

Integrating Data Masking Standards and Applications into Open Government Data

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Abstract. This poster will present our work in progress in the development of a series of data masking standards and applications for the compliance of security policies in the context of open government data. Our current efforts focus on the feasibility analysis to use data masking technologies in datasets processing, access and download.

Keywords. Open Government Data, Data Masking, Standard, Data Security

1. Introduction

Utilizing government data to create value-added benefits via different Open Government Data actions may explicitly compromise the government and/or individuals' privacy. Therefore, alternative solutions for desensitizing government data must be explored. Data masking aims at identifying and removing the sensitive information in the "raw" data to make the data publishable where the utility of the published data can be maximized.

In this poster, we explore connections between OGD and data masking standards and applications, providing a brief review on the concepts of data masking technology and its standard uses and preliminary ideas of the application of these concepts in OGD.

2. Obstacles to Open Government Data

While OGD efforts can potentially provide numerous benefits, such efforts face a number of barriers. From the data provider's viewpoint, governments have concerns for privacy, confidentiality and liability [1] as major obstacles to the progress of OGD. Specifically, at the legislation level, privacy violation and security are mentioned most frequently. At technical level, absence of standards and lack of meta data standards are pointed out. Data quality and security are mentioned at all levels. In fact, data is spread and fragmented across different agencies, each of which is responsible for just some of the data, the security and privacy threats and lack of standardization are mentioned[2].

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Data masking technologies are one opportunity for protecting data from abuse and preserving data privacy during data sharing and exchanging inter-organizations. Such approaches should be introduced to the processing of raw datasets for use by the public.

3. Data Masking Meaning to OGD

Data masking standards and applications are key to OGD efforts. In the OGD ecosystem data will be shared and exchanged across agencies and organizations, and data will be opened to citizens, business companies and NGOs, it seems that data the capability of each agency to ensure compliance is very difficult if not impossible. Data masking is one approach to protecting privacy data, in that masking would be carried out before the data becomes “open”. The suggestion described as bellowing Figure 1:

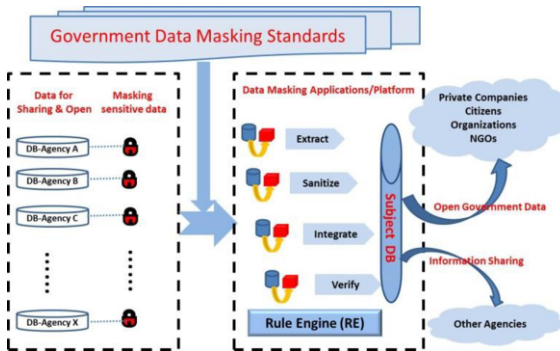


Figure 1. Government Data Masking Process.

In the next OGD actions/framework, integrated novel data masking techniques should suppress the sensitive information mentioned above while maximizing the output utility of the desensitize data, and new data masking standards will be proposed to measure the privacy protection in the context of OGD. More specifically, data can be generalized or suppressed to satisfy a predefined privacy notion (e.g., k-anonymity [3]); a randomization mechanism can be developed to publish probabilistic OGD while the randomization satisfies a “differential privacy notion” [4].

3.1. Conclusion and Future Work

Our current efforts focus on the development of a framework that uses the concepts of Data masking to take advantage of current Open Government Data experience. The concept will integrate standards, applications and governance structures to facilitate collaboration among government agencies in open government data practices.

References

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