

Central Registry Customization of Abstract Plus

A generic (non-customized) version of Abstract Plus is available from the Centers for Disease Control and Prevention (CDC) Web site (<http://www.cdc.gov/cancer/npcr/registryplus/>) for the Registry Plus™ software for Cancer Registries. This Web site provides fully documented generic installations of the modules, downloadable fact sheets, and version enhancement information. However, most users will require a customized version of the software set up to meet requirements and procedures of a specific locale, usually a state, or specific study.

Potential users of Abstract Plus should contact their state central cancer registry staff first for their customized version and for support. Contact information can be found at the National Program of Cancer Registries Web site, <http://apps.nccd.cdc.gov/cancercontacts/npcr/contacts.asp>.

If no customized version is available for a state, contact CDC for more information and assistance in preparing a customized version. This document outlines the steps that must be taken to prepare a customized version.

Before CDC can build a customized Abstract Plus installation file that will work for abstractors reporting cases to your central registry, you need to prepare the following items. Refer to online help topics for additional help.

- I. **REQUIRED CONFIGURATION SPECIFICATIONS.** These are tasks required of all central registries to produce an installation of Abstract Plus suitable for use in the locale and to ensure that your system is configured and installed optimally to meet your needs.
 1. **Doctor File:** Abstract Plus off the shelf is supplied with a small file of dummy doctor and unknown doctor records. Each central registry user can provide the program with a file containing information on the locale's physicians: their names, identifiers, and other items needed in the Doctor Query System (DQS). The doctor information must be loaded into the DoctorQuery table in the CATVALS database, used by all Registry Plus programs, including Abstract Plus.

Three methods can be used to load the codes into the CATVALS database:

- a. Populating the DoctorQuery table in the CATVALS database directly, using Microsoft Access (whatever process you choose). The CATVALS database is in the MDBS directory of your Abstract Plus installation.
- b. Importing from an ASCII text file using the utility in CRS Plus (a program separate from Abstract Plus). This function is available in the CRS Plus **Administration** menu as **Import Doctor Codes**.
- c. Entering the record for each doctor directly using the menu item **Edit, Doctors**, in CRS Plus.

When editing the DoctorQuery table in the CATVALS database, make sure to delete the dummy doctor records and to retain or reenter the records needed for handling unknown and non-specific doctors (codes beginning with 9999). It is suggested that the code 99999999 be used for Physician Unknown, and the code 99999998 be used for Physician Known, but Code Unknown.

There is a specified record format for importing data into DQS (see below). Data files for importing may or may not contain Carriage Return Line Feed characters at the end of a record. Data format is ASCII Text. Up to 32 million records can theoretically be imported.

Input Record Format

Field Name	Required?	Field Length	Column Start	Column Stop
DOCID	Required	8	1	8
ADDRESS1	Required	35	9	43
ADDRESS2	Not Required	35	44	78
CITY	Required	20	79	98
STATE	Required	2	99	100
ZIPCODE	Required	10	101	110
PHONE	Not Required	13	111	123
LASTNAME	Required	20	124	143
FIRSTNAME	Required	20	144	163
ADDRESSNAME	Not Required	45	164	208
SPECIALTY	Required	20	209	228
PRACTICE	Not Required	20	229	248
PATHLOC	Not Required	35	249	283
SUPPRESSLET	Not Required	1	284	284

Note: Required fields are displayed on Doctor Query.

To import doctors using the CRS Plus program, click on menu option

Administration, then click on **Import Doctor Codes**. This will bring up the import interface for importing an external file that contains the doctor data in the above specified format. Click on the **Select Import File** command button to select the import file. Click on the **Import** command button to begin the import.

If you have used CRS Plus to enter or import doctor records, be sure to copy the resultant CATVALS database into the MDDBS directory used by Abstract Plus.

2. **Hospital File:** Abstract Plus off the shelf is supplied with a small file of dummy hospital and unknown hospital records. Each central registry user can provide the program with a file containing information on the locale's hospitals. The hospitals must be loaded into the HOSPCODES table in the CATVALS database, used by all Registry Plus programs.

Three methods can be used to load the codes into the CATVALS database:

- a. Populating the HOSPCODES table in the CATVALS database directly, using Microsoft Access™ (whatever process you choose).
- b. Importing from an ASCII text file using the utility in CRS Plus (a program separate from Abstract Plus). The function is available in the CRS **Administration** menu, as **Import Hospital Codes**.
- c. Entering the record for each hospital directly using the menu item **Edit, Hospitals**, in CRS Plus.

When editing the HOSPCODES table in the CATVALS database, make sure to delete the dummy hospital records and to retain or reenter the records needed for handling unknown and non-specific hospitals (codes beginning with 9999). The following codes are suggested for handling special situations:

NAACCR Version 7–9

- 00000000999994: Non-hospital, NOS
- 00000000999995: Unspecified out-of-state hospital
- 00000000999996: Physician only
- 00000000999998: Unspecified in-state hospital
- 00000000999999: Unknown hospital

NAACCR Version 10 and Higher

- 0000000000: Case not reported by a facility
- 0099999994: Non-facility report, NOS
- 0099999995: Unspecified out-of-state facility

- 0099999996: Physician only
- 0099999998: Unspecified in-state hospital
- 0099999999: Unknown facility

Note that the exact codes to use are related to the value in FIN Coding System. See NAACCR data dictionary version 11, page 224.

Registry Plus provides a specified record format for importing hospital codes:

Input Record Format for NAACCR Versions 7–9

Field Name	Required?	Field Length	Column Start	Column Stop
Code	Required	15	1	15
Name	Required	40	16	55
Contact Name	Not Required	35	56	90
Phone	Not Required	13	91	103

Input Record Format for NAACCR Version 10 and Higher

Field Name	Required?	Field Length	Column Start	Column Stop
Value	Required	10	1	10
(Empty)	Not Required	5	11	15
Label	Required	40	16	55
ContactName	Not Required	35	56	90
Phone	Not Required	13	91	103

The data file may or may not contain CR/LF characters at the end of a record. Data format is ASCII text. Standard hospital codes for the entire United States are assigned by the American College of Surgeons and are available on disk. Most state users choose to load a subset of codes, for their own plus surrounding states.

When importing hospitals using CRS Plus, click on menu option **Utilities**, then click on **Import Hospital Codes**. This will bring up the import interface for importing the external file that contains the Hospital Codes in the above-specified

format. Click on the **Select Import File** command button to select the import file. Click on the **Import** command button to begin the import. If any hospital records in the import file cannot be imported, they will be added to the Omit list at the bottom.

If you have used CRS Plus to enter or import hospital records, be sure to copy the resultant CATVALS database into the MDBS directory used by Abstract Plus.

3. **Display Types:** Abstract Plus supports collection of all data items in the NAACCR dataset plus locally defined fields (see Section II below). Most users do not collect all possible data items, but rather a subset. Subsets of data items are implemented as Display Types in Abstract Plus, through the Administration, Display Types and Display Fields menus. See the Abstract Plus Users Guide in the program's online help for instructions. The steps are—
 - a. In Display Types, assign a name to the new Display Type. Use the 2-letter abbreviation for your state (or if not a state, another short identifier) as the first 2 characters of the name and add a descriptive word or phrase, e.g., PAHospital for Pennsylvania Hospital, or CADCOnly for California Death Certificate Only.
 - b. In Display Fields, select the data items and section headings (name for grouping of fields) to be included.
 - c. Where appropriate, set any of the available optional properties for each selected field: Protected, Invisible, and/or a default value if there is one. Default values should be assigned only to those fields which always or nearly always contain the same value.

The following list provides suggested default values to consider:

- Morph Coding Sys-Current pi=7
 - Morph Coding Sys-Original pi=7
 - Record Type pi=A
 - Registry Type pi=3
 - FIN Coding System pi=2
 - NAACCR Record Version pi=B
 - Race Coding Sys-Current pi=6
 - Race Coding Sys-Original pi=6
 - RX Coding System-Current pi=06
 - Site Coding Sys-Current pi=5
 - Site Coding Sys-Original pi=5
 - First Course Calc Method pi=2
 - SEER Coding Sys-Current pi=7
 - SEER Coding Sys-Original pi=7
 - COC Coding Sys-Current pi=08
 - COC Coding Sys-Original pi=08
 - ICD-O-3 Conversion Flag pi=0
- d. Establish the sequence in which the sections and fields will be displayed in the data entry grid. It is important to involve a CTR in this step to ensure that the order of fields is optimal for abstracting.

It is possible to set up more than one display type. For example, a state may find it useful to set up separate more limited display types to be used for nursing home cases, death certificate only cases, or cases from other non-hospital sources.

In selecting fields for Display Types, be aware that some fields may be necessary or recommended for system use, or for correct editing, even though they do not contain data entered by the abstractor. For example, the Coding System fields are important for correct record editing and subsequent processing, but are not entered by the abstractor. Such fields may be added to the display type, filled with a default value, and made invisible to the abstractor. Registry Plus recommends that you consider including all data items that are required or recommended for a NAACCR data exchange record, so that resultant exported records will meet NAACCR standards for exchange.

The Display Fields menu option has additional options including:

- **SaveAs:** allows the copying of a selected display type, to a new name, and edit, add and remove fields as needed for the new display.
 - **Print Display:** creates a print preview of the selected display type's display fields and properties.
 - **Section Headings for Display:** allows you to create, rename, and delete section names to add to display fields for groupings. Rename and delete of section headings are not available for section headings in use in any display type.
4. **Critical Missing Fields:** Abstract Plus has a feature allowing you to specify which fields are critical or required (i.e., must be completed and cannot be blank for a case to be saved as completed). You can use the Abstract Plus program itself to establish the list of fields you consider critical by going through the Administration and Critical Fields menus. It is important to remember that edits may also be written to enforce critical fields. It is advisable to choose whether

you will be enforcing requirements using the Critical Fields feature or through your edit set. If the edits you include in your edit set for certain fields already disallow blanks, you do not need to set up those fields as Critical Missing.

5. **Edit Sets:** Each subset of all possible edits is called an “edit set.” You will need an edit set to correspond to each Display Type. Edit sets are created in the EDITS EditWriter software, provided separately by CDC or available from the NAACCR and CDC Web sites.

When creating edit sets, assign your edit sets a new name, but do not rename any of the existing edit sets. It is strongly recommended that your edit set names be descriptive and contain a designation for your state/territory; for example, INNEWABS (for Indiana new abstract), or TXDC for (Texas death certificate only).

Once the edit sets are created, you must generate a runtime metafile from within the EDITS EditWriter software. The resultant .rmf file is then copied into the Edits directory of AbsPlus, making the edit sets available from within the Abstract Plus program. Forward a copy of the .rmf to CDC for inclusion in your install.

Creating an edit set requires a thorough understanding of the data being collected and of the available edits, plus a knowledge of the EDITS EditWriter program. Often there are multiple similar but not identical edits available, and choosing the best one can be tricky. This step is best accomplished by a Certified Tumor Registrar (CTR[®]) working with a programmer.

6. **Configurations:** Once your edit sets are available in Registry Plus programs, you must choose the Edit Set and Display Type for a configuration and also choose when the edits are to be run. Set this up through the System Configuration options on the Administration menu. System Configuration includes setting

Configuration, Preferences, and EDITS options and saving as a configuration name. Each configuration created by an administrator is then available to the users for their view of an abstract.

A new configuration can be added by selecting the SaveAs button in the System Configuration screen, with any selected configuration. This will copy all the current options and allow you to name the new configuration and change the Configuration tab selections needed.

Configuration Options:

- **Display Type:** Select a display type from choices created in step 3.
- **Edit Sets:** Select an Edit Set from choices created in step 5.
- **Collaborative Staging Calculation:** Select any combination of choices.

Setting Preferences: You may establish default values for some procedures in Abstract Plus, such as:

- **Automatically Fill Abstractor ID?** To have the program automatically fill in the data item Abstractor on new abstracts with the initials of the user currently logged on, select **Yes**. The program will then insert the current user ID into the Abstractor data item on each new abstract. If you select **No**, the data item will be left blank and can be filled in manually by the user. The default value is Yes.
- **Automatically Overwrite Vendor ID?** This preference relates to importing abstracts. If it is set to **Yes**, then any existing vendor IDs in the imported abstracts will be overwritten with the Abstract Plus ID. If set to **No**, then existing vendor IDs will not be overwritten. The default is No.
- **Password Protect “Export All” Function?** To restrict the function Export All Abstracts in Database to Administrators or personnel with

Administrative level authority, select **Yes**. The system will require entry of the administrator's password before an export of all abstracts will be performed. If you select **No**, any user may create an export of all abstracts without entering the administrator's password. If you select **Disable**, the Export All Abstracts in Database function will be unavailable to the user, and the function's name will be greyed out in the export dialog window. The default value is No.

- **Age at Diagnosis Calculation?** You may select one of three options available for when the calculation of Age at Diagnosis will be performed by the program. First make sure that Age at Diagnosis is included in the active Display Type. Then select one of the following options:
 1. **Automatically Calculate.** When this option is selected, the program will automatically calculate Age at Diagnosis when the fields Date of Birth and Date of Diagnosis have been entered or changed. The user cannot manually override the calculated value of age. This is the default option.
 2. **Calculate on F5 Keypress.** When this option is selected, the program will calculate age on demand. When Age at Diagnosis is highlighted in the abstracting grid, and the Date of Birth and Date of Diagnosis fields are completed, pressing the **F5** key will cause the Age at Diagnosis field to be calculated. The computed value can be changed manually.
 3. **Do Not Calculate.** When this option is selected, the program will not calculate or automatically fill Age at Diagnosis. Manual entry of the data item is required.

Note that regardless of the option selected, edits on the items involved should be included in the active Edit Set so that errors can be detected and corrected.

- **Select Database Folder.** This preference works with the Default Database Folder preference below. The default behavior of Abstract Plus is to store the database in the folder C:\AbsPlus\MDBS. However, the program can be configured to allow one or more databases to be stored in folders of the user's choosing. Select **Yes** to allow the user to specify alternate locations for the database. Select **No** to retain the default.
- **Change Date Case Completed?** When **Yes** is selected, the Date Case Completed may be changed by the program if the case becomes incomplete after once being designated complete. This could happen if a different edit set is applied to the case, or if data fields are erased. When **No** is selected, the Date Case Completed will not be changed once it is set; the date will always represent the date the case was first completed.
- **Default Database Folder.** The folder designated here is the folder that Abstract Plus will point to for its data when the program first opens. By default, this folder is C:\AbsPlus\MDBS. When Select Database Folder (see above) is set to **No**, the default folder cannot be changed. If Select Database Folder is set to **Yes**, the user can designate another folder as the default. This folder must contain an Abstract Plus master database, or the user will get a message to select another folder when the program is next opened. The selected folder will remain the default until another folder is selected.
- **Default Backup/Restore Folder.** Off the shelf, the default backup location is specified as C:\AbsPlus\MDBS. To change the default location,

click the adjacent **Browse** button and navigate to the folder of choice. Click **Save** to save the new location, or **Close** to exit without saving.

Table Preferences: Additional Preferences are set by modifying underlying Abstract Plus tables using Microsoft Access. State central registries can contact User Support at CDC to change these preferences.

- **Auto Upgrade.** A Yes/No data item. When set to **Yes**, when Abstract Plus is opened, it will automatically check for upgrades to the user's installation via the Internet. If an upgraded version is available, the user receives a prompt allowing them to download and install the upgrade, or cancel. If no internet connection is available, the user will not receive the prompt. When set to **No**, there will not be any automatic checking for upgrades, whether or not an internet connection is available. The default is Yes.

- **DefaultExportFormat.** There are three choices:
 - **A**—NAACCR type-A record. When selected, NAACCR type-A records will be the default selection on the dialog, and comma delimited will be available for an alternative selection.

 - **C**—Comma-delimited. When selected, delimited records will be the default selection on the dialog, and NAACCR type-A will be available for an alternative selection.

 - **F**—Fixed to language. When selected, only one export format will be made available to the user, based on the language of the installation. This is the default choice. For English, only the choice of NAACCR type-A is provided. For Spanish, only delimited is provided.

- **PID.** A Yes/No data item. When set to **Yes**, the item Social Security Number is replaced by the item PID (Personal Identification Number) in Abstract Plus functions such as searching and reports. This is useful for non-U.S. or non-English language installations. The default is No.
- **CopyDX.** A Yes/No data item. When set to **Yes**, the user can copy the address at diagnosis fields to the corresponding current address fields by pressing F5 when the cursor is on the field Addr Curr—No & Street. The default is Yes.
- **DBProtect.** A Yes/No data item. When set to **Yes**, the Absplus.mdb database where patient data is stored is password protected and encrypted, so that no one can obtain access to the data using Microsoft Access or other applications unless they have the password. The default is No.

EDITS Options: In order for your data to be edited correctly, you must specify exactly which edits are to be run against your data and under what conditions.

- **Configure EDITS System Options:** The configuration allows maximum flexibility, and edits can even be configured individually. Until you are very familiar with the consequences of each possible configuration, we suggest you configure the options as follows:
 1. Under Edit Execution Options, check Skip Failed but not Skip Empty or Suppress Warnings.
 2. Under Edit Execution Points, check all options EXCEPT:
 - Run Multi-Field Edits if Single Field Passed on Change and
 - Run Multi-Field Edit on movement to New Field.
 3. Under Date Boundaries, leave defaults.

II. OPTIONAL LOCAL USE FIELDS

Abstract Plus supports the inclusion of data items or fields that are locally defined. The fields can be included in the abstract grid and edited, and choice lists and online help can be provided for the abstractors. However, adding locally defined fields is not for the faint of heart. It requires local programming expertise, preferably with the ability to manipulate Access databases. Local programming support will be needed for the initial set up and also to maintain these fields as Registry Plus versions change. The steps for setting up local use fields are as follows:

1. **Define Local Use Fields:** These fields will be created in the State-Requestor area of the NAACCR record. State users can do this on their own by 1) creating an entry in the CONTROL database, and 2) adjusting the structure of the table Abstract_2 in the ABSTRACTS database. **This needs to be done very carefully,** and the tables and databases are not well documented at this time. For each locally defined variable, you will need to have—
 - a. **Item Number.** Assign a unique number in the range 9500–9599.
 - b. **Short Name.** The short name corresponds to the item FieldName in the control table. Names must conform to the following restrictions, based on SQL server requirements and Registry Plus requirements.
 - Maximum 15 characters, including letters, symbols, and numbers.
 - First character of the identifier must be a letter or the symbols `_`, `@`, `#`. The symbols `@` and `#` have special meaning.
 - Characters following the first character can include letters, digits, or the symbols `#`, `$`, or `_`.
 - By default, no spaces are allowed in identifiers; however, by using quoted identifiers, spaces and other special identifiers can be defined.

We strongly recommend that the first 2 characters of the short name be the 2-letter abbreviation for your state if you are a state registry, or another short identifier if you are not a state registry. For example, TNStatusCode for an item for the Tennessee state registry called Status Code.

- c. **Longer Name** (maximum 25 characters, embedded spaces allowed.) The long name corresponds to the item Description in the control table.)
 - d. **Length of Field.**
 - e. For fields with a choice list, the **values and a text description** of the meaning of each value in the list.
2. **Establish Edits for Local Use Fields (optional).** You may establish locally defined edits for state-specific fields using the Edit Writer application in the EDITS software system, available separately from CDC. This is not required, but is highly recommended to preserve data quality. You may prepare single field and multi-field edits. Once these are written, compiled, and tested in EDITS EditWriter, they can be included in your edit sets and run from within Registry Plus programs. This step is best accomplished by a programmer and CTR working together.
3. **Prepare Online Help for Local Use Fields (optional).** You can incorporate online help for any data items you may have defined in step II.1 above. Registry Plus provides a default help topic for local use items stating that help is not available and to contact the local registry for more details. You may replace the default with your own topics. This requires that you recompile the online help system using the Microsoft's HTML Help compiler or a third-party help authoring tool. Request assistance from CDC if you want to create locally defined help.

III. **INSTALLATION FILES**

When you have provided all of these customizations to CDC, we will build a custom installation of Abstract Plus for the use of and distribution by your central registry. We will provide you with the installation files in a single installation file of approximately 40 MB. This file can be mounted on an Internet site for downloading by end users, or you can write it to a CD for distribution.