Data Protection Toolkit (DPT) Resource Collection

**Attachment 2**

**Data Collection Instrument**

**OMB #1850-0803 v.261**

Submitted by

National Center for Education Statistics (NCES)

U.S. Department of Education

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Contents

**Instrument** 1

**INSTRUCTIONS**

In the Data Protection Toolkit Request Form for Existing Resources below, provide links (URLs) or examples (documents) of tools, manuals, checklists, templates, etc. that you or your organization use or recommend for assessing, managing, and mitigating the risk that individuals or enterprises are re-identified from the release of confidential data.

The URLs or documents you provide will be used in a website, so the material must be able to be shared with the public; the material is what you use and can be provided in the public realm.

A Reference Guide is included below to help remind you of the types of information that are being requested. Please briefly scan this guide to ensure that your responses are as informative as possible and that you don’t miss reporting something on the Request Form.

Please refer to the Glossary of Terms document if any concept or term is unclear.

Within the form, please provide a link to the existing resource along with a brief one-sentence description. As an alternative, enter the file name of any attachments that you may provide in response. Lastly, indicate for each resource if it is currently in active use. If you have more than three URLs/files for any resource type, just add additional lines as necessary.

If any materials apply to more than one pre-defined category, please list the material in as many categories as applicable. Additionally, if there are any other materials or thoughts you want to share related to data protection that might not fit into one of the pre-defined categories, feel free to include it in ‘other’.

Please complete and return the information form to Michael Hawes ([michael.b.hawes@census.gov](mailto:michael.b.hawes@census.gov)), Peter Meyer ([meyer-peter@norc.org](mailto:meyer-peter@norc.org)), and Rickita Walley ([rwalley@sanametrix.com](mailto:rwalley@sanametrix.com)) by **April 3, 2020**.

**GLOSSARY OF TERMS**

**Automated tools.** Primarily meant to be data-computation programs, inventory systems, etc., that assist with the statistical confidentiality process.

**Differential privacy**. See <http://privacytools.seas.harvard.edu/files/privacytools/files/pedagogical-document-dp_0.pdf>.

**Exhaustive tabulations**. An example is to conduct all 4-way tabulations among 20 variables. Violations of k-anonymity could be tallied, for example, to identify high risk records, or categories.

**Governance**. The documents used to guide the functioning of the Confidentiality Officer or Disclosure Review Boards.

**Log-linear approach.** Skinner, C.J. and Shlomo, N. (2008). Assessing Identification Risk in Survey Microdata Using Log-linear Models. Journal of American Statistical Association, 103, 989–1001.

**Manual/Rules**. A document that contains your standards, rules, instructions, or computations.

**Mu-Argus**. See <https://joinup.ec.europa.eu/solution/sdctools-tools-statistical-disclosure-control/news/mu-argus-version-513>

**OAS**. Online analysis system, sometimes referred to as flexible table generators or table builders. Aggregated results are computed in real-time from underlying microdata.

**PRAM**. Post-RAndoMization is a statistical disclosure control treatment approach to add noise to categorical variables for microdata, or to tabular estimates.

**Random perturbation.** Perturbation approaches involve applying a controlled random treatment procedure to replace a subset of the original data values by other values, with the aim of introducing just enough noise or uncertainty into the microdata to reduce the disclosure risk to an acceptable level, while attempting to maintain multivariate associations.

**Remote analysis system.** A file is provided to the public with the same structure as the RUF. The file may or may not have analytical use. The user creates the program code and sends it to the data controller. The data controller runs the code off the RUF, reviews the output, and then sends the safe output to the user.

**Static Tables.** These are tables that are generated in-house, and then provided to the public.

**SUDA**. Special Unique Detection Algorithm. Based on Elliot, M. J., Manning, A. M., and Ford, R. W. (2002). A computational algorithm for handling the special unique problem. International Journal of Uncertainty, Fuzziness and Knowledge Based System, Vol 10, No. 5, pp 493–509.

**Synthetic data approaches.** Synthetic data approaches involve producing fully synthetic datasets or partially synthetic datasets that are mixtures of actual and multiply imputed values. Synthetic approaches typically replace original values with draws from appropriate probability distributions in a way that aims to retain the essential statistical features of the original data, including multivariate associations.

**Template/checklist**. A form that the customer would need to complete as a way of providing information to consider for statistical confidentiality.

**U statistic**. Woo, M., Reiter, J., Oganian, A., and Karr, A. (2009). Global measures of data utility for microdata masked for disclosure limitation. *Journal of Privacy and Confidentiality* 1:111-124.

**Verification servers.** Similar to remote analysis system, but different in that the file is comprised of synthetic data of potential analytical use. The user feeds the code into the server, the server runs the code off the RUF and synthetic data and returns a message to the user relating to the usability of the output generated from the synthetic data.

**Virtual analysis zones.** Secure virtual areas with tools and data needed for users to conduct analyses under restricted use agreement.

**REFERENCE GUIDE**

**(Marked entries have a corresponding Glossary entry)**

| **Risk Assessment** | **Data Access and Sharing** | **Risk Mitigation** | **Impact Assessment** | **Governance** g |
| --- | --- | --- | --- | --- |
| Probabilistic matching | Restricted | Microdata | Risk – rerun risk assessment | Reviews (e.g., how to sign-off on product) |
| Re-identification studies | Restricted use files (RUFs) | Remove identifiers | Utility | Disclosure Review Board |
| Reconstruction studies | Remote analysis system g | Geographic population thresholds | Ad hoc before vs after | Agency Review |
| Microdata risk metrics | Research Data Center | Data rounding: random | Hellinger’s Distance | Legislatively controlled review |
| Threshold rules (k-anonymity) | Data user agreements | Data rounding: controlled | Correlations | Confidentiality Officer review |
| Exhaustive tabulations g | Virtual analysis zones g | Sampling | Multivariate associations | Other |
| Special unique detection algorithm (SUDA)g | Verification servers g | Variable suppression | Overlapping confidence intervals |  |
| Mu-Argus g | Other | Value suppression | U statistic (Woo et al, 2009)g |  |
| Log-linear approach g | Public access | Data coarsening (recodes, top-codes, bottom-codes, etc) | Kolmogorov-Smirnov 2- sample test |  |
| Other | Public use files (PUFs) | Data swapping | Fischer's z-transformation |  |
| Static tables g | Running an OASg from RUF | Rank swapping | Chi-square approximation |  |
| Households | Running an OAS from PUF | Data shuffling | Data utility assessment |  |
| Establishments | Static tables g from RUF | Add random noise | Other |  |
| p% rule | Other | Blank and impute |  |  |
| pq rule |  | Blurring (e.g., microaggregation) |  |  |
| (n,k) rule |  | Other random perturbation g |  |  |
| (1,.6) rule |  | Fully synthetic data g |  |  |
| Other |  | Partially synthetic data g |  |  |
| Online analytic system (OAS)g |  | Differential privacyg |  |  |
| Longitudinal data |  | Other |  |  |
| Administrative data |  | Tables (frequency or magnitude) |  |  |
|  |  | Pre-tabular (see microdata) |  |  |
|  |  | Post-tabular |  |  |
|  |  | Roll-up (combine categories) |  |  |
|  |  | Cell suppression |  |  |
|  |  | Rounding |  |  |
|  |  | Random rounding |  |  |
|  |  | Controlled rounding |  |  |
|  |  | Controlled tabular adjustment |  |  |
|  |  | Add noise |  |  |
|  |  | Post-RAndoMization (PRAM)g |  |  |
|  |  | Differential privacy g |  |  |
|  |  | Other |  |  |

**Data Protection Toolkit – Request Form for Existing Resources**

**Name and Organization**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

| **Topic** | **Resource Type** | **Link (URL) or file name (of file attached to email response) with a title and brief description.** | **Is the resource currently in active use?** | |
| --- | --- | --- | --- | --- |
| **Yes** | **No** |
| Risk Assessment | Automated tools |  | [ ] | [ ] |
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|  | [ ] | [ ] |
| Manuals/ Rules |  | [ ] | [ ] |
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|  | [ ] | [ ] |
| Templates/Checklists |  | [ ] | [ ] |
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| Governance |  | [ ] | [ ] |
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| Data Access and Sharing | Automated tools |  | [ ] | [ ] |
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| Manuals/ Rules |  | [ ] | [ ] |
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| Risk Mitigation | Automated tools |  | [ ] | [ ] |
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| Impact Assessment | Automated tools |  | [ ] | [ ] |
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| Other |  |  |  |  |