PairWise™ — Empowering State Election Officials
Voter List Matching & Data Integrity Software — Overview

The TrustTheVote® Project is developing **PairWise** — public (*open-source*) software to empower state election officials to perform voter registration list maintenance with greater efficiency, accuracy, and accountability. PairWise will provide the necessary tool to compare voter lists to any external data source available or desired. PairWise identifies voter registration records that require eligibility verification for a host of reasons such as death, change of residency, or felony conviction or incarceration. The software presents matching data only, empowering election officials to determine next steps to ensure voter roll data hygiene.

The PairWise Approach

PairWise will provide a unique combination of election official controls (*similar to voter records management systems or VRMS*) with extensibility and flexibility. Unlike alternative or legacy approaches, PairWise does <u>not</u> rely on external clearinghouse organizations or data sharing activities, both of which <u>decrease</u> officials' control, and increase cybersecurity risks. PairWise is specifically designed to be run by election officials' designated I.T. operators, without costly modifications to legacy voter registration management systems, or procurement of custom-built software.

This makes PairWise a distinctive departure from conventional approaches in at least five ways.

Control

- PairWise is designed for deployment by Election Official's designated I.T. support in a state-controlled datacenter or GovCloud computing environment.
- PairWise utilizes a state's existing voter data, but requires no modification to existing VRMS, and no involvement of external organizations.
- Extensible list matching functionality comes without loss of control of data.
- PairWise can easily include the ability to produce both privacy-redacted voter list data for voter list publication, and privacy-redacted list-matching output, if publication is desired of voter records flagged for evaluation.

Custodianship

- Election Officials are custodians of voter records. List matching need not shift that responsibility to 3rd parties or new IT systems.
- With PairWise, Officials decide where and when list matching is performed, and with what portion of the full voter database.
- PairWise avoids data retention.
- Official's designated I.T. operators deploy PairWise only as required.
- Officials load PairWise with the voter records' base data, and designate the external datasets for comparison.
- When matching is complete, and the output data and reporting is saved, the input data is deleted, and I.T. staff can suspend or shut-down PairWise until the next desired run.

Security
- Voter list data will never leave the Official's control, and is not persistently stored in any other system or repository.
- PairWise will *never* modify the actual voter list.
- PairWise will only produce lists of flagged voter records.
- Any modifications of the VRMS will be strictly in the control of Election Officials.

Extensibility
- Every state has different voter registration data types, and a different set of external data. Therefore, two key design principles in the PairWise are: **1**] flexibility; and **2**] the ability to easily extend data ingestion and comparison types.
- The PairWise setup process will ingest the format of each state's voter record as the base data format, and then will do the same for each of the state's designated external data sources.
- States are free to choose which external datasets to use for list comparison, and can extend that set of designated sources over time.
- PairWise will support comparisons with other states' voter records by temporarily externalizing one state's data set for input to another state's instance of PairWise.

Transparency
- PairWise will be *public* *technology*; that is, open-source using open data standards.
- PairWise glass-box nature will deliver belief in how it operates to everyone wanting to examine the software or its operation.
- PairWise technology will be freely available to any election administration organization.

PairWise™ has been in research and development for several years in order to provide a powerful comparison engine utilizing the latest in data-matching algorithms, which does *not* require esoteric technologies that may be useful for more complex applications in financial services fraud detection or national security surveillance.

PairWise will be easily deployable without the need for custom developed software, special system integrations, or reliance on external data clearinghouses. This open-source technology will provide simple, verifiable, and reliable data custodianship guarded by best cybersecurity practices and zero data retention.

In light of recent losses of alternative voter list management solutions, the OSET Institute encourages consideration of the TrustTheVote® Project's PairWise™ initiative. It will be freely available, easier to use, and more verifiable, accurate, secure, and transparent than any list matching solution to date.

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