision dimensions. The decision

maker's task is to choose an alternative from a set of alternatives on the basis of information s/he can access from the computer. The subject sits in front of a computer terminal, and the board records key features of the decision-making process. These features are then used to identify the processing characteristics of decision makers. A major category of these features relates to the sequence in which the information is accessed by the decision maker" [32, pg. 6].

Alternatively, Huber and colleagues (1997) argue that the decision board is not sufficient to examine 'real-world' problems [43]. Instead they developed an alternative data collection tool entitled 'active information search' technique for the study of pre-decision information seeking. This method involves the face-to-face meeting of a researcher and decision-maker. Instead of presenting written information, the researcher is required to provide the information orally in an informal way. However, this method may be restrictive and problematic. For example; participants are not presented with a series of attributes but are instead required to ask their own questions related to any aspect of information they feel necessary to make a decision [52]. Further, in order to be able to anticipate the vast array of questions that may be asked by any number of participants, extensive pilot testing and time is needed so that these questions can be pre-empted and the answers for them determined and learned [53]. In addition, there may be no guarantee that a questions not prepared by the researcher will be asked. In this case any answer that is given by the researcher may have a significant impact upon results. If responses are not consistent, slight changes may also impact upon the findings as standardisation of researcher responses, their tone of voice or their body language may have an effect. Therefore this method was rejected in favour of the decision board technique.

For the purposes of the present study, the DBA technique was utilised to:

- Present a series of vignettes based on actual CRB Disclosures.
- Assess what impact the knowledge of convictions has upon perceived suitability for employment.
- Examine whether or not decision-makers are aware of the meaning of offences.
- Identify which pieces of information found on a CRB Disclosure are used to make recruitment decisions.
- Assess the order in which information is selected.

## 6 Survey Software

Researcher for the Centre for Ageing and Mental Health Kamran Ahsan has successfully developed a software package which allows the administration of a series of questionnaires and surveys whilst recording, sorting, processing the inputted information and compiling reports.

Specifically, the programme was based upon the framework of the DBA technique [49] and in partial replication of the computer assisted data collection tool created by Margaret Irvine of The University of Manchester as reported by Smith (1999) [50]. The software is called Survey Software Version 5 and incorporates a series of; databases, files, reports and forms. In conjunction with these features, the software has a security system which enables all questionnaire responses to be kept confidential through a password protected interface. This function permits only the password keeper to access all information through an ID and password security gate. In addition, this software can be manipulated for use in any situation where decision-making is involved.

For the purposes of the present study, the Survey Software Version 5 was utilised to present the decision-maker with a series of information headings (as part of a vignette), including those that would be found on an enhanced CRB disclosure. The decision-maker was then required to make a recruitment decision based upon the information that they had chosen to reveal. Specifically, the software was utilised to:

1. Identify the type and quantity of information used in the decision-making process
2. Report types of decisions made
3. Obtain the reasons for making a decision
4. Record and store all information received
5. Create a situation as realistic to actual circumstances as possible
6. Present the user with a series of tasks in one instance

## 7 The Development of Software

The final software package was developed over five phases. Each phase consisted of a series of program trials and tests. Specifically, the software was assessed in terms of; usability, accuracy of recording data, functionality and design. The final version of the software took approximately 1 year to complete. The differences between the initial and final versions of the program can be seen in figures 1 and 3, 2 and 4.

Figures 1 and 2 show the second phase of the development of the software. The design features are somewhat basic, but the information that is needed to enable the security setup (such as password and username applications) is functional. In addition, the initial information that is required from participants can be inputted and sorted into a database in which subsequent analysis can be performed.

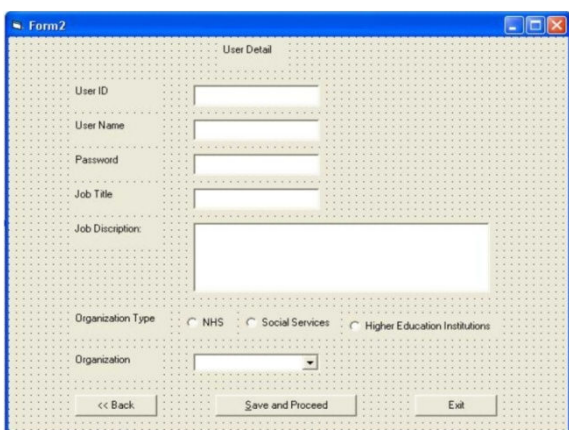


Fig. 1. Survey Software – Screen 1 Version 2.

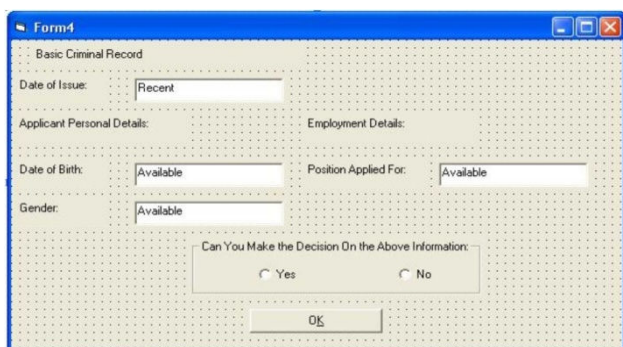


Fig. 2. Survey Software – Screen 2 Version 2.

## 8 The Final Version

The final version has involved with various research results and testing. The final version provides better usability with real-time data update feature which enable analysis based on latest data. Some sophisticated measure has been taken for CRB data protection with users' decisions. It can analyse the users' decisions and its bases, which is the key feature of this software. The usability measure has been taken for effective use such as colour coding. User feedback is also incorporated in the software for analysing the quality of decisions. It is innovative software because it can analyse the pattern of its use as well as analysis the recruitment process based on CRB data by using DBA techniques.

There are four major stages in which participants have to address before completing the computerised survey. The first stage of the computer program involves participants inputting a series of user information details, including a user name and password. These can be created by the user so that they are able to securely re-enter the program at a later date for any reason. Details of their job role, the organisation with which they belong to and the type of recruitment decisions that they make are also requested, so that an understanding of their role in an organisation can be determined (see figure 3).

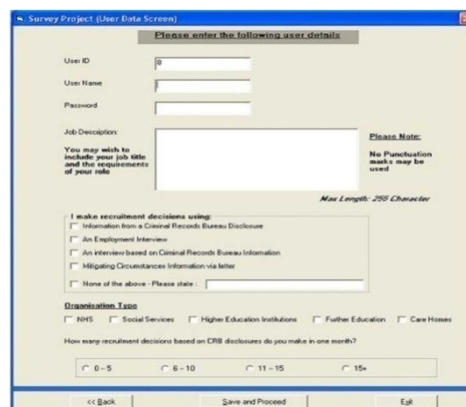


Fig. 3. Survey Software – Screen 1 Version 5.

The second stage of the program involves participants choosing any number of pieces of information they would need to consider in order to make a recruitment decision. On selecting tab in which the information is contained, details are revealed. In the present study, this information relates to a fictitious candidate who wishes to gain employment for work involving vulnerable persons (see figure 4). If all pieces of information are selected by participants but they are still unable to make a recruitment decision, a supplementary stage with additional information automatically appears. Nevertheless, participants are encouraged to make a recruitment decision as soon as they are able to do so by selecting the 'can you make the decision' tab. The software allows the presentation of information to participants, based on specific attributes in which they have actively chosen to utilise in their decision-making process.

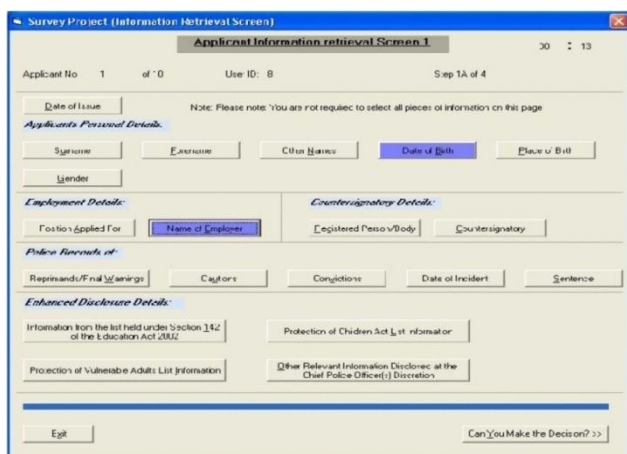


Fig. 4. Survey Software – Screen 3 Version 5.

Following this stage, participants are guided to the fourth screen in which they are required to make a recruitment decision. Subsequently, a rationale for the decision that they have made can be given by typing an explanation into a text box (see figure 5).



Fig. 5. Survey Software – Screen 4 Version 5.

For the final stage of the software, participants are asked to indicate how difficult or easy they found the decision was to make via a four point Likert scale (see figure 6). Following this stage, the computer program re-introduces screen 3 with a new vignette and the participant is required to make another recruitment decision.

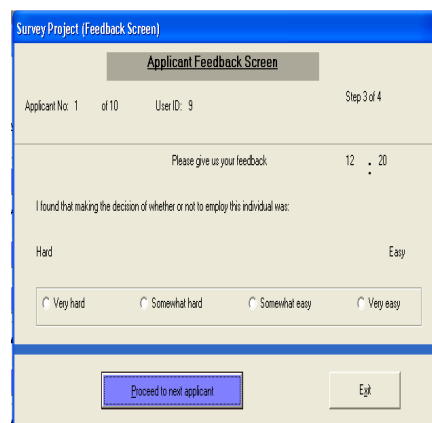


Fig. 6. Survey Software – Screen 5 Version 5.

Throughout the computer program, participants are given instructions on how to proceed through each stage within the survey. In addition, if participants fail to respond to any part of the software, a prompt screen will appear and reiterate any necessary stages that need to be completed before progressing through the software.

## 9 The Future of Survey Software

There are several critical features of the software that have been tailored to the demand of data collection for research purposes. In particular, the Survey Software program incorporates the following properties.

1. Security: Participant contributions are password protected for each individual user. In addition, reports and databases can only be accessed through the administrative username and password.
2. Data Collection Items: The software allows the entry of both selected and word processed information.
3. Selected data: The software ensures that all tabs which have been selected can be saved in the order in which they were selected.
4. Data Engine (core data change flexibility): The software has the ability to reveal and hide information on the basis of the participant responses.
5. Recording and retrieving data from a separate database: Data records are stored on separate databases. This increases software reliability as the data is supported in separate fields. Further, data is stored in accordance with the point at which the information was collected and the type of data that was collected.
6. Time keeping: A recording of the total time taken for each participant to complete their survey is made available as part of the software features.
7. Backup option: All databases are stored in different areas of the software, making it easy

to keep separate copies and backups for each addition into the database.

8. Reports: Reports from the software are crucial for data analysis and an integral part of the software. All information collected is put into a report format and subsequently used by the administrator in any way they decide for the purposes of individual project needs.
9. Database Integration: The software program has a separate file which allows the creation of a connection from a specified database (as opposed to a static connection in which the database cannot be changed and links to other databases cannot be made). However, if the administrator changes the content of the file it should only impact upon the database to which it is linked to. Subsequently, when the software is run all changes that have been made to the linked database will be recognised, providing flexibility in database integration.
10. Transferring data: The software allows the transferring of information to various other computer programs, including Microsoft Excel, SPSS and many more, to allow a wide range of application and saving resources such as time.

## 10 Conclusion

Following numerous testing strategies and computer trials, a successful data collection tool was created for the purposes of academic research. This software can be adapted to collect data from a variety of research areas, surrounding a range of topics to suit individual study needs. In terms of the present study, Survey Software Version 5 will be utilised in various organisations to collect data surrounding the recruitment decision-making process. In doing so, an evaluation of the software by program users will be conducted and results subsequently reported in a forthcoming paper.

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