



Link Plus Fact Sheet

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Introduction to Link Plus

Link Plus is a probabilistic record linkage program developed at the Centers for Disease Control and Prevention (CDC), Division of Cancer Prevention and Control (DCPC), in support of CDC's National Program of Cancer Registries (NCPR). Link Plus was written as a linkage tool for cancer registries. It is an easy-to-use, stand-alone, Microsoft Windows-based application that can be run in two modes: to detect duplicates in a cancer registry database, or to link a cancer registry file with external files. However, the program has potentially wider use. No theoretical or practical barriers exist to prevent using the program with data other than cancer registry data.

Capabilities and features of Link Plus

- Supports NAACCR file, fixed width file, delimited file, and CRS Plus database
- Computes probabilistic record linkage scores based on the theoretical frame work developed by Fellegi and Sunter. (Fellegi, I. P., and A. B. Sunter (1969), "A Theory for Record Linkage," *Journal of the American Statistical Association*, 64, pp. 1183-1210).
- Can handle missing values of matching variables by automatically treating null or empty values as missing data and allowing the user to indicate additional values which are to be treated as missing data.
- Facilitates a simple and efficient blocking ("OR blocking") mechanism by indexing the variables for blocking and comparing the pairs with the identical values on at least one of those variables.
- Generates match and non-match reports that are tab delimited text files that can be imported into Excel for review.
- Provides the following comparison methods:
 - Value-specific (frequency-based) comparison method that sets weights for matching values, based on the frequencies of values in the files being compared. A match on a frequent value is associated with a low weight, while a match on a rare value is associated with a high weight.
 - Last name and first name comparison methods that incorporate both partial matching and value-specific matching to account for minor typographical errors, misspellings, and hyphenated names.
 - Middle name comparison method that accounts for occurrence of the middle initial only versus the full middle name.
 - Date comparison method that incorporates partial matching to account for missing month values and/or day values.
 - SSN comparison method that incorporates partial matching to account for typographical errors and transposition of digits.

Link Plus System Requirements

Registry Plus programs are written for the Microsoft Windows 32-bit environment installed on a Pentium or Pentium-compatible computer. The minimum hardware requirements are the same as those of the Microsoft Windows operating system used. The use of faster processors, faster disk drives, better video components, and more memory can improve the operation and satisfaction of software applications in the Microsoft Windows operating system environment. Additional system requirements include the following:

- Microsoft operating system from Windows 98 through Windows XP
- 128 MB RAM (512 MB recommended)
- Latest version of MS Internet Explorer (Recommended)
- 1 GB of available free hard-disk space (for use with data files)

Before you install or upgrade Link Plus, please read the following:

- This version of Link Plus was designed to automatically upgrade older application versions while preserving configuration settings.
- If someone else is responsible for maintenance of your computer, you may not have been granted the right to install software. In this situation, you should consult the maintainer of your computer for assistance before proceeding. If you are installing Link Plus on Windows 2000 or Windows XP, you must be logged on as the Administrator.
- If you are upgrading or reinstalling an existing version of Link Plus, please use the Windows Control Panel to uninstall the existing Link Plus program. Choose Add/Remove Programs, select Link Plus, and click on Change/Remove. Click on Next - Remove - Next in succession on the resulting dialog boxes, and respond to any further prompts that appear. If you receive a message during the uninstall process about deleting shared files, choose NOT to delete any shared files.
- The files and folder structure (that contain modified files) will be preserved after you complete uninstalling the previous version of Link Plus. You should then install this version in the same folder as your previous version of Link Plus. This will insure that the database and configuration settings are properly upgraded.
- To make sure you are installing over the current installation (drive and directory/folder), run the Windows Explorer and find where Link Plus is currently installed.
- If you are installing Link Plus for the first time, you may install it on the drive and directory/folder of your choosing; however, you cannot install it in a subfolder. Link Plus must be installed in the root folder from the drive of your choosing.

Installation

To install Link Plus, click on the link below, which will download the program to your computer. Once the installation file is downloaded, double-click on the downloaded file. The installation program will then run and direct you through the steps for installing Link Plus. If you are a first-time user of Link Plus, it is recommended that you install Link Plus by selecting the defaults.

[Download](#) the latest version of Link Plus

Getting started

- Click on Windows Start button
- Go to Programs
- Go to Registry Plus
- Click on Link Plus Icon

Note: When first installed, Link Plus includes test data files and configuration files for demonstration purposes. To run the demos, go to the File menu and select Open Configuration File. Then from the configuration folder displayed, select the file FWDemo.cfg to perform linkage on two fixed width files, or DelimDemo.cfg to perform linkage on two delimited files. You can demonstrate additional features of the program by making changes on the configuration form and saving your new configurations under different file names.

Registry Plus Technical Support

The primary users of Link Plus are state central cancer registries. CDC provides support and consultation to states installing the software applications and doing basic state-specific customization. Periodic software updates and ongoing problem-solving are also provided to the extent of available resources. CDC support of Registry Plus software applications is provided mainly by phone and e-mail. CDC is not staffed to provide on-site services, nor can CDC offer direct support to hospitals, clinics, laboratories, or other private users. Some components of Registry Plus, Abstract Plus for example, are intended for redistribution after customization. A state central registry or other institution redistributing Registry Plus software should provide all support to end users and develop expertise in using the software among its own staff. Other users of Registry Plus software should contract, hire, or develop capability independently to understand and maintain the software applications.

For technical support via e-mail, contact: CancerInfo@cdc.gov