AudBase

User Guide

This User Guide and the software described in it may be used within your group setting, provided you inform users of these conditions of use.

This AudBase release has been extensively tested, but because of many recent coding additions it may have undiscovered software bugs. We cannot be liable for any defects in the program. We plan to add additional features and change the software in response to user feedback. We will provide users who request it with an upgrade pathway and guarantee that any data collected with the present version will be compatible with future versions.

AudBase software performance reports should be sent to:

Sienna Software, Inc
Telephone/FAX: (206) 306-2752
E-mail: Tech_support@SiennaSoftwareInc.com
Web site: http://www.SiennaSoftwareInc.com/AudBase

The User Guide was written in cooperation with the University of Washington Department of Technical Communication.

Contents

Introduction

This chapter provides a brief look at the background and unique features of AudBase, and gives you a quick overview of the rest of your user manual.

Introduction

Welcome to AudBase, a powerful relational database program that helps you manage and store subject information, participate in clinical studies, and even create your own clinical study.

Whether you are a clinician, researcher, administrator or data-entry worker, AudBase simplifies the tasks of collecting clinical information, conducting comprehensive searches and sharing data in a secure environment.

AudBase also allows you to export data to word processing, spreadsheet or statistical programs, as well as use your data to generate reports, graphs, reminders and follow-up letters. Here is a brief look at the program's background and unique features, as well as an overview of the rest of your user manual.

AudBase background

The AudBase program is built around a relational database kernel originally designed to support clinical surgical trials in the medical field. The AudBase kernel can be customized to meet the needs of different specialties. For more information, e-mail Tech_Support@SiennaSoftwareInc.com.

Since AudBase was developed for use as a clinical and a research tool, the term "subject" is used rather than "patient" both in the software's interface and throughout this manual.

With AudBase's cross-platform capability, choose from Windows XP, 2000 or Macintosh OS X.

Assign privileges: Grant different users levels of access as needed. For example, give a temporary user, such as a summer student, access to a limited clinical study group.

Check validity of data entry: By creating a checklist, ensure that records have been completely entered. Create multiple checklists for studies with unique requirements.

Modify data-entry lists: As the administrator, add a new item for data entry, such as a new pathology diagnosis.

Modify informational dialogs: Add context-specific information to pop-up lists and other forms or dialogs to make data entry easier and more consistent.

Send internal e-mail: Communicate with other users of AudBase by sending internal e-mail. For example, remind a database user to finish an incomplete record.

Create reminders: Automate the creation of letters for participants in a clinical study.

Write letters for mail merge: Create a document, such as a letter, and merge it with subject information for increased efficiency when communicating with a number of subjects.

Customize the database: Customize and expand AudBase depending on your organization's needs. AudBase contains a database kernel that provides standard features, and can easily accommodate additional data points, for example, new quality of life/outcome instruments or different research data sets.

Share data: Work with the same AudBase data file as other users in a serial manner or set-up the program in a fully implemented client-server environment.

Use data with other databases: Use files created in AudBase with Oracle or SQL-based systems.

Export data in a variety of formats: Use the AudBase data with a word processor, spreadsheet, or other type of database. AudBase can export a compatible format. Export all the data, or search and select to export a subset of the data.

Export secure data: Use AudBase to participate in clinical studies, and feel confident in the security of your data thanks to the checksum mechanism and the public/private key encryption.

Enroll subjects in multiple trials: Due to AudBase's flexibility, a subject can participate in more than one study at the same time.

About this manual

Before using the program, install AudBase. For more information, see Chapter 1, "Getting Started." This manual will help you learn to successfully use AudBase. Produced in print, as Adobe Acrobat files (PDF), and on the Web, this information was designed to be a reference for new and experienced users of AudBase.

To access the PDF version, browse to the AudBase program files on your computer and open the documentation folder. To access the Web version, click on Help > AudBase Help

AudBase is intuitive for anyone entering data. It is designed to minimize data errors. If you are not sure what a feature does, spend some time experimenting with it. The program is equipped with dialogs and prompts to warn users against possible damage to the data. Before starting with your own data, we recommend that you first experiment with the example data file. For more information, see the Tutorial.

Below you will find an overview of the manual chapter by chapter.

Chapter 1, Getting Started gives you instructions on how to set up the program and what to do the first time you open AudBase.

Chapter 2, Providers and Clinical groups explains these two concepts that are central to setting up AudBase and running multi-site clinical trials, and shows how to enter records for both.

Chapter 3, Data Entry shows you how to enter or modify information about subjects, treatments and other study facets.

Chapter 4, Audiogram/Tympanogram details the AudBase feature that allows you to enter audiometric readings into the database, both manually and using a serial port for upload.

Chapter 5, Searching explains how to find data, which is integral to many other functions of the program.

Chapter 6, Exporting and Reporting describes how to extract information from the database for use in other programs. It also explains numerous built-in reports and how to use the built-in word processor.

Chapter 7, Preferences details the program's user-modifiable features.

Chapter 8, Administrator Functions covers several features available to the administrator, including importing and exporting shared data in the controlled, confidential manner required for clinical studies.

Chapter 9, AudBase Server is an overview of how to set up the program in a client-server environment.

Chapter 10, Database Design and Theory explains the program's table structure and design background. This chapter also details searching strategies and set theory necessary to maximize the power of this relational database with an emphasis on data control and confidentiality.

Troubleshooting gives you tips on solving problems that may crop up.

The Appendices contain supplementary information for understanding the program. This includes detailed descriptions of all data fields, modifiable lists, and menu bar functions, as well as a list of all files that come with AudBase.

1 Getting Started

AudBase is designed to help you manage subject information and participate in clinical trials. This chapter will show you how to install the program and use it for the first time as well as give you an overview of AudBase's features.

Getting started

This chapter shows you how to install AudBase and open it for the first time. It also explains the different levels of access that help make the database secure and protect subject confidentiality. Also, to help you get started, this chapter will explain the basic menu structure of AudBase and discuss two key starting points for much of your work, the Home Window and the Subject List.

After reading this chapter you will be ready to go through the tutorial, or begin using the program to manage your subjects, search for information and participate in clinical trials.

Installing AudBase

Installing AudBase is quick and easy. Follow the directions below. If you wish to use AudBase in a client-server environment to allow more than one user to access the program simultaneously, see Chapter 8, “AudBase Server” on page 160.

System requirements

To use AudBase, you need the following:

- Operating System: Microsoft XP, 2000 or Macintosh OS X.
- Pentium or PowerPC processors are highly recommended.
- Minimum of 128 MB of RAM installed.
- Up to 70 MB of available hard-disk space for AudBase installation.
- 70 MB of available hard-disk space for AudBase Server installation (if applicable).
- CD-ROM drive.

The steps outlined below will take you through the process of installing AudBase, first for Windows and then for Macintosh.

To install for Windows

1. Insert the AudBase CD in the CD-ROM drive.
2. Browse to your computer’s CD drive using Windows Explorer or My Computer.
3. Double-click Setup.exe
   An install dialog appears.
4. Click Yes indicating you want to install AudBase.
   A wizard opens to guide you through the installation.
5. After installation you will be asked to restart your computer.

For a complete list of files installed with AudBase, see Appendix A, “Installation Files” on page 194. Once you have installed AudBase, you are ready to start using the program. Skip to“Opening AudBase” on page 3.

To install for Macintosh

1. Insert the AudBase CD in the CD-ROM drive.
2. Double-click the AudBase Installer icon.
   The introductory AudBase install screen displays.
3. Click Continue.
   The AudBase installer dialog opens and guides you through the process.

To see a complete list of files installed with AudBase, see Appendix A, “Installation Files” on page 194.

Opening AudBase

Once you have installed AudBase, you are ready to launch the program. In AudBase, a functional database is comprised of two components, the structure file and the data file. The structure file stores information about the organization of the database. The data file stores the specific information you have entered into the database. The data file and structure file work in conjunction.

Note: The components are actually a collection of files. For a list of these files, see Appendix A, “Installation Files,” on page 194.

To start AudBase

To launch AudBase, find and click on the program icon.

- For Macintosh users, the icon will display on your desktop.
- For Windows users, the icon appears on the Start menu.

When starting AudBase for the first time, several events occur:

- The program may build some internal resources. This will only take a few seconds.
- AudBase asks for a user name and password.

Initial passwords for a structure file

For security purposes, you can only use AudBase by entering a valid password. The administrator assigns passwords for users. All new AudBase structure files come with the following default password that the administrator can use for the first login:

Table 1.1: Initial AudBase password for a new structure file

Login name	Password
Administrator	Otolith2

Note: Passwords are case sensitive. For example, type capital “O” when entering Otolith2.

If you are creating a new data file you will be requested to create a new administrator password for it to ensure that no the default password is not used. Once you are comfortable working with the program, it is recommended that you change any initial administrator password and assign passwords for individual users. For more information on assigning passwords, see “Assigning passwords” on page 156.

How passwords work

Passwords are specific to a data file. Whenever you open a data file for the first time, the passwords are synchronized with the structure file. Unless you know a valid password for the data file, you will not be able to log back into a structure file after synchronizing. All new versions of the AudBase structure file can be opened for the first time with the default “Administrator” login. But once you select an existing data file, the passwords in this data file will override the default passwords in the structure file.

If you can’t remember a password for a data file and can’t log in, see “Trouble with passwords” on page 191.

Note: Only the administrator can synchronize a data file and a structure file.

Working with data files

Anytime you work with a data file in AudBase, the program will remember the location of this file. As long as the data file remains in the same location with the same name, the data file automatically opens when you log in.

Using the tutorial and example data file

The first time you open AudBase after installation you will be automatically prompted to locate the data file. You will need to browse to the location of the data file you wish to use. To help you learn about the features of AudBase, a sample data file called Example Data is provided for use with the tutorial. We recommend that new users load the example data file and consult the tutorial.

For more information, see the tutorial manual included with AudBase.

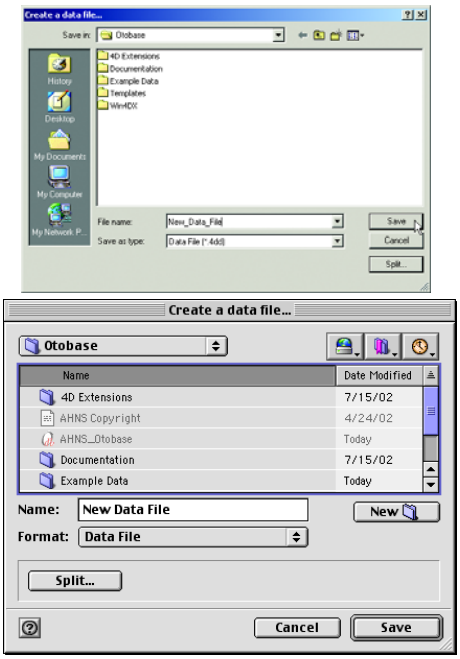
Creating new data files

In order to start using AudBase for your organization's purpose, you must first create a new data file.

Note: Only the person logged in as the administrator can create a new data file.

To create a new data file

1. Double-click the AudBase icon. The Password dialog appears.
2. Enter the user name administrator.
3. Enter the administrator password for the data file you were last using or, if this is a new installation, the default administrator password.
4. While holding down the Alt key (Windows) or Option key (Mac), click Connect to open AudBase.
5. On the Open data file dialog, select New… to open the Create a data file dialog.
6. Browse to a location where you wish to save the new file.
7. In the Name field, type in a unique name for the new data file.
8. Click Save.



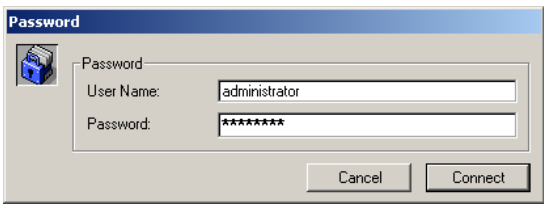
Create file dialogs: Windows (above), and Macintosh

Opening existing data files

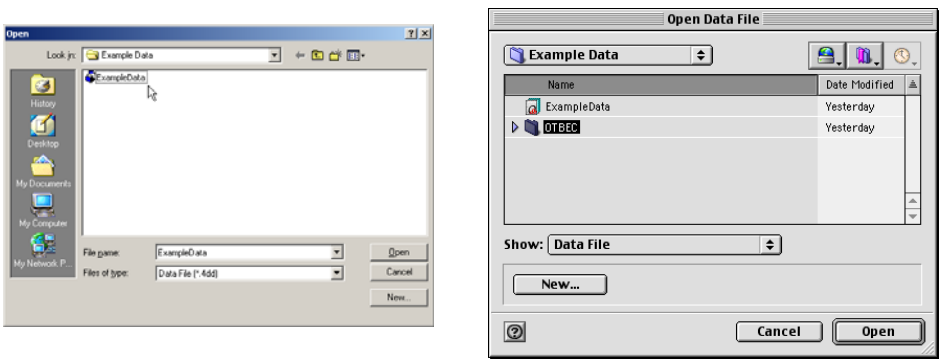
AudBase remembers the location of the last data file used if the file's name and location remain the same. If you wish to connect AudBase to a different data file, follow the procedure below.

Note: If you have moved or renamed an existing data file, the Open data file dialog will open automatically after you log in.

To locate an existing data file



1. Open the program by double-clicking the AudBase icon.
2. On the Password dialog, enter your User Name.
3. Enter your Password.
4. While holding down the Alt key (Windows) or the Option key (Macintosh), click Connection.
5. On the Open data file dialog, browse to the existing data file.
6. Select Open.

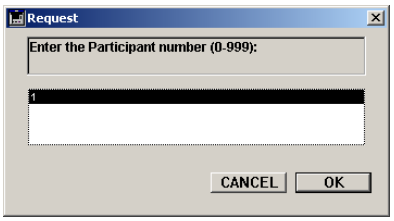


Open dialogs: Windows (left), and Macintosh

Assigning the Participant ID

When creating a new data file, you will be asked to enter a Participant ID. This number is an important part of AudBase's internal identification system. You should choose a unique number for each new data file you create. The Participant ID number must be between 0 and 999. For more information about internal ID numbers, see "What makes up an internal ID number" on page 176.

As the administrator, you are now ready to create new providers and Clinical Groups. You can start data entry at this point, but it is highly recommended that you set up providers and Clinical Groups first. For more information, see "Entering Provider data" on page 18 or "Viewing Clinical Group records" on page 28.



How privileges and access are controlled

Due to the sensitive nature of subject information and the different levels of complexity in the database, AudBase is equipped with a number of features to help define user access. You can establish different user classes that define levels of access by creating user names and passwords. These different levels exist to limit access to data and modifiable parts of the database. Even if the program is only being used by a single user, it is highly recommended that the person not just log in as administrator, but also create a separate login as a provider. This is important because:

- A separate login provides a more secure environment.
- An administrator cannot customize a subject list while other user classes can.

In addition to user classes, AudBase also allows you to control access to very specific parts of the database such as tables or navigation tabs.

User classes

Four classes of users exist in the database: providers, group administrators, subadministrators and the administrator The administrator has access to every function of the database including modifying forms and lists, deleting records, and assigning privileges. There is only one administrator.

In order for any user to have privileges, he or she must first have a Provider record, which is created by the administrator. If you do not have a Provider record, AudBase will not allow you to log in.

In order to access subject records, a user must meet one of the requirements below:

- Be a designated provider for the subject (see “Entering subject records” on page 41).
- Have privileges to view a Clinical Group’s subjects (see “Viewing Clinical Group records” on page 28).
- Have ‘”All Subject” privileges to view all subject information (see “Entering Provider data” on page 18).

Below is a more detailed list of specific privileges available to each user class.

Provider

The most common user classification in AudBase is that of provider. Prior to using AudBase, you must be assigned a login and password by the administrator.

Note: “User” will appear in the text to denote anyone who can log in to the database in a generic fashion, while “provider” often infers privileges to view subject records.

A provider can:

- Access subject records for whom they are designated subject providers. For more information, see “Entering subject records” on page 41.
- Add subjects and related records, such as tumor records and treatment records.
- Change his or her own password. For more information see “Change password” on page 26.

A provider cannot:

- Delete a record (see “Deleting records” on page 155).
- Assign any privileges to other users.

Depending on the privileges assigned by the administrator or subadministrator, a provider can also:

- View subject records belonging to a specific Clinical Group that they have permission to view.

  Note: Groups are typically institutions, such as hospitals or groupings of subjects that share a commonality, for example, a study of cis-platinum/5FU/radiation.

- Modify a previously saved record (see “Unlocking forms” on page 40).
- Modify or delete Reminder records.

Group administrator

A group administrator has all of the privileges assigned to a provider. In addition, a group administrator can:

- View the Clinical Group records that they administrate.
- View all the subjects belonging to a Clinical Group.
- Add or remove a provider's privileges to view the subjects belonging to a Clinical Group.

A group administrator cannot modify another group administrator's privileges.

Subadministrator

A subadministrator has all of the privileges assigned to a group administrator. In addition, a subadministrator can:

- Grant access to all subject records to another user.
- Modify a group administrator's privileges.
- Act as a group administrator for any group.
- Add Provider or Clinical Group records.
- Modify and customize lists used for data entry.

A subadministrator cannot:

- Change a user's login name.
- Assign a login password.

Depending on the privileges assigned by the administrator, a subadministrator can also:

- Delete subjects and related records.
- Modify a previously saved record (see "Unlocking forms" on page 40).
- Allow other users to modify a previously saved record.

The administrator

The administrator has all of the privileges assigned to a subadministrator. In addition the administrator can also:

- Change passwords for any user.
- Grant login privileges and change a user's login name.
- Modify a subadministrator's privileges.
- Delete any record.
- View all subjects.

User access

AudBase allows you to exercise great control over access to records within the database. You may want to restrict some users from accessing certain tables or records, to help guard against data entry errors or ensure subject confidentiality. The administrator can determine which users are allowed to view records, change records that have been saved, or create new records. The level of access can be specified for individual tables within the database.

The program allows you to set a default global “Write” access (the privilege to change saved records) using the Preferences form. This level of access will apply to all users, unless you override it for specific users. You can also override the global access setting for a group of users. For more information on assigning user access, see “Audiology (Admin)” on page 112 and “Record Access” on page 123.

AudBase menu structure

As you begin using the program, you will notice that the menu bar at the top of your screen changes depending upon which form or dialog is active. The standard menu bar displays when you first log on, and also appears anytime the Home Window is on your screen. The menu bar changes when the Subject List is active on your screen (the Data Manager item no longer appears, along with other changes). The menu bar also changes depending on which forms are open. The various menu options are explained throughout this user manual. For a complete list of menu bars and their menu items, see “Appendix D: Menu Bar Index” on page 237.

Users with administrator privileges can switch to a special administrator menu bar by selecting the Data Manager > Administrator Menu Bar option with the Home Window on their screen (see “Using the Administrator Menu Bar” on page 140).

Home Window

The Home Window is the first window to open when you log on to AudBase. It displays a logo and includes buttons that open the Subject List and New Subject forms.Users with administrator privileges can customize the logo in the Home Window with their own picture or graphic. For directions, see “Changing the Home Windows logo” on page 122.

The Home Window and the Subject List are the most common starting points for many of AudBase’s features. When the Home Window is open, the menu bar at the top of your screen is devoted to:

- Database management (for example, File > Preferences, File > Edit Documents)
- Data access (for example, File > Provider, File > Clinical Groups)
- The current subject list (for example, Subjects > Search)
- Aggregate data handling (for example, Reports > Export Data)
- Data management (for example, Data Manager > Human Subjects Info)

Subject List

The Subject List form displays subject names, identifiers and provider information, and features alphabetized navigation tabs to make a large subject list more manageable.

To reach the Subject List from the Home Window, by doing one of the following:

- Click the Subject List button
- Select Subjects > Subject List.

The list of subjects displayed on the form depends on certain criteria you have set (see "Setting Subject List criteria" on page 11). The bar at the top of the window displays the number of subjects in the current list. Letter tabs appear only if a subject name on the current list starts with that letter. Clicking on the list headings (Subject Name, Primary Identifier and Primary Provider) will sort the list appropriately.

The "User Set" box on the lower right of the Subject List form is useful for selecting a subgroup of subjects for batch operations, such as updating last visit dates or printing subject information. You can place subjects in the "User Set" by dragging-and-dropping their names from the list window or holding down the Shift key while clicking on the name. You can remove subjects name from the "User Set" by dragging the names to the Trash or holding down the Shift key while clicking on the name.

Double-clicking on a subject name will open the Subject Studies form for that subject (see "Using the Subject Studies form" on page 45). To return to the Home Window from the Subject List form, do one of the following:

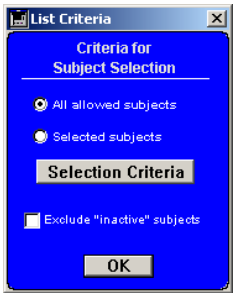
- Click on the Home Window logo at the bottom of the Subject List form.
- Close the Subject List form with the close box.

Setting Subject List criteria

The Subject List Criteria option helps you manage the Subject List form by letting you select a smaller group of subjects to appear on the list. You will always be able to access your own subjects. Viewing other subjects depends on your Clinical Group access privileges (see "Viewing Clinical Group records" on page 28).

Note: The administrator does not have access to this function. The administrator sees all subjects all the time.

To change Subject List Criteria



1. Select Subjects > Subject List Criteria.
2. From List Criteria, select one of two options:
   - "All allowed subjects" to include all subjects you have access to see. (For users with "All subject privileges," the option will be labeled "All Subjects.")
   - "Selected subjects" to change criteria for the list of subjects based on your access privileges for the Clinical Groups.
3. Click the Selection Criteria button to display your Clinical Groups.
4. From the Create List dialog, drag-and-drop Clinical Group names from the left to the right, or shift-click group names. Remove Clinical Groups by dragging them from the right to the Trash or by clicking the name while holding down the Shift key.
5. Click Update and the Subject List displays the names of subjects who meet your new criteria.

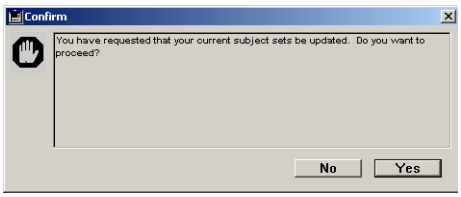
Note: These changes will apply only to this session. If you want to retain the changes as default settings, do so through the Preferences form. For more information see "Subject Info/Navigation" on page 136.

Updating the Subject List

When running AudBase in a multi-user environment, a number of users may be entering data at the same time. To make sure that all recently entered records are present for all users, you can force an update of the subject list.

Note: For more information on using AudBase in a multi-user environment, see "AudBase Server" on page 160.

To update the Subject List



1. From the Subject List, hold down the Shift key while selecting Subjects > Subject List Criteria.
2. On the confirmation dialog, click Yes and any new data you entered will now appear in the subject list.

Limit Subject List / Full Subject List

You can quickly limit the list of subjects displayed on the Subject List form to a few selected subjects. In a network environment where lists of data must be sent between the server and client machines, this level of control allows the user to make efficient use of network resources.

To limit the Subject List

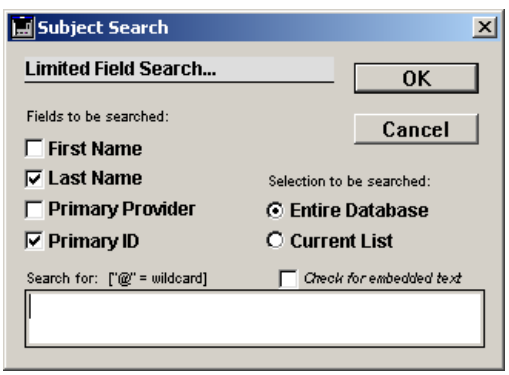
1. From the Subject List form, select the subjects you want on the list by dragging-and-dropping their names to the User Set box in the bottom right corner of the form.
2. Select Subjects > Limit Subject List.
   The Subject List form displays only those subjects you have selected. The current number of subjects appears in the top bar of the form.

You can restore the full list of subjects currently available for display by selecting Subjects > Full Subject List.

Limited Field Search

You can perform a quick search of several frequently used fields in the Subject table to create a selection of subjects for the Subject List form.

To perform a limited field search



1. Select Subjects > Limited Field Search. (You can also select Limited Field Search on the bottom of the Subject List form.)
2. On the right side of the form, select one of two options:
   - "Current List" to limit the search to the current subject list.
   - "Entire Database" to search the maximum number of subjects you have access to.
3. Select any or all of the four field names on the left side of the form (First Name, Last Name, Primary Provider, Primary ID).

4. Enter a text string you want to search for in the text box.
5. Click OK and the Subject List form displays all subject records meeting the criteria you have chosen.

   Note: You can use the "@" character as a wildcard in any AudBase search. You can also search for embedded text (a portion of the text within a word) either by selecting the "Check for embedded text" option and entering the character string, or by placing the wildcard character at both ends of the string you are searching for.

Windows Menu

Depending on available memory, two different subject-related forms (for example, the Subject Studies form or any clinical study forms) can be open at the same time in addition to the main form, such as the Home Window or Subject List. Since multiple windows on a screen can obscure each other, the Windows menu can help you find any open forms.

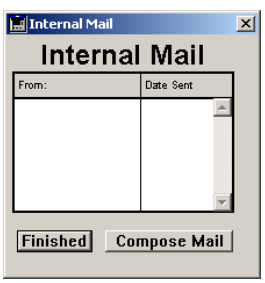
The Windows menu will display the name of the current form and the name(s) of any subjects associated with open subject forms. The form with the check mark is the one in front. Selecting another subject's name will bring that form to the front.

Internal Mail

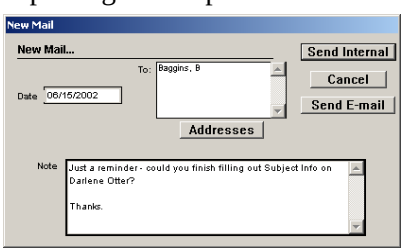
AudBase allows multiple users to access the same database file, either one-by-one or in a client-server environment. The internal mail feature lets you communicate with other users working on the same data file. For example, a data manager could use internal mail to communicate with clinicians about incomplete records.

You can compose and send mail to other AudBase users, either internally or through their e-mail address.

To compose mail



1. Select File > Internal Mail.
2. Click Compose Mail and the New Mail dialog displays.
3. To choose the recipient of your message, click Addresses.
4. Select the desired recipient's name from the Full List of Addresses and add it to the Address Mail To: box by dragging the name or clicking on a name while holding down the Shift key. You can also address mail to more than one address by repeating this step.



5. Click Update.
6. From New Mail, type a message in the note field.
7. At this point, you can send the mail to other AudBase users either internally or externally by way of e-mail.
    - To send mail internally, click Send Internal.
    - To send mail externally, click Send E-mail.

If an Internet e-mail address is not available for an AudBase user in your address list, the message will be delivered by internal mail instead.

To check internal mail

To check for new internal mail, do one of the following:

- Start AudBase and log in. If someone has sent you mail, the “You have mail” dialog appears.
- Select File > Internal Mail and the Internal Mail dialog displays.

The internal mail messages display by the sender’s name and by the date sent. To open a message, double-click on sender’s name and the message opens.

2 Providers and Clinical Groups

Providers and Clinical Groups are important concepts in organizing information within AudBase and setting up multi-site clinical trials. This chapter will help you understand both, and use the data entry forms that go along with them.

Providers and Clinical Groups

Providers and Clinical Groups are important in AudBase. A Clinical Group is the central organizing concept in setting up and running multi-site clinical studies using the program. Assigning each subject to one or more providers and Clinical Groups helps structure information entered into the database, and makes it easier to retrieve the same information through searches. The concepts of provider and Clinical Group also help define levels of access to data and the security measures used to protect confidential subject data.

The terms can be confusing. In order to gain access to AudBase, a user must be assigned a provider record in the database. But not all users of the program will be subject providers in the classic sense of the word. So in terms of the database itself, “provider” and “user” are equivalent terms.

A Clinical Group can be an institution, such as a hospital, or it can simply be a study. For example, a Clinical Group in AudBase could be a grouping of subjects who share something in common that researchers wish to study, such as use of cis-platinum/5FUY/radiation to treat tumors or involvement in a p53 gene therapy trial.

This chapter group of topics will take you through the features of the two main data entry forms used to create records in AudBase for providers and Clinical Groups, the Provider Information form and Clinical Group Information form. For more information about running a clinical trial, see the see the AudBase Clinical Trials manual.

Entering Provider data

The Provider Information form is used to enter a record for all AudBase users, whether they are actual subject providers or not.

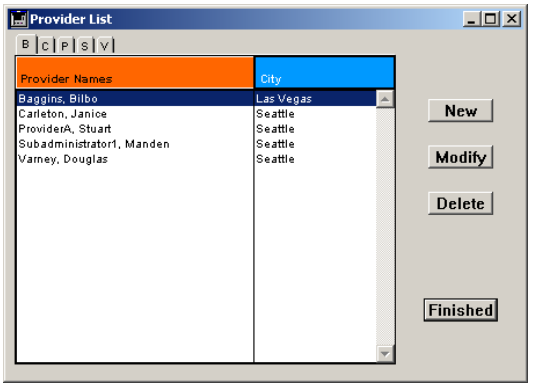
Regular providers can use the form to update their personal information, change their password and enter an e-mail address and server information needed to use AudBase’s e-mail functions. They can view their own provider record by selecting File > Provider Info from the Home Window or Subject List menu bar.

The administrator and subadministrators can use the form to update demographic and e-mail information for other providers. The administrator uses this form to assign subadministrator status to certain users, and to change login names and passwords.

For administrators or subadministrators to open provider records:

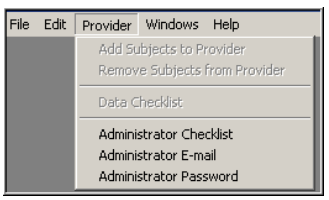
- With the Home Window or Subject List form active, click File > Provider Info.

The Provider List form appears. It displays all providers and has alphabet tabs for faster navigation. The form has buttons to add, modify or delete providers. Subadministrators will find their own provider record at the top of the list for easy identification. The administrator does not have a provider record.



Provider menu items for the administrator

When the Provider List is open, the menu bar includes three items for administrators only: Administrator Checklist, Administrator E-mail, and Administrator Password. This section briefly describes each.



Assigning an Administrator Checklist

The Administrator Checklist menu allows the administrator to assign him or herself a data entry Checklist. Normally, Checklists are assigned to a single user through their Provider record, but the administrator does not have a Provider record.

To assign a Checklist to the administrator

1. With the Provider List on your screen, click Provider > Administrator Checklist to see all the Checklists assigned to Clinical Groups.
2. Choose the group whose Checklist you would like to assign from the list on the left, and drag it to the list on the right. If a Checklist was previously in the list on the right it will be replaced.
3. Click Update.

Note: When running AudBase in a multi-user environment, other users may change the Saved Searches that comprise a Checklist. You can ensure that you are using the most up-to-date Checklist definition by holding down the Shift key when selecting the Provider > Administrator Checklist menu item. In a similar way, you can "refresh" Checklist definitions by holding down the Shift key while selecting Provider Checklist on the Provider Information form. For more information about using AudBase in a multi-user environment, see Chapter 8, "AudBase Server," on page 160.

Setting up administrator e-mail

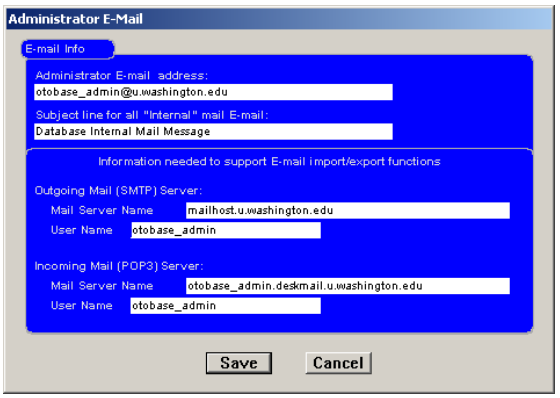
An administrator can enter his or her e-mail address and server information using the Administrator menu item under Provider. AudBase uses the current user's e-mail address for "Internal Mail" messages that can be sent either via an e-mail system accessed by SMTP protocols or handled completely within the database (see "Internal Mail" on page 14). You may also specify the default subject line of AudBase e-mail messages here. All e-mails sent by users of the database are identified with this subject line.

Note: When a user other than the administrator sends a message via SMTP e-mail, the e-mail information on his or her provider form is used.

The e-mail system in AudBase allows users to do the following, both within the database and externally via SMTP:

- Send messages.
- Send exported data in the form of attachments.
- Receive exported data in the form of attachments.

Users cannot receive or view external e-mail messages within the database since it is assumed that the user has an e-mail program or Web browser that they use on a regular basis.



To send e-mail as well as send and receive exported data, the administrator must enter his or her outgoing mail server and incoming mail server addresses here.

For more information about data exchange via e-mail see "Study Export" on page 34 and "Study Import" on page 36.

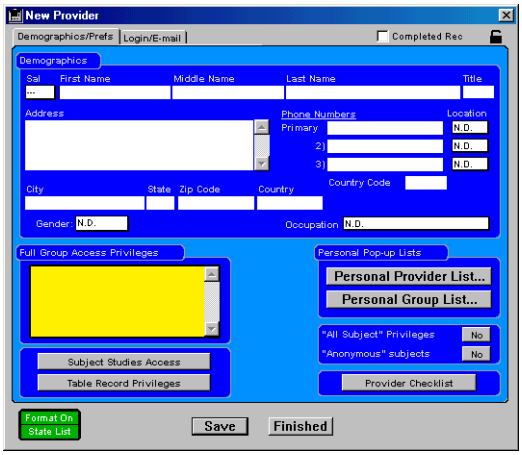
Changing administrator password

This item on the Clinical Group menu bar allows the administrator to change his or her password. To make the change:

- With the Provider List form open, select Provider > Administrator Password.

This will open a Request dialog for updating the administrator's password.

Using the Provider form



The administrator or a subadministrator can open an existing provider record by double-clicking on a provider name in the Provider List, or by clicking a name and selecting Modify. This opens a Provider Information form. Clicking New opens a New Provider form.

Both provider forms have two tabs, Demographics/Prefs and Login/E-mail. A new provider record requires a first name and a last name. The administrator may have specified other checklist items (see “Creating Checklists” on page 131). Enter data by using standard text entry and pop-up menus.

The rest of this chapter will explain the features of the provider forms, beginning with the Demographics/Prefs tab.

Note: To change an existing Provider record, you must unlock the form by clicking on the black closed lock. For more information, see “Unlocking forms” on page 40.

Demographics/Prefs

The first tab of the Provider Information form is for entering basic demographic information as well as information about Clinical Groups and access privileges.

Creating Personal Provider and Personal Clinical Group Lists

In multiple user systems, the entire list of providers or Clinical Groups can be quite large. When modifying subject providers or subject Clinical Groups on the Add Subject Records form, you select from a list (see “Entering subject records” on page 41). If you create a personal list, then it is presented in preference to the entire list, which is always available. This feature is optional and provided for your convenience. With the Provider Information form open, clicking the Personal Provider List or Personal Group list opens a Create List form. You can add names to the personal list by dragging them to the Personal List or shift-clicking on the names. Remove names by dragging them to the Trash on the Create List form, or by shift-clicking.

Full Group Access Privileges list

This informational list on the Provider Information form displays the Clinical Groups to which this provider has subject record access. This list can be modified by a group administrator, a subadministrator or the administrator through the Clinical Group form (see “Setting provider access to Clinical Group subjects” on page 30).

All Subject” Privileges button

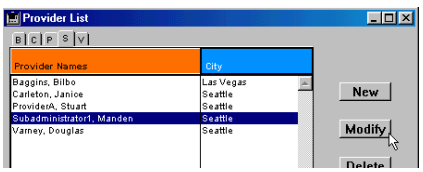
This button on the Provider Information form is only accessible to a subadministrator or the administrator. This gives a provider the privilege to view the record of every subject in the database. The button’s text displays the status of this privilege. If granted this privilege, a provider can choose to use it through the Subject List Criteria form (see “Setting Subject List criteria” on page 11).

Anonymous function

For the purposes of security and privacy, the Anonymous function may be used. This feature allows administrators to restrict Provider access to the personal information in the database. For instance, once this feature is activated, that user is denied identifying subject information such as name, telephone number, and address.

To turn on the Anonymous function

1. Select File > Provider Info from the Home Window.
2. Select the Provider whose database access you wish to modify.
3. Click Modify. A form with the Provider Information appears.
4. Unlock the record by clicking on the black closed lock on the form.



5. Click on the Anonymous Subjects button. "Yes" turns the Anonymous function on.
6. Click on OK.

The Anonymous function can also be activated from Preferences (See “Anonymous function” on page 22.).

Setting table record privileges

This feature on the Provider Information form allows the administrator to set detailed access privileges for an individual provider, deciding whether he or she can view, change or create new records for each table in the database. It also allows individual providers to view their privileges, but not change them.

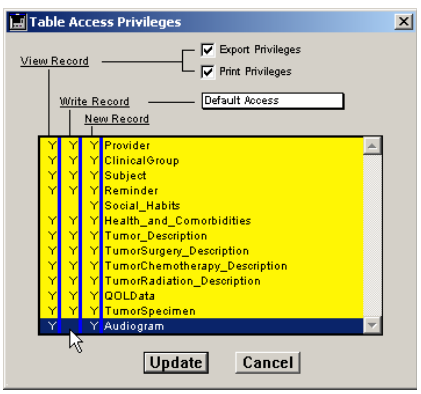
Clicking Table Record Privileges on the form opens a dialog that lists all tables to which the provider has access, based on the defaults set by the administrator. You modify these privileges using the Table Access Privileges dialog. To the left of the list of tables are three columns, displaying either a “Y” (meaning “Yes, you do have this privilege”) or a blank space (no privilege). The three columns are:

- View record: Allows the provider to see a record from this table.
- Write record: Allows the provider to change a record from this table.
- New record: Allows the provider to create a new record in this table.

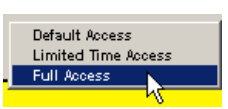
This dialog also allows you to set export and printing privileges for the tables a user has access to view.

To change table record privileges

1. Open the Provider Information form for the individual you wish to set privileges for.
2. Unlock the record by clicking on the black closed lock on the form.
3. Click Table Record Privileges.



4. Select the table you wish to set privileges for from the column on the right, and then click in the respective columns on the left (“Y” for yes, blank space for no).
   Holding down the Shift key while you click allows you to change an entire column.
5. Select from the pop-up list if you wish to define the provider’s level of write access for the allowed tables (in other words, to override the default global settings for all users of the database as defined on the Preferences form). The choices are:
   - Default Access (the level of write access set for all users on the Preferences form).
   - Limited Time Access (how many days after a record is saved the provider can change it).
   - Full Access (no restrictions on changing records).



6. Set export and printing privileges for tables the user has privileges to view using the checkboxes at the top of the dialog.
7. Click Update.
8. Click OK to save the provider record.

Note: If you remove privileges to view a record for a given table, the privilege to write records to that table automatically disappears. You can restore viewing privileges, but will have to manually reset write privileges for the same table. By the same token, if you grant write privileges for a table, viewing privileges are automatically added.

The administrator can set table record privileges for more than one provider at a time using the Preferences form. For information, see “Setting Subject Studies access privileges” on page 126. The administrator or a subadministrator can also prepare a report on all user access privileges. See “Creating a User Privileges Report” on page 151.

Modifying Subject Studies Access

You can modify the appearance of the Subject Studies form (see “Using the Subject Studies form” on page 45) and access to its different parts in three different ways:

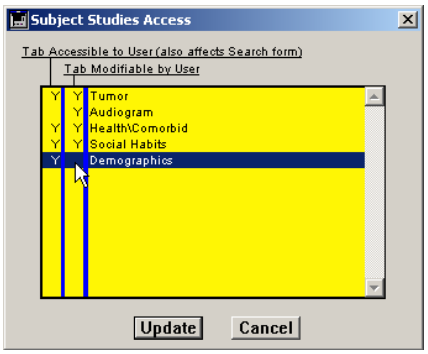
- In some cases, providers can decide which of the form’s navigational tabs they wish to view (hide tabs that they never use, for example).
- The administrator or subadministrators can decide which of the tabs a provider must view (cannot remove from the form).
- The administrator or subadministrators can hide or show any of the tabs for any user.

The administrator makes these changes for individual providers using the Provider Information form, or makes changes for a group of providers using the Preferences form (see “Setting Subject Studies access privileges” on page 126). An individual provider can modify the appearance of his or her Subject List, also using the Preferences form (see “Subject Info/Navigation” on page 136).

To set privileges for the Subject Studies form (administrator or subadministrators)

1. Open an individual Provider record from the Provider List (File > Provider Info). Unlock the record.
2. Click Subject Studies Access to display the tabs on the Subject Studies form.In the Tab Modifiable by User column, click “Y” (“Yes”) to remove this Provider’s ability to hide the tab on the Subject Studies form.

3. In the Tab Accessible to User column, click "Y" ("Yes") to remove this Provider's ability to see the tab on the Subject Studies form.
4. Click Update, and then click OK on the Provider form to save the changes.



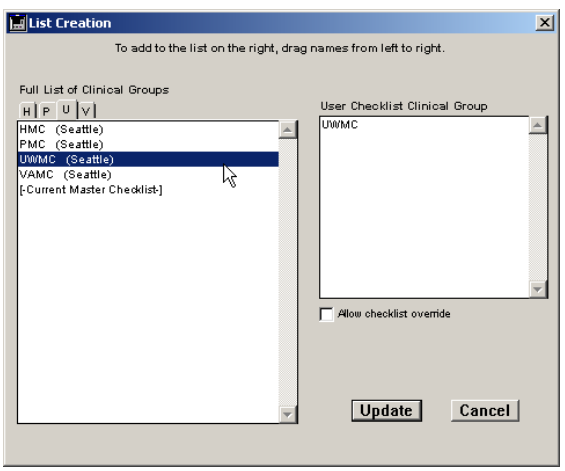
Note: If the administrator removes a Provider's access to a tab on the Subject Studies form, it will affect his or her ability to search the database. This is because you have limited the provider's access to the tables in the database that are connected to the respective tab. However, hiding the tab from view does not affect a Provider's ability to search within the tables.

Assigning a Provider Checklist

AudBase allows the administrator to define a Clinical Group's checklist as the default "master checklist" for the database (see "Master Checklist for data entry" on page 134). This is especially useful in clinical studies to ensure that any record being saved by a participant meets the study criteria. The Provider Checklist feature allows the administrator to override the master checklist for individual providers.

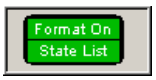
To assign a Provider Checklist

1. Open and unlock the Provider Information form.
2. Click Provider Checklist and a form includes a full list of Clinical Groups on the left, with alphabet tabs for quicker navigation, and a box on the right that shows the current checklist selected for this provider.
3. From the list of Clinical Groups on the left, choose the group whose checklist you wish to assign to this provider, and drag or use shift-click to move it to the User Checklist Clinical Group box on the right. If a checklist is already assigned, a new checklist will replace the old one.
4. Click Update and then click OK to save the provider record.



Note that each provider can only be assigned a single checklist. Clicking "Allow checklist override" enables the provider to save a record even if it does not meet all checklist criteria.

Format On button



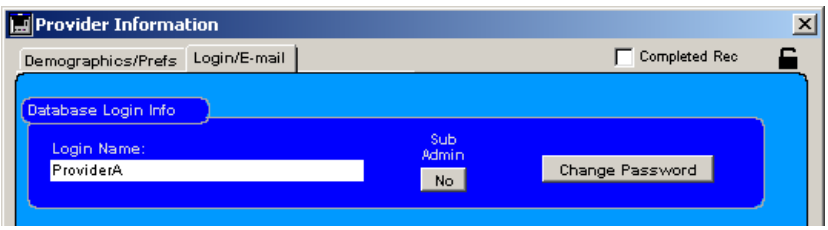
The administrator can set up your version of AudBase to automatically capitalize some letters in the name, address, city, and country text fields. This occurs when you enter information and then tab or click out of the field. To override this feature, click the Format On button at the bottom left of the form. It turns to a No Format button. You can turn the auto-format back on when you move to a different text entry field. You can also set a default format as a Preference item (see “Format On/No Format” on page 108).

State List button

The form has a built-in function that helps you pick out the standard two-letter abbreviation for a U.S. state, or other administrative subdivision. This feature can be enabled by default from the Preferences form. You can override the State List function by clicking cancel when the list of state names appears, or by clicking the State List button, which turns to ‘No State.’ For more about using the Preferences form to enable the State List function, as well as modifying any listing of states, provinces or other administrative subdivisions, see “State List” on page 108 and “Creating a non-USA State List” on page 117).

Entering Provider login and e-mail information

The second tab of the provider form allows you to enter, view or update information about provider login, subadministrator status and e-mail.



Login Name

An individual provider is not able to change the Login Name entry field on his or her form. Only the administrator can change the login name or enter it for the first time. The login name does not have to have any relationship to the provider’s actual name.

Change password

You can change your password for logging into AudBase by clicking this button and typing a new password into the request form that appears. The administrator can change any provider’s password as well.

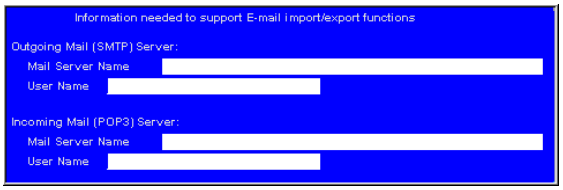
Sub Admin button

This reflects the provider’s current subadministrator status by displaying “Yes” or “No.” The button is disabled for all users except the administrator.

Provider E-mail address

Enter provider e-mail preferences here. The provider's e-mail address is used for "Internal Mail" messages, which can be sent either via an e-mail system accessed by SMTP protocols or handled completely within the database (see "Internal Mail" on page 14 and "Setting up administrator e-mail" on page 20).

E-mail Server(s)

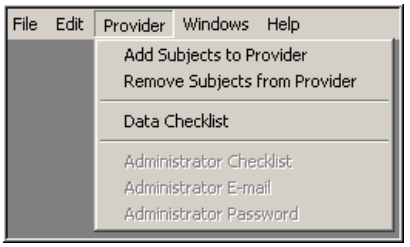


In order to send e-mail as well as send and receive exported data, you need to enter the outgoing mail server and incoming mail server addresses. There is currently no provision for receiving and viewing personal e-mail within the database since it is assumed that the provider receiving the e-mail has an e-mail program such as Outlook Express or Eudora, or a Web browser that they use for this type of mail. In AudBase, you can import and export data for the purposes of sharing among individuals or institutions using e-mail attachments For more information about data exchange via e-mail, see "Study Export" on page 34 and "Study Import" on page 36.

Adding and removing a group of subjects

AudBase also allows the administrator and subadministrators to add a group of subjects to a Provider record, or remove a group, using a menu item attached to the Provider record. This can also be done individually (see "Assigning Providers and Clinical Groups" on page 43).

To add a group of subjects to a provider



1. From the Provider List, double-click on a provider's name to open the Provider Information form.
2. Select Provider > Add Subjects to Provider to open a Search for Subjects form.
3. Search for the set of subjects you wish to add and drag it to the Drop Selected Subject Set to assign all subjects in the set to the provider.

To remove a group of subjects from a provider

1. From the Provider List, double-click on a provider's name.
   The Provider Information form opens.
2. Select Provider > Remove Subjects from Provider.
   A Search for Subjects form opens.
3. Search for the set of subjects you wish to remove and drag it to the Drop Selected Subject Set box on the form.
   All subjects in the set are removed from the provider.

Note: For more information on how to search for a set of subjects, see Chapter 4, "Searching," on page 70.

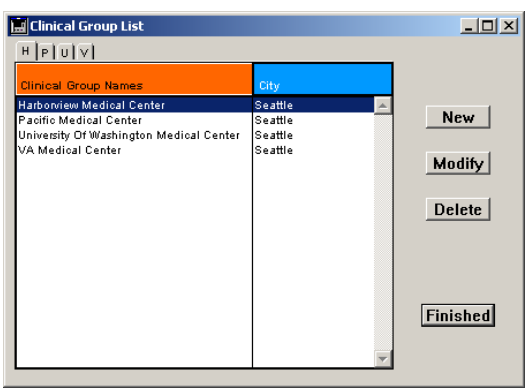
Viewing Clinical Group records

The Clinical Group Information form allows administrators, subadministrators and group administrators to view and update Clinical Group records. The form is also an important hub used to set up and carry out many of the key functions needed to operate a multi-site clinical study, including:

- Creating and tracking Study Participant IDs for multi-site trials.
- Assigning a Clinical Group Checklist, Sequential Search and Grouped Export.
- Generating public and private encryption keys needed to import and export encrypted data.

This section will describe the features of the Clinical Group Information form. For a complete overview of the steps needed to set up a multi-site clinical trial, see the AudBase clinical trials manual.

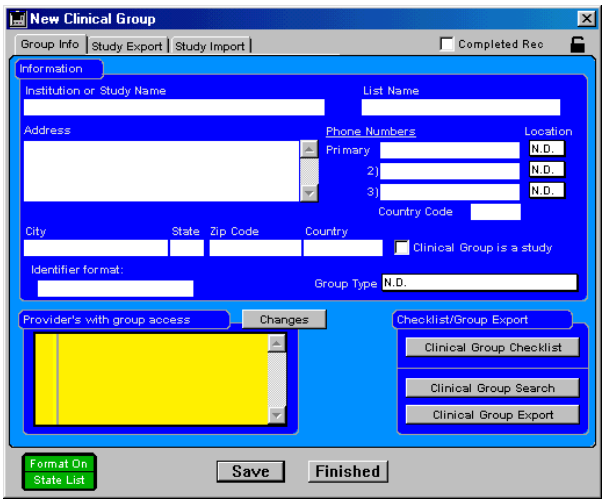
To view Clinical Group records



1. Select File > Clinical Group Info. For administrators or subadministrators, the Clinical Group List form appears, with a list of all Clinical Groups and buttons to add, modify or delete groups. Group administrators will be presented with the list of Clinical Groups they administrate, and providers will see groups of which they are members.
2. Open the Clinical Group Information form by double-clicking on a group name in the list, or selecting the name and clicking Modify. Clicking New opens a New Clinical Group form.

A new Clinical Group record requires a full name and a List Name. The List Name needs to be unique.

The List Name appears in the Subject List and is also used to automate encryption and e-mail exporting/importing features. The administrator may have specified other checklist items (see “Creating Checklists” on page 131).



Several items on the Clinical Group Information form deserve special mention:

Setting Clinical Group identifier format

This field on the Clinical Group form allows you to create a default format for a Clinical Group’s identifiers. This format is applied to entries made on a subject form.

You can specify a default format by using one of the three special characters:

- The “$” represents any numerical value
- The “@” represents any letter
- The “?” represents a letter or a number

Other characters or spaces are considered constants and do not need to be entered by the data entry personnel. For example, UWMC uses the following format for chart numbers:

```
U 1-23-45-67
```

Here is how the default format appears for UWMC:

```
U $-$$-$$-$$
```

In this format, the space, the hyphens and the letter "U" are all constants. The data entry person need only enter the variable number portion of the identifier (for example 1234567) and the number will be automatically formatted.

Setting provider access to Clinical Group subjects

Clicking Changes opens a Create List dialog box. You can add or remove names by dragging-and-dropping or shift-clicking. If a provider is included in this list, he or she will have access to all subjects who belong to this Clinical Group. Remove names by dragging them to the trash on the form, or shift-clicking.

Note: A group administrator can remove any provider except for another group administrator.

Designating group administrators

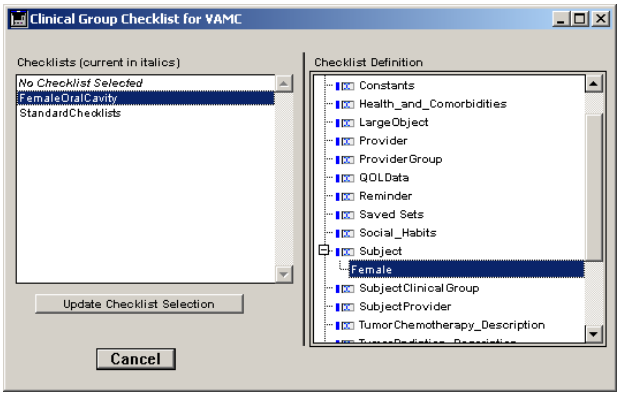
On the Clinical Group form, you can designate the provider as a group administrator by clicking the open space to the left of a provider name ("GA'" appears). Only a subadministrator or the administrator can confer this privilege.

Assigning a Clinical Group Checklist, Search and Export

You can assign a Clinical Group Checklist, a Clinical Group Search and a Clinical Group Export using these buttons. This is normally done by the study coordinator when first creating a Clinical Group record for the study. Study participants can assign all three items automatically (see "Importing study tools" on page 32).

To assign a Clinical Group Checklist

1. Create a Checklist for the group (see “Creating Checklists” on page 131).
2. On the Clinical Group Information form, click Clinical Group Checklist.
3. In the left-hand list of the Clinical Group checklist, click on the Checklist you wish to assign to the Clinical Group.
   You can view the searches used to define the Checklist in the right-hand list by using the arrows or plus signs to open tables that contain the searches.



   Note: To review the contents of an individual search, double-click on the name of the search, in this example “Female.” The search will open. You cannot edit the search here, just review it.

4. Click Update Checklist Selection and the text on the Clinical Group Checklist button will change to italics to signal that a Checklist has been assigned.

A Clinical Group’s checklist can be used as the Master Checklist for the database (see “Master Checklist for data entry” on page 134).

You can assign Sequential Searches and Grouped Exports to Clinical Groups using the same procedure, starting with the Clinical Group Search and Clinical Group Export buttons on the form. These are used for selecting complete or partial datasets for export to a coordinating institution in a multi-center clinical study.

For further information, see “Selecting data for export” on page 88, “Creating Grouped Exports” on page 121 and “To delete a Saved Special Relation Search, double-click on the sublist item to open the Saved Search form, then click Delete.” on page 130).

Assigning a Group Type

You can assign a Group Type to your Clinical Group using a modifiable pop-up list (see “Modifying lists” on page 109). Clinical Groups may be created without a specific Group Type, by choosing N.D. (no data) from the list. However, dividing your Clinical Groups into specific types will allow you to create more detailed searches (see “Searching” on page 70).

Clinical Group is a study checkbox

Selecting this checkbox on the Clinical Group form will allow the substitution of Study Participant IDs in exported data and the automation of the encryption process. In addition, selecting this checkbox would make it easier to search for all subjects in clinical studies. For more information, see the AudBase Clinical Trials manual.

Exporting study tools

The study coordinator can export the Clinical Group Checklist, Search and Export using a single menu item. AudBase creates a special TRANSFER-type document with a file extension of OT3, which bundles all three items into one file and encrypts them using the coordinator's private key if data encryption has been set up for the trial. Participants who have received the public key from the coordinator and entered it on the third tab of the Clinical Group form may then import the Checklist, Search and Export definitions into their version of the database using the Import Study Tools item. The imported definitions will be automatically attached to the Clinical Group record. For more information, see the AudBase Clinical Trials manual.

To export the bundled Clinical Group Checklist, Search and Export

1. Make sure you have created all three items; the buttons on your Clinical Group record for this study should all be italicized. Also make sure you have saved the Clinical Group record.
2. On the Clinical Group menu bar, click Clinical Group > Export Study Tools.
   A Save As dialog appears, allowing you to browse to a location on your computer to save the OT3 file.
3. Choose a name for the file, and click Save.
   The file is now ready for sharing with trial participants.

Importing study tools

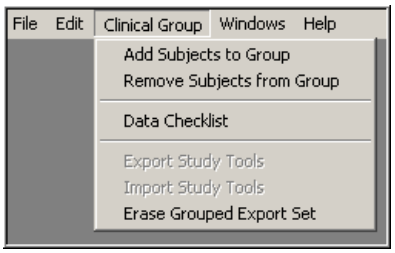
Participants who have received the public key from the coordinator and entered it in the Clinical Group form can import encrypted Checklist, Search and Export definitions into their version of AudBase using a single menu item. (An unencrypted study tools file does not require a public key to be imported.) You should have received the OT3 file from the study coordinator, and placed it in a location that you can browse to during the process of importing the file.

To import the bundled Clinical Group Checklist, Search and Export

1. While logged on as administrator, open the Clinical Group record for this study and make sure it is unlocked.
2. On the Clinical Group menu bar, click Clinical Group > Import Study Tools.

3. From the Open dialog, browse to the location of the OT3 file sent by the study coordinator and click Open to import and decrypt the group Checklist, Search and Export definitions.
4. ***Note: If you are sharing the OT3 file between platforms (for example, Windows to Mac), the normal Open dialog may not show the file. In this case, hold down the shift key while selecting the Import Study Tools menu item to force the dialog to show this file.*** You can verify the study tools have been imported by making sure the text on all three of the buttons under Checklist/Grouped Export on the form has turned to italics.

Assigning subject records to a Clinical Group



You can assign a group of subjects to a Clinical Group record using a special menu item. This is among the final steps in setting up a clinical trial using AudBase. You can also add subjects individually. For more information, see "Assigning Providers and Clinical Groups" on page 43.

To add subjects to a Clinical Group

1. Open the Clinical Group record for the study by double-clicking on the name in the Clinical Group List.
2. From the menu bar, select Clinical Group > Add Subjects to Group to open a Search for Subjects form.
3. Search for the set of subjects you wish to add and drag it to the Drop Selected Subject Set box on the form (see Chapter 4, "Searching," on page 70).
   All subjects in the set will be assigned to the Clinical Group.

To remove a group of subjects from a Clinical Group

1. With the Clinical Group form open, select Clinical Group > Remove Subjects from Group to open a Search for Subjects form.
2. Search for the set of subjects you wish to remove and drag it to the Drop Selected Subject Set box on the form.
   All subjects in the set are removed from this Clinical Group.

Study Export

The second and third tabs of the Clinical Group form include information necessary to export and import encrypted data in a multi-site study. The administrator and subadministrators can view, copy and change all of the fields on these tabs. Group administrators cannot access any of this information.

Study Participant ID

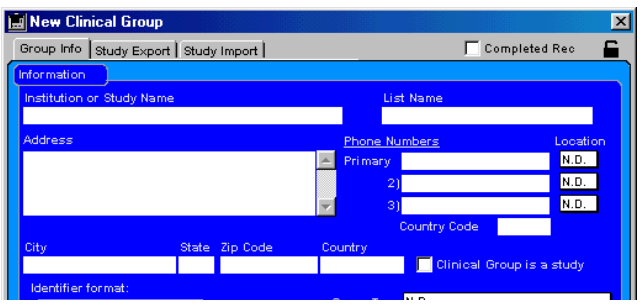
Each participating site should be assigned its own ID (range 0 - 999) for the purposes of the study (see “Assigning the Participant ID” on page 7). If the Study Participant ID field on the Clinical Group form is left blank, exported records will have internal ID values based on the Participant ID for the exporting data file. For more information, see the AudBase Clinical Trials manual.

Setting up encryption

The process of encryption/decryption of data begins on the Clinical Group form. Follow these steps to generate a public/private key pair.

To generate public/private key pairs

1. On the second tab of the Clinical Group form (Study Export), make sure you have entered a Study Participant ID to enable the Generate Keys button.
2. Click Generate Keys to create a public/private 1024-bit encryption key pair.



3. Do one of the following:
   - Click Save Public Key to Disk to generate a text file that you can use to share the public key with whoever will be importing your data.
   - Highlight the public key, copy it, and then paste it into an e-mail message or other word processing program for sharing.
4. Click OK to save the keys in the Clinical Group form.

If you try to modify previously created keys you will be warned before saving the record since an inadvertent change will destroy the utility of the paired keys.

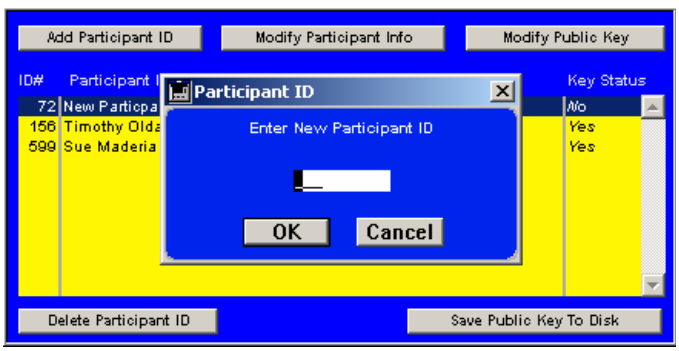
Setting up decryption

The third tab of the Clinical Group form allows you to set up decryption of shared data. On this tab:

- The study coordinator can enter the names and Study Participant IDs of all those involved in the study, as well as enter or modify participants' public keys to allow decryption of their data.
- Participants can enter the coordinator's public key to enable them to decrypt study tools or other data sent from the central collection site.

Study participants should generate their own key pair and send the public (decryption) key to the study coordinator. The coordinator can then import the participant's public key using the following procedure.

To add Study Participant IDs and public decryption keys



1. On the third tab of the Clinical Group form, click Add Participant to begin the process of entering the participant's name, ID number and public key.
2. Enter the ID and click OK.
3. Click Modify Participant Info.
4. Enter a name in the dialog and click OK.
5. Click Modify Public Key and confirm that you want to modify the public key for this participant.
6. Click OK.
7. Copy the public key that this participant has sent to you, paste it into the Public Key dialog, and click OK
   The Key Status column at right will show the italicized word "Yes" to indicate that you have stored the participants's key.

Clicking Save Public Key to Disk allows you to create a text file with the selected participant's public key. The file can then be distributed on disk or opened in a word processing program for copying and pasting. You can also remove a participant from the list by clicking Delete Participant ID.

Generate Key button

Selecting this button will generate a public/private 1024-bit key pair for encryption purposes. The keys are in a special “text” format that can be copied and pasted in a document or e-mail. Any modifications of previously created keys will result in a warning to the user before saving the record since an inadvertent change will destroy the utility of the paired keys.

Save public key to disk

Selecting this button will create a file with the public key in it. The file can then be distributed on disk or opened in a word processing program for copying and pasting.

Setting up e-mail export

E-mail address

The e-mail address of a central data collection site should be entered here. If you choose to export data via e-mail it will be sent to this address.

Maximum attachment size

Some e-mail systems limit the size of e-mail enclosures (attached documents). The default value is 128 Kb. If an export document exceeds the specified size the document will be split into multiple enclosures and reassembled when it is imported.

Single attachments only checkbox

Some e-mail systems limit the number of e-mail enclosures (attached documents) per e-mail. Selecting this option causes export document(s) to be sent out as a series of separate e-mails. This is rarely needed and increases the time needed for the export. Do not choose this option unless you are certain you need to.

Study Import

The third tab of the Clinical Group form allows study coordinators to add or modify Study Participant IDs and modify and save the public key used to import encrypted study data. For more information on the use of these features, see the AudBase Clinical Trials manual.

Add Participant ID

Each participating site should be assigned its own Study Participant ID (range 0 - 999) for the study (see “Assigning the Participant ID” on page 7
). To record the information for a participating site, start by entering an ID number Modify Participant Info

You can enter the participant info for the selected ID number after clicking on this button.

Modify Public Key

Study participants should generate their own key pair and send the public (decryption) key to the study coordinator (see “Generate Key button” on page 36). The study coordinator can then import the participant’s public key by selecting an ID number, clicking on the Modify Public Key button and pasting the key into the displayed dialog box. If a key is stored for this participant it is signified by a Yes.

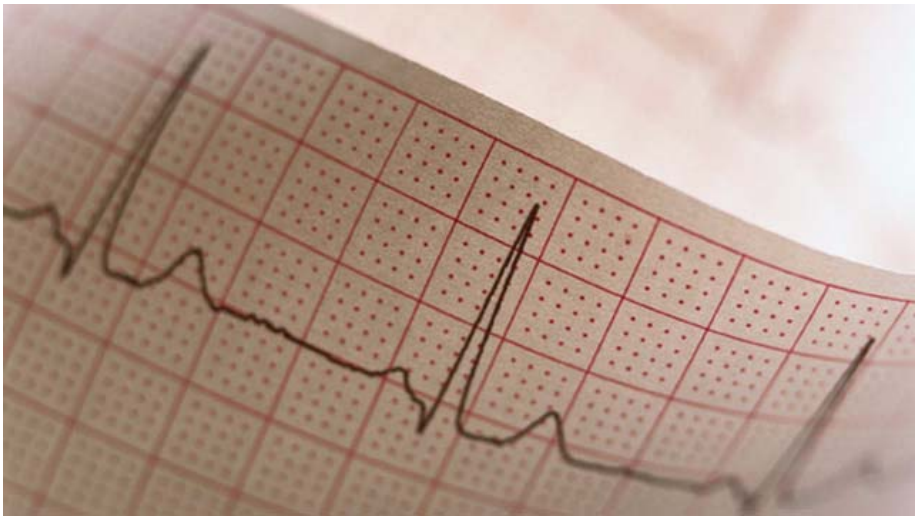
Delete Participant ID

Clicking this button will delete the selected participant’s ID.

Save Public Key To Disk

Selecting this button will create a file with the selected participant’s public key in it. The file can then be distributed on disk or opened in a word processing program for copying and pasting.

3 Data Entry



AudBase uses simple data entry forms and frequent pop-up lists to minimize typing, making the task of entering subject and clinical data easy and consistent. This chapter will introduce you to the forms and their special features.

Data Entry

AudBase is designed to streamline the task of entering data about subjects, providers, Clinical Groups, treatments and other information important in research studies. The data entry forms are easy to access and designed to minimize typing. The frequent use of pop-up lists also helps make sure that the data you enter will be consistent, making it easier to retrieve in later searches.

This chapter will show you how to use the various data entry forms, starting with how to unlock a form.

Unlocking forms

When you call up a previously saved data-entry form, it starts out “locked” in Read Only mode. This allows more than one person to access a record at the same time, and also prevents changes to the record. Even in a single-user environment, it is important to load records by default in Read Only mode because the typical record should not be changed after it has been saved. This is crucial for data integrity in any long-term clinical study.

To make changes to a form and its underlying database records, you must unlock the form (switching to Read Write mode). The “locked” or “unlocked” status of a form is displayed in the Lock/Unlock icon. The icon, located at the top of the form, has three modes:

- **Black, closed lock:** The form is locked, but can be unlocked by clicking the icon.
- **Black, open lock:** The form is unlocked.
- **Red, closed lock:** The form is locked, and you cannot unlock it.If you try to unlock a form and another person has already unlocked the form, you’ll see an alert dialog but will be able to continue to look at the form in locked mode..I

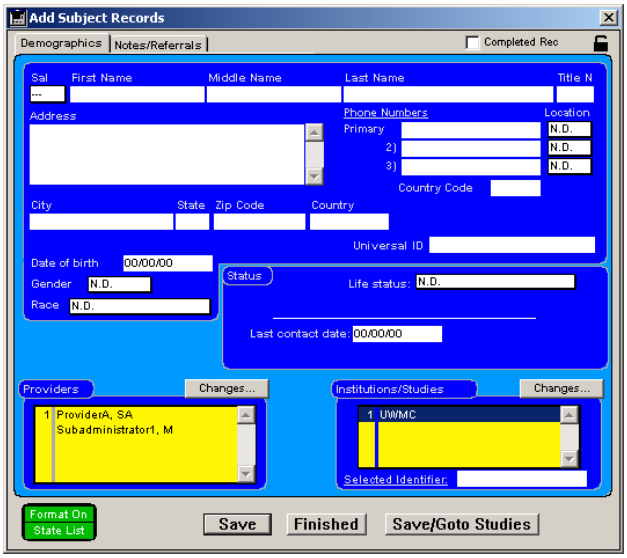
The administrator can always “unlock” a record and can grant other users this privilege (see “Audiology (Admin)” on page 112).

Entering subject records

To add new subjects to AudBase, use the Add Subject Records form. The form features automated formatting and pop-up lists to simplify data entry, and allows you to add a subject with a limited amount of initial data. After entering information about demographics, click on the Notes/Referrals tab to add additional details.

To open the Add Subject Records form, do one of the following:

- From the Home Window, click on the New Subject button.
- From the Subject List form, click on the New Subject button.
- From the menu, select Subjects > New Subject.



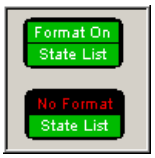
The Add Subject Records form displays, ready for data entry.

Filling out all fields in the subject record, as in the figure above, may be more than someone seeing a subject for the first time is interested in doing. The minimum information needed for a new subject is the first and last name. All other information can be deferred, depending on the checklist assigned by the administrator (see “Special note on Checklists” on page 42). If another subject in the database shares the first and last name, a list of potential duplicate records appears.

The Add Subject Records form uses standard text entry boxes and pop-up menus to allow you to enter demographic information about subjects.

Several other items deserve special mention:

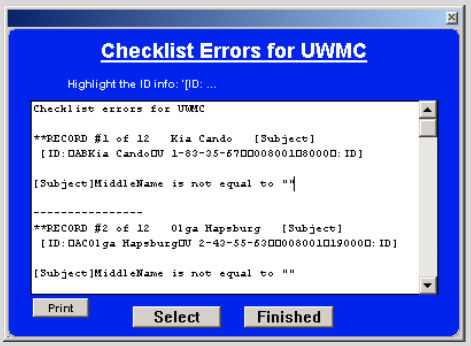
Format On button



An administrator can set up your version of AudBase to automatically capitalize some letters in the name, address, city, and country text fields. This occurs when you enter information on the subject or provider forms and then tab or click out of the field. To override this feature, click the Format On button at the bottom left of the form. It turns to a No Format button. You can turn the auto-format back on when you move to a different text entry field. You can also

set the default button selection using the Preferences form (see “Entry Formats” on page 108).

Special note on Checklists



In AudBase, “Checklists” are designed to make sure users enter the correct data into forms. This is especially important in clinical studies.

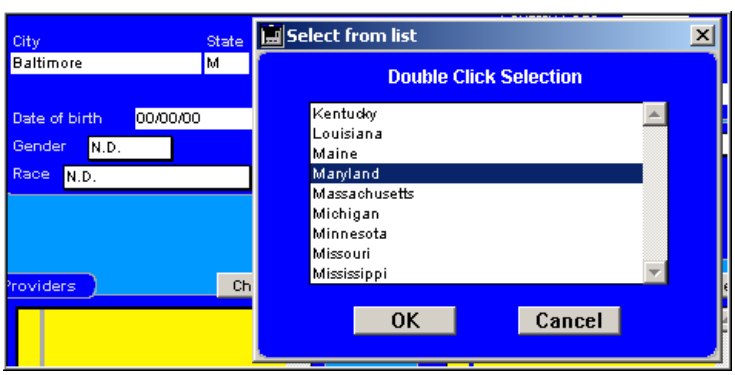
If you try to save a new or updated record that does not have the minimum amount of data as defined by the administrator or subadministrator, a window appears displaying the checklist errors.

In this example, you must enter the subject’s middle initial on the Add Subject Records form. If you try to save without entering this information, a checklist appears reminding you to enter missing items.

You can look at the criteria for a form before saving by selecting the appropriate menu item (for example, Subject > Data Checklist from the Subject form, or Tumor > Data Checklist from the Tumor form).

The administrator has the option to enforce a Checklist when the record is saved (Recheck is the only option) or allow a user to save the record anyway (Accept is also an option).

State List button



The Add Subject Records and Provider information forms have a built-in function that helps you pick out the standard two-letter abbreviation for a U.S. state. If the database is outside the United States, you can use local area abbreviations instead (see“Creating a non-USA State List” on page 117). When you type a single letter, such as M, then tab out of the field, a list of states (or other regions) will appear. Select the correct state and the abbreviation appears. You can override the State List function by clicking cancel when the list of state names appears, or by clicking the State List button, which turns to “No State.” You can set the default button selection using the Preferences form(see “Entry Formats” on page 108)

Entering Selected Identifier

This field on the Add Subject Records form is open for entry if a Clinical Group name is highlighted. A subject can have a different identifier or study ID for each Clinical Group. The field can be auto-formatted for each Clinical Group (see “Setting Clinical Group identifier format” on page 29). You can override or turn off the formatting at any time using the Format On button.

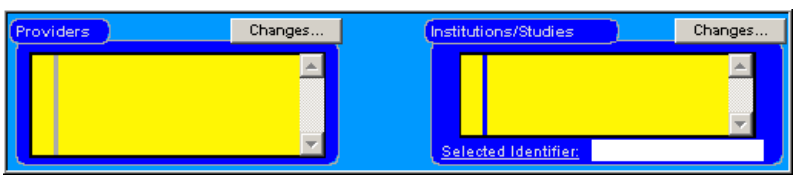
Entering Universal ID

The Entering Universal ID field on the Add Subject Records form should be reserved for a unique ID that can identify duplicate subjects entered by multiple sites in a multi-center trial. Note that using a Social Security number for this ID in the United States can be subject to legal limitations. This field can be automatically formatted by the administrator (see “Setting Universal ID format” on page 118).

Assigning Providers and Clinical Groups

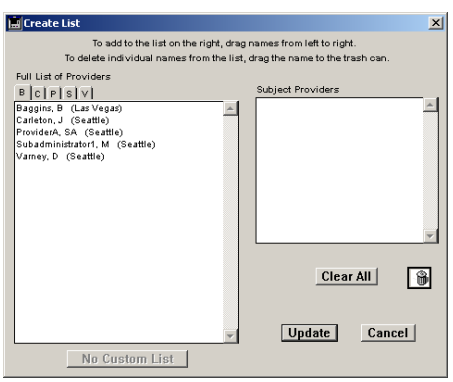
The bottom of the Add Subject Records form has two boxes where you can assign the subject to Providers and Clinical Groups. To make data entry easier, you can assign default Provider(s) and Clinical Group(s) to a new record automatically so they appear whenever you add a subject to the database.

For more information, see “Subject Info/Navigation” on page 136 .



To assign Providers or Clinical Groups

1. Click on Changes above either the Providers or Institutions/Studies boxes.
   A Create List form appears. The subject can belong to multiple Providers or Clinical Groups.
2. Add or remove Providers and Clinical Groups by dragging items from the left to the right boxes, or shift-clicking. To delete names from the list, drag them to the Trash, shift-click on them or press Clear All.



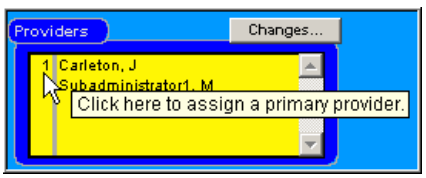
3. Click Update.
   The Providers or Institutions/Studies lists on the Subject form will reflect your changes.

   Note: If no Providers or Clinical Groups are specified you will be given a chance to add them before saving the subject record. Unless you have privileges to access all subjects, you will not be able to see a subject record without assigning Providers and Clinical Groups(see "How privileges and access are controlled" on page 7).

Designating primary Providers and Clinical Groups

You can designate a primary Provider or Clinical Group on the subject form. Both will appear on the Subject List form.

- To designate a primary Provider or Clinical Group, click in the open space to the left of the name: a number "1" will be attached.
- To remove the primary status of a Provider or Clinical Group without designating a replacement, click on the number "1" while holding down the Shift key.



You can assign a new record automatically to a default primary Provider and Clinical Group (see "Subject Info/Navigation" on page 136).

Note: Before you can save a new record, you will be asked if you wish to designate a primary Provider or Clinical Group if more than one are listed. If a new subject record has only one Provider or Clinical Group listed, they will be designated by default upon saving the record.

Referring caregivers

If you wish to assign a referring caregiver to a subject, use the Notes/Referrals tab. You can also use this list to generate letters or other documents for the referring caregiver.

To add a referring caregiver

1. You can access the Notes/Referrals tab from two places:
   - If you are adding a new subject, find the tab on the Add New Subject form.
   - If the subject exists, find the tab on the Subject Info form.
2. Click the Referring Provider List button.
   A Create List form opens.
3. Drag names from the Full List of Providers box on the left to the Referring Providers list on the right, or shift-click on the names.
4. Click Update.

Referring caregivers should have a provider record filled out with their name and address. The ability to customize your own personal list of providers for forms such as the list-creation form helps you more easily select commonly needed caregivers (see “Creating Personal Provider and Personal Clinical Group Lists” on page 21).

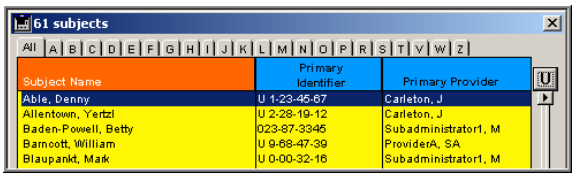
Saving records

Once you are finished entering data about a new subject, you can save the record and prepare to add another subject by clicking Save. The information you entered is saved to the database, but the form stays open, ready for new data entry. When you are done with your last subject, click Finished. If you have not saved your last record, you will be prompted to do so. You can also save a subject record and immediately open the Subject Studies form for that subject by selecting Save/Goto Studies.

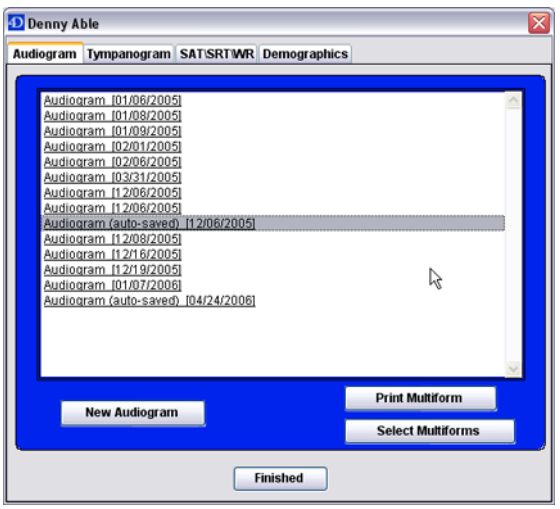
Using the Subject Studies form

The Subject Studies form is a central “hub” you can use to navigate to all subject studies on such things as tumors, treatment methods, social habits, plus others. Double-clicking on a subject’s name in the Subject List form will open the Subject Studies form.

The form is divided into multiple tabs. If the navigation tab has more selections than will fit at one time on the form, use the arrow tabs to uncover all the selections.



One tab selection, Demographics, open the appropriate forms directly. The other tab selections deal with multiple related-records that appear in lists.



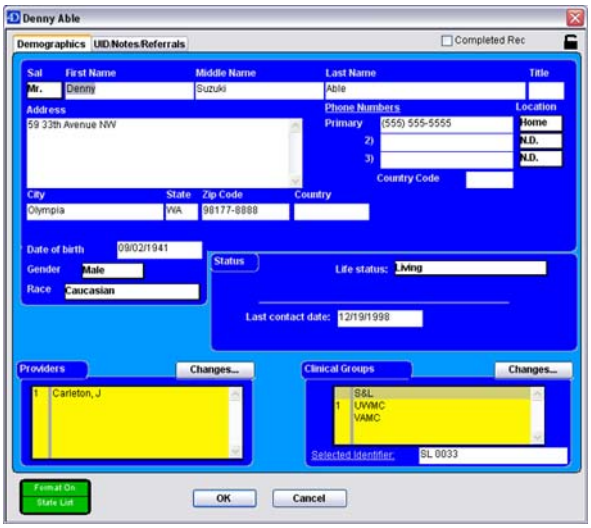
Clicking on the Audiogram tab displays a list of all audiogram records for that subject.

When the audiogram list is blank, or if you select a audiogram name on the list, the New Audiogram button is enabled. Double-clicking on the audiogram will open the audiogram record.

Audiogram forms actually display data from three tables: [Audiogram], [Tympanogram and [SAT_SRT_WordRecognition]. Selecting the Tympanogram or SAT\SRT\WR navigation tab will display the list of available records in those tables which can then be opened directly..

Viewing existing subject records

Clicking on the Demographics tab in the Subject Studies form will open the Subject Info form. This form is essentially the saved version of the Add Subject Records form.



The Subject Info form consists of two tabs, Demographics and UID/ Notes/Referrals. It looks almost identical to the Add Subject Records form. There are only two visible differences:

- The Subject Info form has OK and Cancel buttons instead of the Add Subject Records form's Save and Finished buttons.
- The Subject Info form does not have the Save\Goto Studies button.

If you have privileges for a subject's record you can change or add information to a subject by first unlocking the record.

Working with reminders

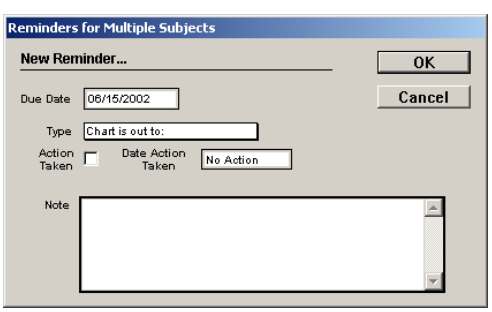
Using AudBase's reminder feature can help you keep track of timely information regarding a subject. A reminder quickly lets you view due dates for subjects by saving these items in the database for easy access. For example, you may wish to schedule a reminder that shows the date of a subject's next appointment.

Adding reminders

You can set reminders for a group of subjects or for an individual subject.

To add a reminder for a number of subjects

1. Open the Subject List.
2. Select the subjects you wish to add reminders for by dragging each name to the User Set box. You can also add names to the User Set by single-clicking while holding down the Shift key.

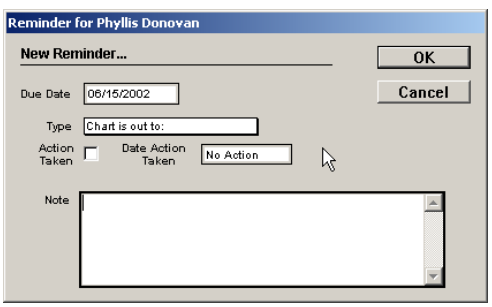


3. Select Subjects > Add Reminder.
   A dialog displays telling you that a reminder will be added for each subject you selected.
4. Click OK
   The New Reminder form displays.
5. Enter a date when the reminder is due.
6. Select the type of reminder.
7. Enter any details or instructions in the Note field.
8. Click OK.

Note: After you save a reminder for the first time, you cannot change the reminder type. In order to modify or delete a reminder, a user must be given permission by the administrator (see "Setting user reminder privileges" on page 115). To change the items in the Type pop-up list, see "Modifying lists" on page 109).

To add a reminder for an individual subject

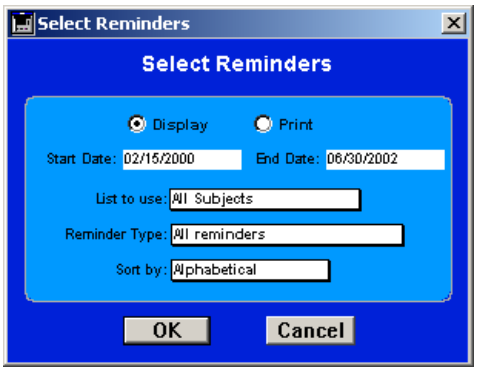
1. From the Subject List, double-click on the name of a subject.
   The Subject Studies form opens.
2. Select Subject > Add Reminder.
   The New Reminder form displays.
3. Enter a date when the reminder is due.
4. Enter the type of reminder.
5. Enter any details or instructions in the Note field.
6. Click OK.



Reviewing reminders

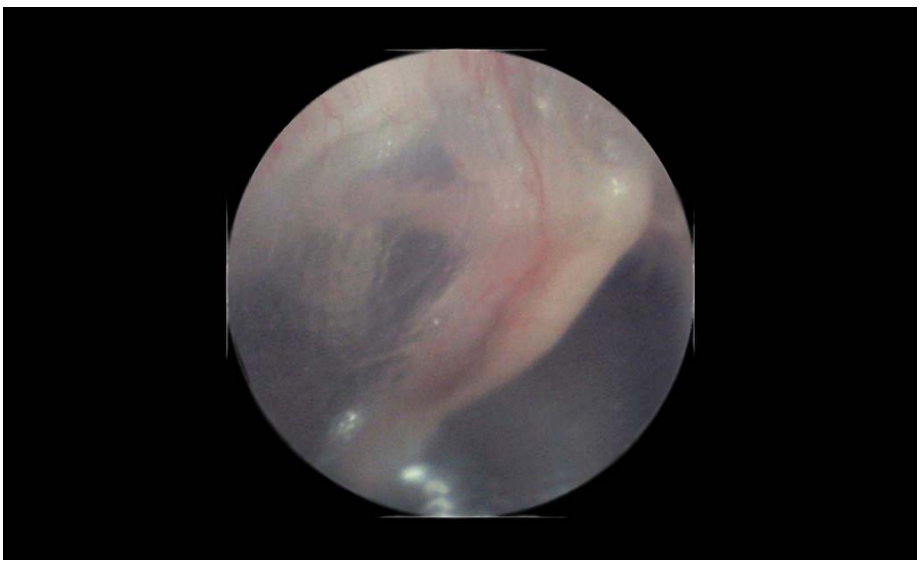
At times, you may want to review reminders for all the subjects in the database or a single subject.

To review reminders for all subjects



1. From the Home Window or Subject List, select Subjects > Review Reminders.
   The Select Reminders dialog appears.
2. Select how you wish to review the reminders, Display for on screen, or Print.
3. Specify a start date and an end date to search in.
4. From the first pop-up list, choose a List to Use.

4 Audiogram and Tympanogram



Audiology testing is an AudBase feature that allows you to enter audiometric readings into the database, both manually and using a serial port for upload.

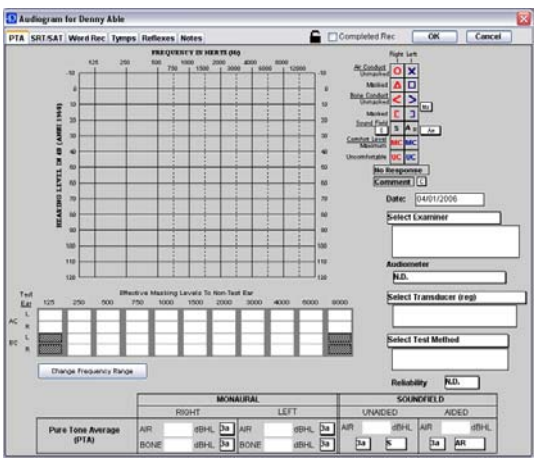
Audiogram and Tympanogram

The Audiogram feature is designed for rapid and consistent data entry both manually and using a serial port to upload audiometer readings. You can enter a complete set of clinical data and present it in a variety of ways, as well as customize the data entry form to your preferences. The Audiogram feature performs calculations such as Pure Tone Average (PTA) and AMA Handicap values; it also allows you to compare a subject's results with known groups (for example, HTLA confidence limits).

This section will describe how to fill out a new audiogram record based on the standard pure tone test, enter findings from other test procedures, and view or print the results in different ways.

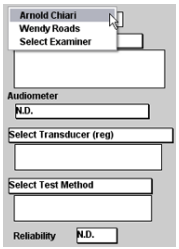
To create a new audiogram

1. Open the Subject Studies form by double-clicking on a name in the Subject List.
2. Click on the Audiogram tab.
3. Click New Audiogram.
   The Audiogram form appears.



The form follows the graphing format of a standard audiogram. It features several navigational tabs for entering pure tone averages, acoustic reflexes, SRT/SAT and word recognition testing data, tympanograms, and notes.

Entering basic test information



When you open an Audiogram form, it displays the Pure Tone Average (PTA) navigational tab. This is where you record information such as date, examiner, device, testing methods, testing location, and reliability—it is also where the PTA results are auto-calculated.

All of the fields in the lower right use pop-up lists to speed data entry. You can set default entries for these fields, and they will automatically appear each time you open a new audiogram (see “Audiology (1)” on page 110.). Additionally, you can modify the pop-up lists to suit your needs (see “Modifying lists” on page 109.). The Examiner field and the Test Method fields can have multiple entries. Note also that the Transducer pop-up and field has two versions: regular frequency range and special (e.g. high frequency) range.

Auto-save Feature

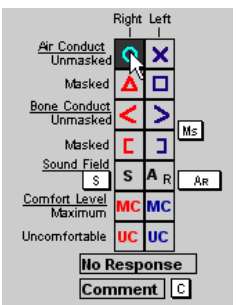
The Audiogram form involves a significant amount of data. To protect yourself from data loss (for instance, as the result of a computer crash), you can turn on an auto-save feature. When this feature is turned on, the Audiogram form is automatically saved every thirty seconds. (For instructions on activating this feature see “Audiology (3)” on page 111..

Filling in audiogram fields manually

Manually recording pure tone testing results is a simple process of clicking on the appropriate icon in the palette of standard clinical symbols and then using the icons to fill in the graph.

The following procedure will explain the basic steps for filling out the audiogram manually. Variations such as entering masking values and recording comments will be described afterward. (For instructions on how to upload audiogram data directly from a serial port see “Working with an audiometer or tympanometer” on page 64..)

To record audiometric data

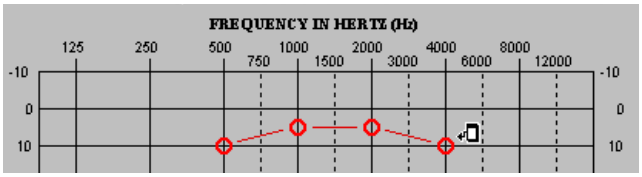


1. From the palette on the right side of the Audiogram form, click on the icon that corresponds to the ear being tested and the type of test.
2. Move the cursor over the graph, and click on the hearing level for the first test frequency.
   An icon appears on the graph.
3. Continue filling out the graph for each frequency based on the testing of that ear.
   Note that AudBase automatically connects the icons with

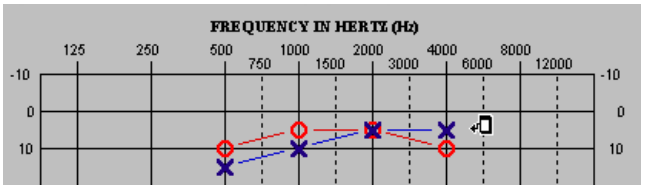
Note on repositioning misplaced icons

You can reposition pure tone icons vertically by clicking on a different hearing level. You can delete an icon by clicking on it again (as long as that icon is highlighted in the palette).

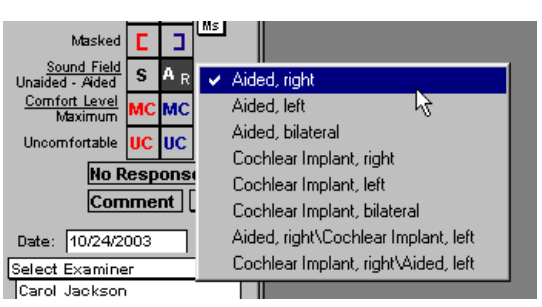
lines. You can show or hide the lines depending on your preferences. (See “Display options” on page 56..)

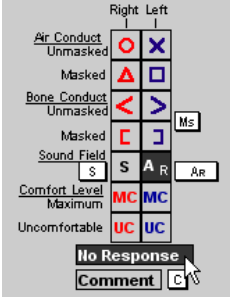


4. Click on the icon for the second test ear, and repeat the process of filling out the graph.



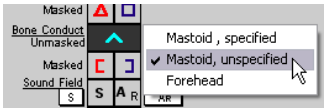
The palette uses special symbols for Sound Field and Comfort Level testing. All unaided soundfield types are available in the pop-up on the left. You can select the type of aid used in the Sound Field from the pop-up list to the right of the palette. The icon changes to reflect the nature of the aid, for instance A_R stands for Aided, right and C_B stands for Cochlear Implant, bilateral. All combinations of Aided, Hybrid and Cochlear Implant are available in the pop-up on the right. Clicking the No Response box under the palette and selecting the appropriate icon records a value using the conventional No Response symbols. Comments can also be attached to an icon (see below).





Bone conduction tests

The default icons for unmasked bone conduction tests allow you to specify both right and left side mastoid testing. You can select specified mastoid testing, unspecified mastoid testing, or forehead testing from the pop-up list to the right of the palette. The icon changes to reflect the nature of the test.

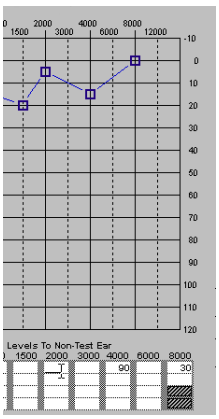


Note: If you specify right and left values and later decide to use an unspecified value for a given frequency, the original right and left values are automatically erased to protect against invalid data.

Masking values

Once you have filled in a masked value on the audiogram, you can record effective masking values for the non-test ear using the table below the graph on the PTA tab. The table is divided into columns that roughly line up with the frequency lines on the graph, and has rows for air and bone conduction testing.

To enter masking values



1. On the PTA tab of the Audiogram form, fill in the graph with the appropriate icons.
2. In the masking values table below, find the field that corresponds to the masked test result on the graph. The cursor changes to an I-bar when it passes over a box that corresponds with a valid frequency, test type, and ear.
3. Enter a value in the field.
   If you enter an invalid number and then leave the cell, an alert appears reminding you that values must be within the valid range.

Note: Masking value details are automatically converted to a detailed text format which is displayed on the Notes tab of the form. The display field allows you to copy and paste information into your Notes field so you can use it later as search terms in the database (see "Searching" on page 70.).

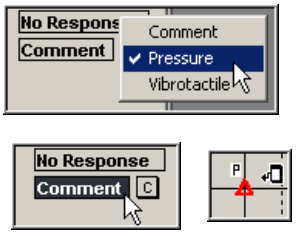
An example entry is shown below, indicating a Pure Tone Masking Value of 30 dB for the right ear at 500 Hertz:

> ***[Pure Tone Masking Values]: PureTone_AMR_00500 30 dB; or***
>
> ***[Pure Tone Masking Values]: PureTone_AMR_SpF03 30 dB;***

"AMR" stands for air masked, right; another example would be "BUL" for bone unmasked, left. The ability to choose different frequency ranges (e.g. for a high frequency audiogram) is reflected in the complete field name: 500 Hertz or Special Frequency number three (SpF03).

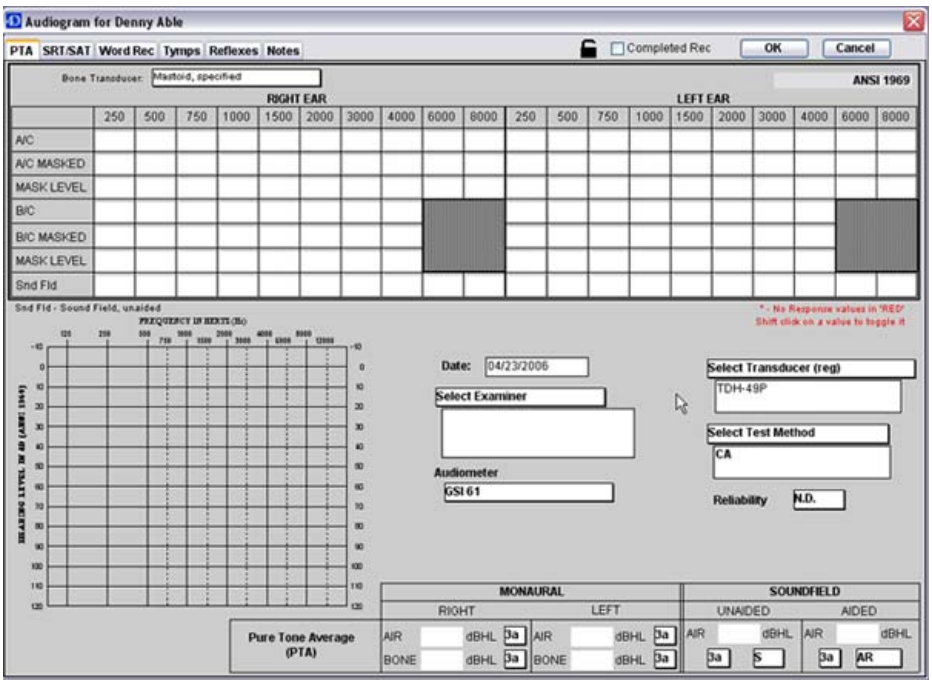
Entering comments

To attach a comment to an icon on the graph, click the Comment box under the palette before placing an icon. The pop-up list next to the box gives you three options. Selecting "Comment" attaches a "C" to the icon, indicating you have included a comment on the Notes tab of the form. Two frequent comments are "Pressure" and "Vibrotactile." These comments are included directly in the pop-up lists and, if selected, the appropriate letter will be attached to the icon.



Tab Entry Form

AudBase allows you to select a tab entry form instead of the graphics form. You can choose the form you want to use for new audiograms in Preferences (see "Audiology (1)" on page 110.).

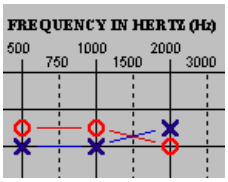


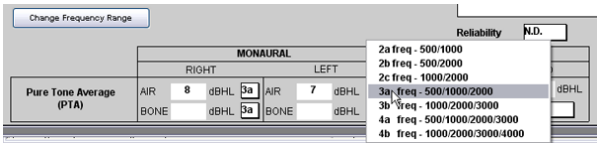
When entering values directly into the tab entry form two modifications can be performed. To convert a threshold to a No Response value tab out of the field and then shift-click on the field. The displayed threshold will change to a red color signifying a No Response threshold. Bone transducer type can be specified for a bone field by selecting from the Bone Transducer pop-up when the entry cursor is in the appropriate field. If an unspecified bone type is chosen, the entered value will be placed in the complementary field for the opposite ear as well.

Two preference items can be specified by the user for the tab entry form (see “Audiology (2)” on page 111.). Round pure tone entries to the nearest 5 dB will round all entry values appropriately. This option should be turned off for entering smaller dB increments. This setting does not affect values downloaded from an audiometer. Display NR values as ‘NR’ text will display NR values appropriately on locked forms and printed tabular forms.

Pure Tone Average

AudBase automatically calculates pure tone averages (PTAs) for monaural and sound field testing, displaying them at the bottom of the PTA tab. The default averages are based on three frequencies: 500, 1000, and 2000 Hertz. AudBase allows you to request calculations for two-frequency averages. This can be valuable, for example, if you wish to record a PTA for a subject whose test includes No Response values. To use a two-frequency calculation, click in the dBHL box next to the appropriate ear and test type, and choose your frequencies from the pop-up list. If you choose to record both masked and unmasked values, the program preferentially uses the masked values in calculating a PTA.





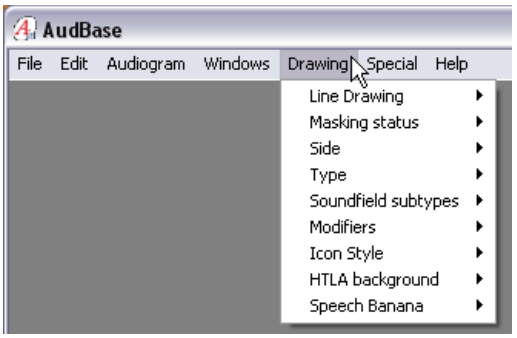
Setting Frequency Range

The default Audiogram form covers the standard frequency range from 125 Hz to 12000 Hz. If your audiometer is capable of testing special frequencies (8000 Hz to 20000 Hz for example), you can select the frequencies for entering your special frequency audiogram by clicking Frequency Range. The entry form will change appropriately.

The special frequency data values are stored in the pure tone air conduction fields. Because the special frequency values differ between audiometers, the data fields used to store the special frequency data are identified generically (for example, PureTone_AUR_SpF01 is the first special frequency field in the audiogram). The corresponding key to the frequency values is automatically specified when you select the Frequency Range button and stored in the SpecFrequencyAudiogram_FieldHz field.

Display options

You have broad control over the display of each audiogram, both on-screen and in print. For example, you can choose to show all or part of the test results, vary icon style, and include an HTLA confidence level for comparisons or the Speech Banana.



The following is a quick summary of the various options in the Drawing menu that appears on your screen with an audiogram. You can also set default display options using the Preferences form (see “Audiology (1)” on page 110.).

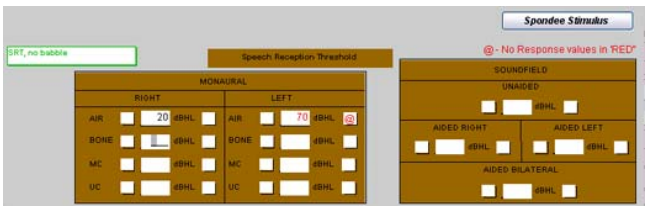
- **Line Drawing:** Show or hide lines connecting air, bone, or sound field test values by clicking the appropriate menu item. Clicking the “Include No Response” or “Include P/V comments” will connect the corresponding icons, which normally interrupt the line.
- **Masking Status:** Show or hide masked or unmasked values. Clicking “Masked Preferred” suppresses unmasked values when a masked value is available.
- **Side, Type, Soundfield Subtypes and Modifiers:** Show or hide the various items depending on your selection. Display of soundfield subtypes can be controlled individually under the Soundfield Subtypes submenu or they can be controlled as a group under the Type submenu (SndFld, unaided and SndFld, aided).
- **Icon Style:** Allows you to choose thin or thick icons, for on-screen appearance and for printing.
- **HTLA background:** Gives you 10 options for display of HTLA confidence limits as a background to your subject entries on the graph. This option only works if you have entered a gender and age for the subject in the Subject Info form.
- **Speech Banana:** Show or hide the Speech Banana on the audiograms.

Note: Drawing options are saved with the audiogram. If you want to print or display an audiogram record with options different from the saved ones, you can change the settings temporarily while the record remains locked. The changes will not be saved unless the record is unlocked and then resaved.

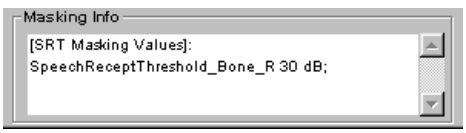
SRT/SAT tests

Speech reception and awareness thresholds can be entered on the SRT/SAT tab of the Audiogram form. You can either enter data directly in 1-dBHL increments or use a pop-up list to enter data in 5-dBHL increments depending on how you set your preferences (see “Audiology (1)” on page 110.). Each column within the threshold tables contains a field for dBHL values and a field for masking values.

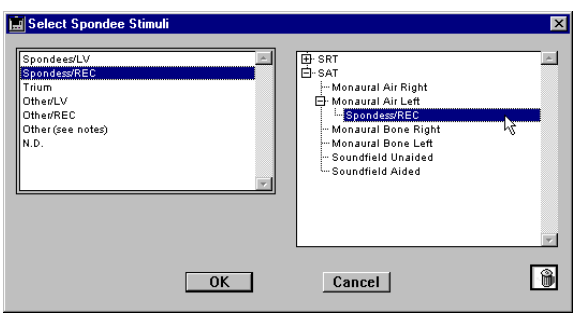
The entry control pop-up on the left side of the form allows you to select entry fields for “SRT, no babble”, “SRT, babble” and “SAT”. To enter dBHL values, click in the appropriate box and enter the dBHL value. If you enter an invalid number in the dBHL field and then leave the cell, an alert appears reminding you that values must be within the valid range. Enter CNT for “could not test”. If the condition was not done, leave the dBHL field blank.



To enter masking values, click in the small white box to the left of the dBHL value field and fill in the dialog that appears. An asterisk (*) appears in the box to indicate the presence of a masked value. Note that detailed information on the masking values is automatically displayed on the Notes tab of the form, in a text field that allows you to copy and paste information into the Notes field. The Notes field allows you to record and store text that you can use later as search terms in the database (see “Searching” on page 70.).



You can enter stimulus information by clicking on the Spondee Stimulus button on the bottom of the form. The Select Spondee Stimuli form appears.

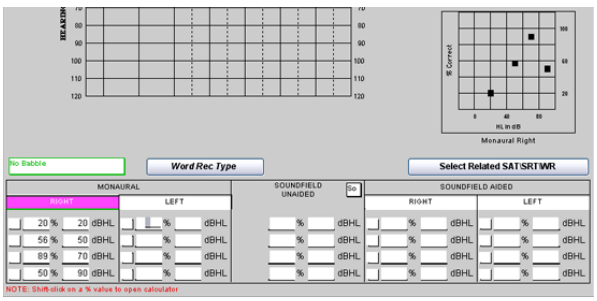


Click on the tested stimuli in the box on the left, drag it into the box on the right, and drop it in the appropriate test condition. If you drop it on a parent item such as “SRT” the tested stimuli is added to all the dependent tests. If you drop the stimuli into the wrong condition, drag the stimuli to the trash icon or to the appropriate condition. LV stands for “live” and REC stands for “recorded.” (To modify the stimulus list, see “Modifying lists” on page 109..) Click on OK.

Note: You can specify default settings for the Select Spondee Stimuli form (see “Audiology (2)” on page 111.). You can override default settings by clicking on any default stimulus conditions that appear in the box on the right and dragging them to the trash icon.

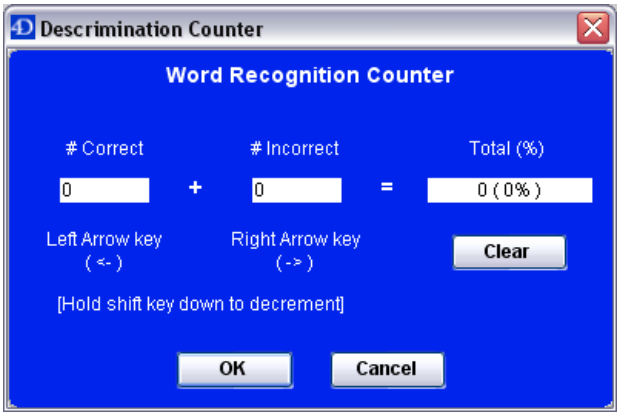
The Spondee Stimuli button appears in italics to indicate that there are stimuli entered. If you specify default settings for the Select Spondee Stimuli form, the button will appear in italics whenever you open a new Audiogram.

Word Recognition tests



The Word Rec tab of the Audiogram form records and graphs Word Recognition testing data as you enter it. Percent correct values can be typed into the fields for monaural, binaural (aided and unaided), and sound field tests (aided and unaided). You can switch between binaural under phones (Bi), soundfield binaural aided (S), and soundfield unaided (S) tests by clicking on the pop-up list in the center column of the table. The entry control pop-up on the left side of the form allows you to select entry fields for “No babble” and “Babble”.

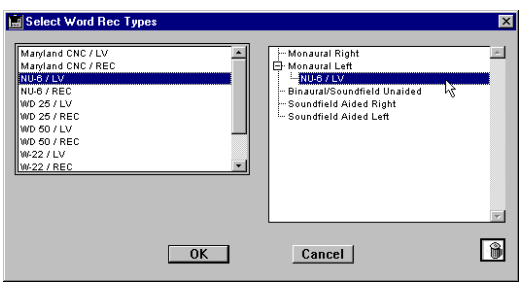
If you enter an invalid number in either the percent correct field or the dBHL field and then leave the cell, an alert appears reminding you that values must be within the valid range. Enter CNT for “could not test”. If the condition was not done, leave the dBHL field blank. A percent correct calculator can be opened by shift-clicking on a percentage field which the cursor is not currently in. The calculated value will be entered into the field when the calculator is closed.



As you enter each value, AudBase adds points to the graph on the right side of the form, allowing the clinician to quickly discern such things as rollover phenomenon. You can control which graph appears by clicking on the header above each value field. For instance, the small graph shown above is the monaural, right graph. These graphs can be printed later (See “Printing audiograms” on page 66.).

To enter masking values, click in the small white box to the left of the percentage field and fill in the dialog that appears. An asterisk (*) appears in the box to indicate the presence of a masked value. Note that masking values details are automatically displayed on the Notes tab of the form in a text field that allows you to copy and paste information into the Notes field. The Notes field allows you to record and store text that you can use later as search terms in the database (see “Searching” on page 70.).

You can enter test type information by clicking on Word Rec Type above the table. The Select Word Rec Types form appears.



Click on the Word Recognition Type in the box on the left, drag it into the box on the right, and drop it in the appropriate test condition. If you drop it on a parent item such as “SRT” the tested stimuli is added to all the dependent tests. If you drop the stimuli into the wrong condition, drag the stimuli to the trash icon or to the appropriate condition. LV stands for “live” and REC stands for “recorded.” (To modify the Word Recognition Type list, see “Modifying lists” on page 109..) Click on OK.

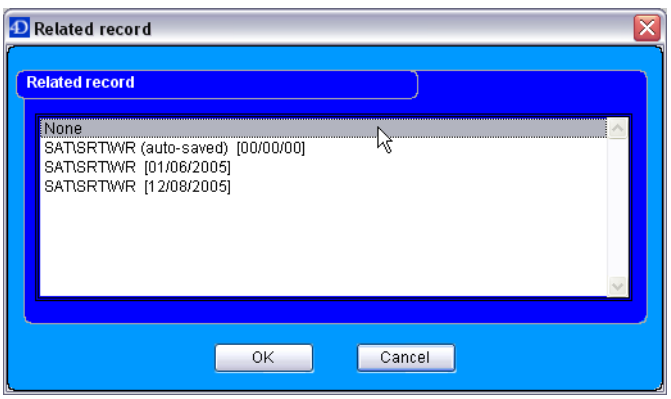
Note: You can specify default settings for the Select Word Rec Types form (see “Audiology (2)” on page 111.). You can override default settings by clicking on any default Word Recognition Type conditions that appear in the box on the right and dragging them to the trash icon.

The Word Rec Type button appears in italics to indicate that there is an associated record. If you specify default settings for the Word Rec Types form, the button will appear in italics whenever you open a new Audiogram.

If a related SAT\SRT\Word Recognition record has been previously created, you can connect that tympanogram to your audiogram record.

To select a related SAT\SRT\Word Recognition record

1. Click on the Select Related SAT\SRT\Word Recognition button to choose between available records. The list of tympanograms associated with the subject appears as a Related record.



2. Select the tympanogram related to this audiogram and click on OK. If there are no tympanograms listed, or the subject's most recent one is missing, you need to update the appropriate records for this subject. (See “Tympanogram” on page 61.).

The tympanogram information appears. AudBase automatically enters the Tympanogram Date.

Note: An audiogram record may only be related to a single SAT\SRT\Word Recognition record. However, a SAT\SRT\Word Recognition record may be related (using the SAT\SRT\WR tab on the Subject Studies form) to multiple audiogram records.

Tympanogram

The Tymps tab lets you display and modify tympanograms. Tympanogram waveforms can be downloaded directly into the computer using a serial port device (see “Working with an audiometer or tympanometer” on page 64.). You can also type in key tympanogram values into the Tympanometry table. However, in this case, there are not enough data points to generate a graph.

Note: If you use the serial port to download graph data and the graph type is not currently being displayed you will receive a warning indicating that the computer has received the data but does not have a way to display it.

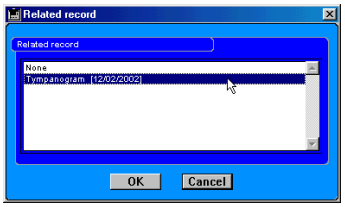
Use the pop-up lists below each graph to select the desired tympanometry test and select which ear to view (Right, Left, or Both). The tympanometry test displayed by default for new records can be specified as a user preference (see “Audiology (2)” on page 111.). If both ears are displayed on a single graph, the left ear is shown in blue and the right ear is shown in red. Additionally, if needed, the axis will automatically re-scale to fit both ears on the same graph.AudBase stores the data for all of the tympanometry tests entered on this form in a single record.

If a tympanometer is connected for download, the Tympanometry table will be automatically completed by AudBase once the graph is displayed. You may override the values in the table. However, overriding the values in the table will permanently change the data set. In other words, you will lose some of the original downloaded data as it is replaced by your manual values.

Note: Clicking on Erase Displayed Tymp will erase the graph and the downloaded data that created that graph. Users who have privileges to unlock and modify saved records can use the Erase Displayed Tymp function after a record has been saved.

If a related tympanogram record has been previously created, you can connect that tympanogram to your audiogram record.

To select a related tympanogram



1. Click on the Select Related Tympanogram button to choose between available records.
   The list of tympanograms associated with the subject appears as a Related record.
2. Select the tympanogram related to this audiogram and click on OK. If there are no tympanograms listed, or the subject's most recent one is missing, you need to update the appropriate records for this subject. (See “Tympanogram” on page 61.).

The tympanogram information appears. AudBase automatically enters the Tympanogram Date.

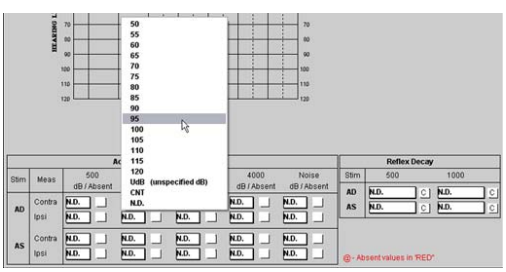
Note: An audiogram record may only be related to a single tympanogram record. However, a tympanogram record may be related (using the Tympanogram tab on the Subject Studies form) to multiple audiogram records.

Reflex / Reflex Decay tests

The Reflexes tab of the Audiogram form lets you add further values to the graph based on acoustic reflex testing. Rather than using the palette to place icons, you enter values in the Acoustic Reflexes table below the graph, which then appear on the graph. The pure tone testing results remain on the graph to allow quick comparison.

The table allows you to enter dB values for 500, 1000, 2000 and 4000 Hertz tones as well as noise for AD and AS ear stimulus both contralateral and ipsilateral ear measurement. All entry is by pop-up list, and you can specify No Response values.

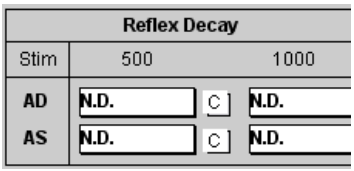
To record reflex test results



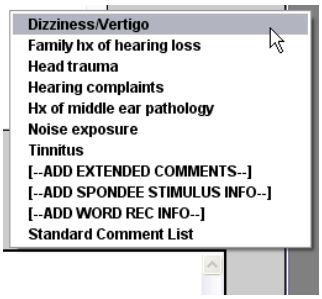
1. Locate the Acoustic Reflexes table on the bottom of the Reflexes tab of the Audiogram form.
2. Select the dB value from the pop-up list that corresponds to the appropriate measurement value field.
   When appropriate, icons appear on the graph corresponding to the value you have entered. Selectable values inclue CNT “Could Not Test” and UdB “Unspecified”. The UdB value is available to maintain compatibility with tympanometers which screen for reflexes, but do not specify the dB level.

3. Indicate No Response values by first entering the highest test value in the dB field and then clicking in the Absent field to its right. The "@" symbol appears in the field, and a downward arrow is attached to the icon on the graph.

4. Enter reflex decay results by selecting from the pop-up lists in the corresponding table. You can also select C(ontralateral) and I(psilateral) stimuli.



Notes

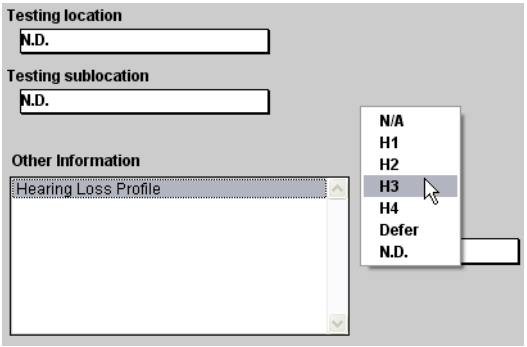


The Notes field on the Notes tab allows you to record and store text that you can use later as search terms in the database (see "Searching" on page 70.) and for printing on the appropriate forms. You can either type directly in the field or enter comments from the pop-up Standard Comment List. The pop-up list includes standard comments and special text items designated by brackets. The standard comments can be up to 255 characters long and the list of standard comments can be modified (see "Modifying lists" on page 109.). Special text items include the spondee stimulus and word recognition test information as well as a extended comments which can be up to 32,000 characters in length. Extended comments can be used to create a history and physical template with blanks to be filled in. Extended comments are modified in preferences (see "Audiology (Admin)" on page 112.).

The Masking Info and Bone Transducer Info fields contain text that has been automatically entered by AudBase. These fields are not recorded in a database field. However, you can copy and paste any information from them into the Notes field so that it can be used as a search term.

Other Note page items

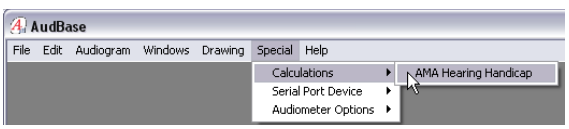
For audiology practices with multiple facilities (locations) and/or multiple audiology booths (sublocations) these can be selected from the appropriate pop-up lists and printed on the forms (see Customizing Print Form Footers in “Audiology (Admin)” on page 112.). The individual lists can be modified (see “Modifying lists” on page 109.).



The Other Information list is a modifiable list which allows individual items to have different pop-up list values associated with them (see “Modifying lists” on page 109.). An item in the list can be dragged-and-dropped onto the Notes field where it will be added along with its associated pop-up value for printing purposes.

AMA Handicap

AMA Handicap can be calculated using the Special > Calculations > AMA Handicap menu item. The result will be placed in the Notes field on the Audiogram Notes tab, which is saved in the Notes data field.



Working with an audiometer or tympanometer

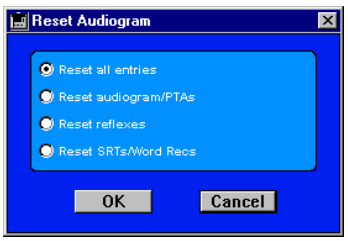
Users with a special cable can connect an audiometer to a serial port on their computer and download test values directly into AudBase. Three menu items pertain to this function:

- **File > Serial Comm Protocol:** Opens a Serial Port Settings form where you can set port, protocol, baud rate, and other parameters. You can also set up default values for these settings (see “Audiology (3)” on page 111.).
- **Audiogram > Open Serial Port/Close Serial Port:** This menu item opens and closes the serial port for connection to the audiometer or other instruments. You can also set up the serial port to automatically open (see “Audiology (3)” on page 111.).
- **Audiogram > Display Serial Port Info:** This menu item opens a floating window which displays the serial port data stream. This information can be useful for troubleshooting serial port connections.

- **Special > Serial Port Device:** This item allows you to choose the type of serial device you will be using. You can also set up default values for these settings (see “Audiology (3)” on page 111.).
- **Special > Audiometer Options:** This menu item controls how the data being downloaded can be reinterpreted on the fly. (1) When Sub(stitute) selected soundfield types or Sub(stitute) bone types are selected generic soundfield or bone field values being downloaded from the audiometer are converted to the types selected in the icon palate. Please note that all soundfield values being downloaded at the same time will be interpreted the same way. Some audiometers can download ‘long’ records which include all the soundfield values collected during an audiogram. If Soundfield Left and Right values are sent together they will all be interpreted the same way and the order they are sent in will affect the values which are saved (see the next menu item) (2) Multi-input: clear all pure tones erases all previously entered pure tone values before interpreting a ‘long’ data record. In contrast to ‘short’ records which typically download single pure tone values from an audiometer, ‘long’ data records sent by some audiometers include all the pure tone values stored by the audiometer. If this menu item is NOT selected any N.D. values sent by the audiometer will not overwrite previously saved values. An example of how to use this feature would be when collecting all combinations of a subject with a hearing aid and a cochlear implant with each turned on or off (AR, CL, ARCL). Each test condition could be run for all the frequencies then downloaded using the ‘long’ record form and choosing the Sub(stitute) selected soundfield types menu item. Each would be added in turn to the accumulating audiometric data. (3) If Soundfield SAT\SRT\WR Entry is selected generic speech values being downloaded from the audiometer are converted to the type currently being displayed on the form. (4) Fill next open WR position feeds speech values into the next open word recognition position.

Resetting audiograms

You can erase all or part of the values entered on the Audiogram form using the Audiogram > Reset Audiogram menu item. A dialog appears giving you four choices:



- Reset all entries
- Reset audiogram/PTAs
- Reset reflexes
- Reset SRTs/Word Recs

Users who have privileges to unlock and modify saved records can use the Reset Audiogram function after a record has been saved.

Deleting audiograms

The administrator, or a subadministrator who has been given the privilege, can delete audiogram records using the Audiogram > Delete Audiogram menu item. Other users can only delete an audiogram by clicking Cancel before saving the record.

Change Hearing Level Standard

The administrator can set the default value for new audiogram records using the Preferences form (see “Audiology (Admin)” on page 112.). If the audiogram is unlocked the hearing level standard can be modified for this audiogram by selecting the Audiogram > Change Hearing Level Standard menu item. Other users can only delete an audiogram by clicking Cancel before saving the record.

Display Comparison Audiogram

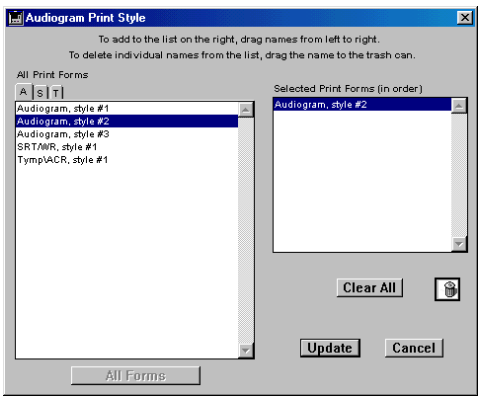
If other audiograms exist for this subject they can be displayed in a floating window by using the Audiogram > Display Comparison Audiogram menu item.

Display Word Lists

Word Listscan be displayed in a floating window by using the Audiogram > Display Word List menu item. Word lists can be added by using the Preferences form (see “Audiology (Admin)” on page 112.).

Printing audiograms

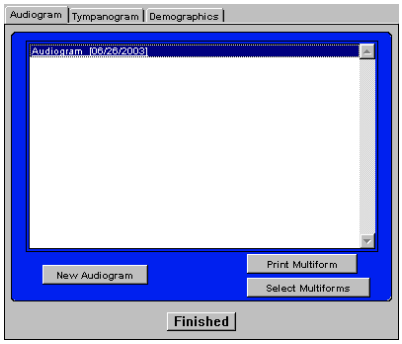
You have several options for printing audiogram results. The printing forms are available by using the File > Audiology Print Forms menu item. The Audiology Print Style form appears.



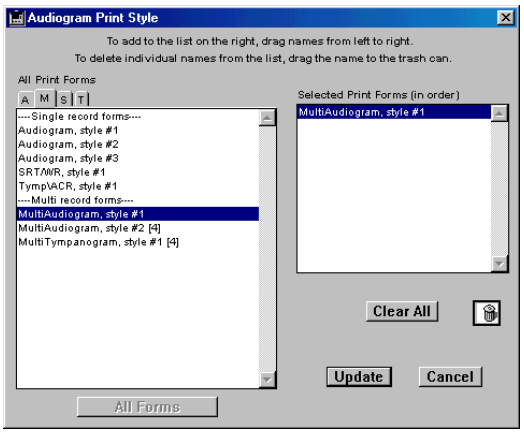
Choose the desired print form from the list in the left box, and drag it to the right box. You may print multiple forms at the same time by dragging the desired forms, in order, into the box on the right. Once you have selected the desired print forms, click Update. To print the selected forms, go to File > Print Audiogram.

Note: You can set default preferences for the print forms. (see“Audiology (3)” on page 111.). You can print the default forms by using the File > Print Audiogram menu item. To override the default settings temporarily, go to File > Audiology Print Forms. Add additional forms by dragging them from the left box into the right box. Delete unwanted forms by dragging them into the trash. Click Update, then go to File > Print Audiogram.

AudBase also generates printouts of multiple audiogram records for a subject, which allows for side-by-side comparison. To generate these printouts, from the Subject Studies form click Print Multiform. Prior to the standard print dialog appearing you will be able to select the audiograms you want in the comparison. If a Related Tympanogram has been selected, the tympanogram record will also be printed as appropriate.



Click on the Select Multiforms button to choose forms. An Audiology Print Style form appears.



Choose the desired print form from the list in the left box, and drag it to the right box. In addition to the special multi-audiogram forms you can select single audiogram forms which will be printed for each selected audiogram. You may print multiple forms at the same time by dragging the desired forms, in order, into the box on the right. Once you have selected the desired print forms, click Update. To print the selected forms, click the Print Multiforms button.

Note: You can set default preferences for the print forms. (see e“Audiology (3)” on page 111.). You can print the default forms by clicking on the Print Multiform button on the Subject Studies form. To override the default settings temporarily, click Select Multiforms on the Subject Studies form. Add additional forms by dragging them from the left box into the right box. Delete unwanted forms by dragging them into the trash. Click Update, then click on Print Multiform.

5 Searching

Many of the most frequently used functions of AudBase begin by searching for subjects, interventions and other information. This chapter will help you understand the basics of searching the database and combining the results in powerful ways.

Searching

Some of the most commonly used features in AudBase begin with a search. Whether you are creating a report, exporting data, building a graph or printing a letter, you begin by searching for such things as subjects, providers or clinical data, and then putting the results together in different ways.

This chapter will show you some of the essentials of searching, using simple examples to help you visualize typical AudBase search methods. After you learn a few basic searching concepts, you'll soon be using this powerful tool to simplify some of your most frequent tasks. At the end of this chapter, we will look at two more complicated types of searches: Sequential and Special Relation. .

AudBase functions that use search
Search for Subjects
Export Data
Graph Data
Report Data
Print Any Document
Print Referral Document
Assign Read/Write Access
Assign Subject Studies Access
Add Subjects to Provider
Add Subjects to Clinical Group
Assign Anonymous Status

Searching in AudBase

A relational database such as AudBase is essentially a collection of tables, divided into records (rows) and fields (columns). Each field has a unique name and stores a particular type of data such as text or numbers.

Tables are related by shared fields. For example, the Subject table has fields for the subject ID number, first and last name and other demographic information. The Audiogram table has fields for examiner, audiogram date, etc. It also has a field for the subject ID number. The two tables share, and are related by, the subject ID number field.

The power of a relational database becomes clear when you search for relationships between very different pieces of information (for example, the relationship between hearing loss and age or gender).

You search the database by defining "sets" of records that meet specific search criteria. For example you might search for only those subjects with audiograms which have air conduction thresholds > 40 dB. Or you might look for all audiograms with aided right ears in Caucasian males with Type C tympanograms.

After you create a set, AudBase lets you easily combine sets in different ways to construct a complex search query that would be hard to build otherwise. You can also save commonly used searches, and build sequential searches that perform even a large number of individual searches all with one mouse click.

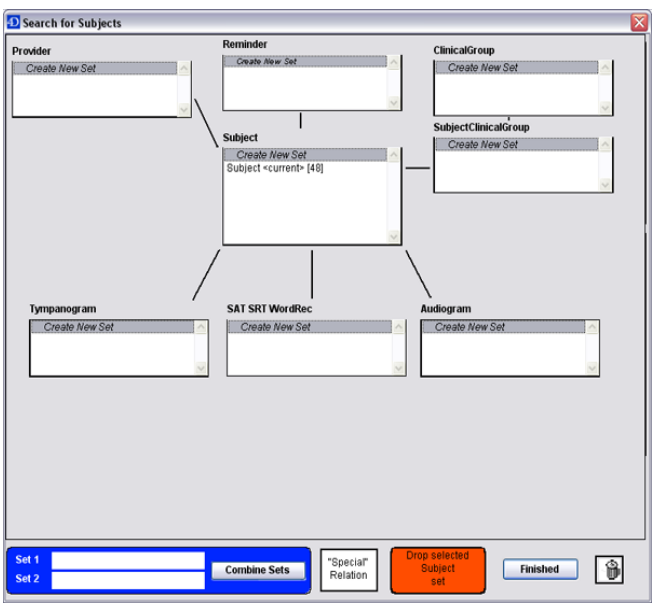
The three main steps in searching are opening the Search form, creating a new set with the New Query form, and then combining sets to achieve the most effective results. We'll look at each of these steps in turn. At the end of this chapter, we will look at two more complicated types of searches: Sequential and Special Relation.

Opening the Search form

The search form is the starting point for building new searches, and also lets you quickly narrow your search results and combine the results of different searches with simple drag-and-drop methods.

To open the Search form

- With the Home Window or the Subject List form open, click Subjects > Search.



Each box on the Search form represents a different table in AudBase. All display the highlighted Create New Set as the first item in their set list. To understand the examples you need to know the following about the tables we will be using.

- Subjects can have multiple audiograms (Audiogram table) and multiple tympanograms (Tympanogram table)
- Tympanograms can be performed independent of audiograms, but an audiogram can be related to a specific tympanogram.

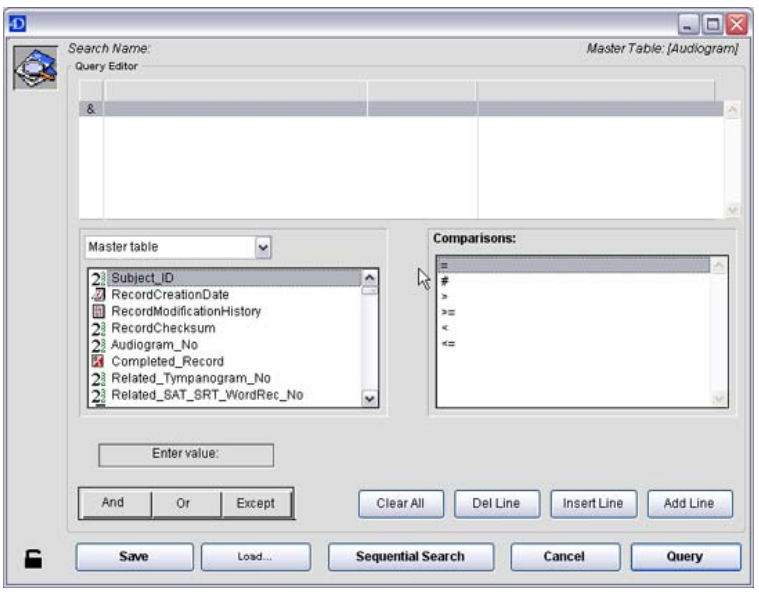
The subject list automatically includes the current set of subjects displayed in the Subject List form. All set names end with the number of records in the set. The new sets you create will also appear in these table windows, and you'll be able to drag them to other tables to find sets of records that are common to both tables. We will explain this more fully later in the chapter.

Using the New Query form

The most common way to create new searches in AudBase is to use the New Query form. This form lets you easily build searches by choosing fields from related tables.

To open the New Query form

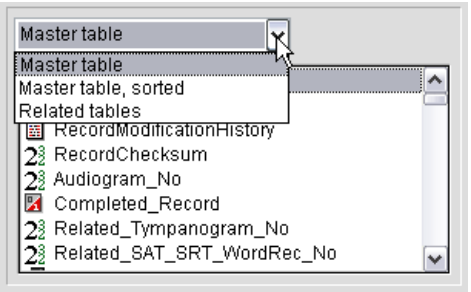
- From any table list, double-click on an existing set name or on the Create New Set item.



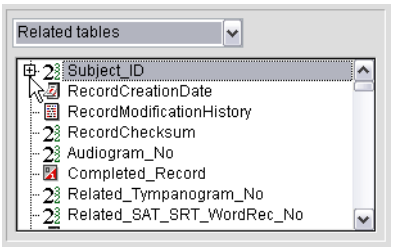
The upper-right of the new query form shows the Master Table, the table you have decided to search. In this example we chose to double-click on a [Audiogram] item. The box at the top of the form is empty; this is where you will build your search.

A box on the left displays the data fields for the table to be searched. The fields are listed in the same order they are found in the table (see “Appendix B: Tables and Fields” on page 196). The icons to the left of each field name represent different data types, for example integer or text. Before you can build a search query, it will help to know more about the data fields list.

A pop-up list above the field list controls the display of the data fields. To begin with, it reads “Master Table,” and shows the fields in their native order (the order in which they appear in the database). You can choose from two other options by clicking on the pop-up list:

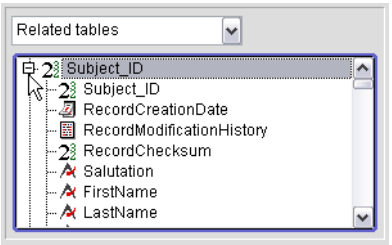


- “Master table, sorted” displays the data fields for the master table in alphabetical order.
- “Related tables” once again displays the master table data fields in their native order, with the addition of nested sublists denoting relationships with related tables.

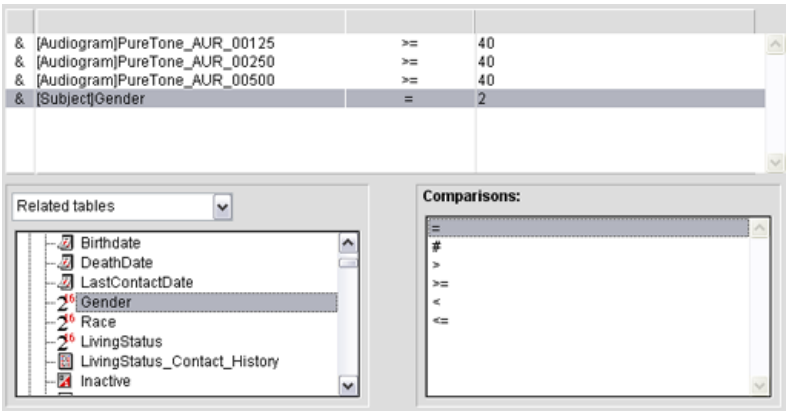


When you expand an attached sublist by clicking the plus sign or the arrow, a list of fields from any related table appear.

The image below shows a New Query of the Audiogram table. The data fields are listed using the “Related tables” option. If you expand the Subject_ID field, a sublist opens displaying the data fields in the Subject table (the related table).



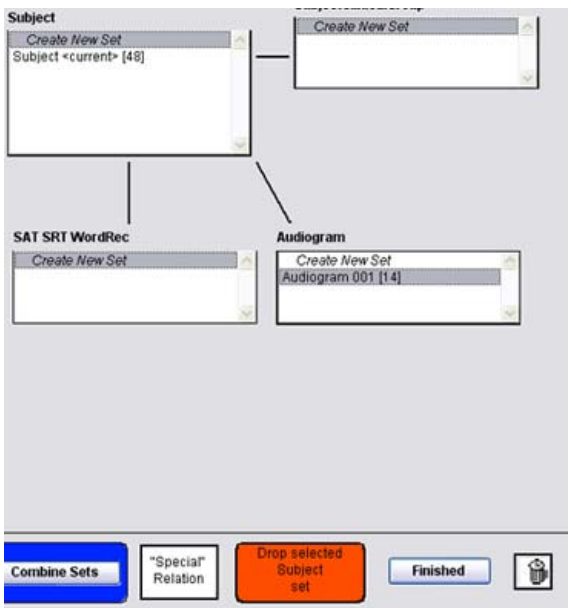
By including related table data fields, you can build a search query for the master table that includes information from the related tables. As in the example query above, you could build a search of the Audiogram table to find all male subjects (Gender=2) with right ear air thresholds greter than or equal to 40 dB at 125 Hz, 250 Hz and 500 Hz. The following steps will show you how to build a search query line..



To construct a search query line

1. With the New Query form open, click on a data field.
   The field appears in the left side of the query box.
2. Select a comparison operator, such as “is equal to,” from the right-hand box with a single click.
   The operator appears next to the data field.
3. Click in the value field on the lower half of the form and enter a value.
4. Hit the Tab key (not necessary except to display the value without continuing on).
   The value appears in the query box.
5. Do one of the following:
   - Add another search query line by clicking Add Line.
   - Insert a line anywhere in the query by selecting the line it will appear after and clicking Insert Line.
   - Remove a single line by selecting the line and clicking Del(ete) Line.
   - Completely clear the search query box by clicking Clear All.
6. When you have added all the lines required for your search, click Query to execute your search and return to the Search form.

The resulting set now appears in the list for the table you have just searched. The set shows a chronological number, such as 001, then the number of records in the set, shown in brackets.



In searches that involve more than one query line on the New Query form, each line is evaluated separately and the result is combined with the previous lines depending upon the combining operator selected.

The three operators are AND (&), OR (|), and EXCEPT (#). The AND operator returns all records that meet the criteria in both lines of the query, OR finds records that meet the criteria in one or the other line, and EXCEPT excludes certain records from the set returned in the previous line.

By using comparison operators such as “equal to” or “not equal to” in combination with the combining operators, you can achieve all possible search query combinations. However, the order of your query lines makes an important difference in your search results.

After you build a search query you can save it for future use by selecting the Save button (see “Saving and loading searches” on page 80 and “Executing Sequential Searches” on page 81).

With search queries, order does make a difference

The order of the lines in your New Query search can be critical to getting the results you want. This is because the three combining operators, AND, OR and EXCEPT, work in different ways. Order is especially critical when using the OR operator. Consider the following search:

Line 1: [Patient]LastName contains 'Smith'

Line 2: [Patient]Gender = 1(1 = Female; 2 = Male)

Line 3: [Patient]Birthdate < 12/02/1955

Query line 1 by itself finds 20 records that meet the criteria.

Query line 2 by itself finds 50 records that meet the criteria.

Query line 3 by itself finds 70 records that meet the criteria.

Assume that all 20 of the Smiths are male, 10 of the Smiths were born before 12/02/1955, and 25 of the females were born before 12/02/1955:

Line 1 OR Line 2 AND Line 3

The first comparison (Line 1 OR Line 2) yields 70 records (all 20 Smiths plus all 50 females). Next, that result is compared with Line 3 using AND. This search returns the 25 females, plus the 10 Smiths born before 1955, for a total of 35 records.

Line 1 AND Line 2 OR Line 3

The first comparison (Line 1 AND Line 2) yields no records, because there are no records that meet both criteria (none of the Smiths are female). Next, that zero result is “OR’d” with Line 3. The search returns all of the Line 3 records (all patients born before 1955) because only one OR the other line needs to be true. So this query returns 70 records.

The lesson to remember from this is that an OR at the end of a search can only expand the number of records in the set. This tends to swamp out the careful selection of records that you have achieved using the previous query lines.

Follow these two rules of thumb:

If possible, place all OR’d query lines at the beginning of a search.

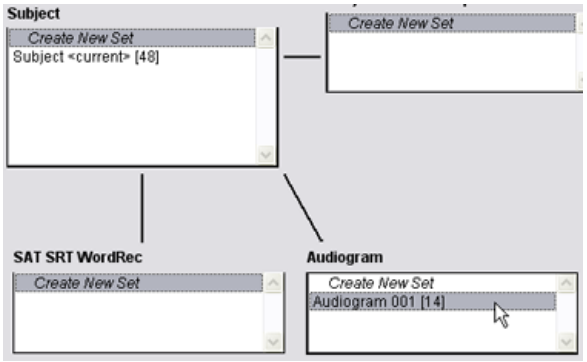
Don’t combine OR statements from more than one field in a search (see “Executing Sequential Searches” on page 81.

For a more on the factors affecting relational database searching, see “Set theory and searching” on page 177. For a complete list of values to search for in each data field, see Appendix B, “Tables and Fields” on page 196 and Appendix C, “Data lists and their stored field values” on page 231.

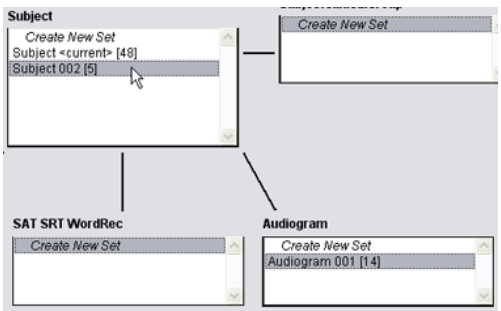
Working with search sets

You can use the search sets you create in a number of different ways:

- Select a set of related records in a second table by dragging-and-dropping the set you created to the second table's set list on the Search form. This creates a new set. For example, you could drag a set from the Audiogram list that showed 14 tumors (Audiogram 001 [14]) to the Subject table list, and it might show 1 subjects (Subject 002 [5]). The number would be smaller because some of the subjects in the resulting set have multiple audiograms. When you drag and drop a set to a new table, you are essentially asking, "Out of all the records from the first table that I've found in my set, how many related records also appear in the second table?"



- Use the set in a further search query by double-clicking on it.
- Dispose of the set by dragging it to the Trash.
- Combine two sets to create a new set by dragging-and-dropping them on the Set 1 and Set 2 slots at the bottom of the Search form. You can only combine sets if they belong to the same table. You can combine in three ways: Union (equivalent to OR), Difference (equivalent to NOT) and Intersection (equivalent to AND). All three possible combinations are illustrated on the Combine Sets dialog. It gives you options for creating a new set with the results or placing the results in Set 1 or Set 2.



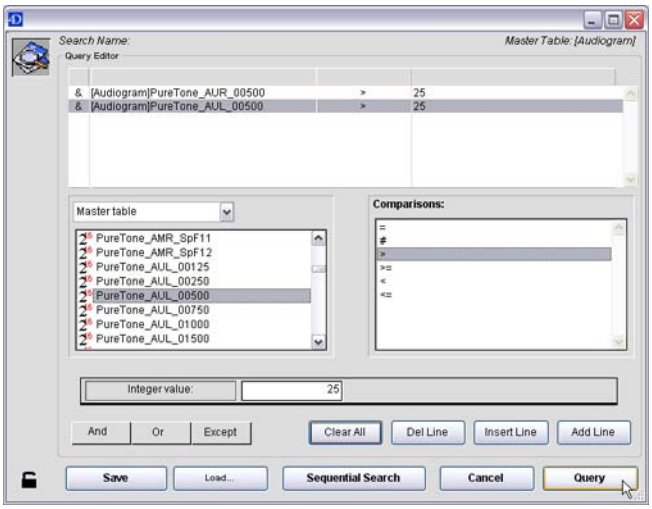
In addition to executing a search query, you can create new sets from the Search form by duplicating an existing set. To duplicate a set, double-click on the set name while holding down the Shift key. Shift-double-clicking on the Create New Set item makes a copy of the "maximum user set" for that table.

The following example shows how you could use the New Query form and the Search form to pick a small subset of subjects from the database.

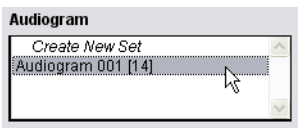
In this case, you want to find the set of subjects with right and left air conduction thresholds greater than 25 dB for 500 Hz (data from the Audiogram table) and who also have a Type C tympanograms (Tympanogram table). NOTE: This example will not require the Type C tympanogram to be directly associated with the audiogram with the elevated air conduction threshold.

To perform the example search

1. Create the Audiogram set. Follow these steps:
   - Open the Search form (Subjects > Search) and find the Audiogram list
   - Double-click on its Create New Set to open the New Query form.
   - Create the query lines

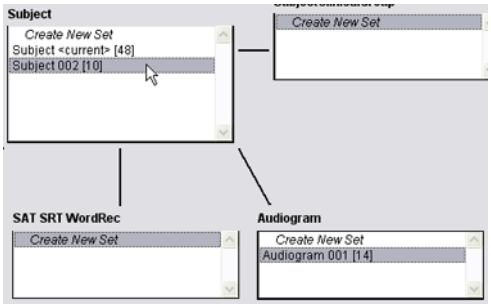


   - Click query.
     The resulting set, Audiogram 001 [14], appears in the Audiogram list. You have located 14 audiograms.

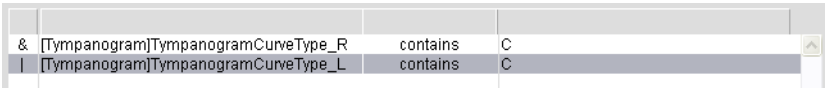


Note: The numbers used in this example, such as [14], are just a guide for you to follow while working with your data since these numbers may not match.

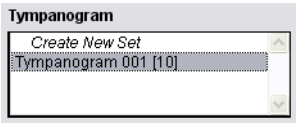
2. Drag this set to the Subject list.
   A new set appears, Subject 002 [10]. You have now found the 10 subject records related to these audiograms.



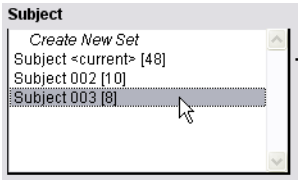
3. Now create the Tympanogram set. Follow these steps:
   - Double-click on its Create New Set to open the New Query form.
   - Create the query lines looking for Type C curves for either ear



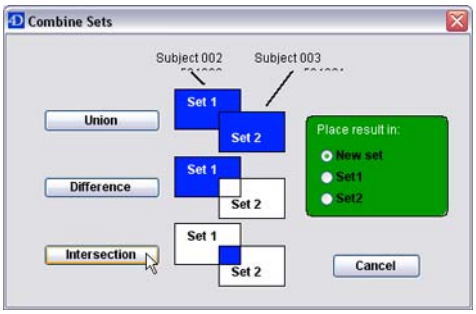
   - Click query.
     The resulting set, Tympanogram 001 [10], appears in the Tympanogram list. You have located 10 tympanograms.<



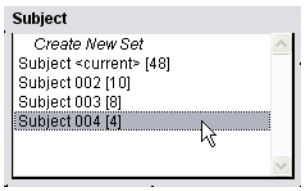
4. Drag this set to the Subject list.
   A new set appears, Subject 003 [8]. You have now found the 8 subject records related to these tympanograms.



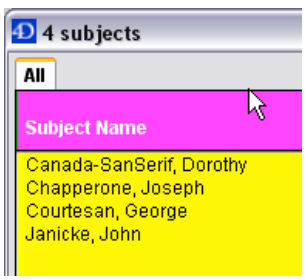
5. Now combine the two sets with an intersection.



A new set appears, Subject 004 [4]. You have now found the 4 subject records with air thresholds greater than 25 and a Type C tympanogram.



6. Drag this set to the orange Drop Selected Subject Set box on the bottom of the Search form.
   The Subject List form displays the names of the 4 subjects who meet your search criteria.



By using the Search form and New Query form, you can perform much more specific and complex searches in AudBase. It is useful to refer to “Appendix B: Tables and Fields” on page 196 and “Appendix C: Data lists and their data field values” on page 231 to show you the possible values to use in defining the most effective searches.

Note that depending on the menu item you use to open the Search form, the label for the result box at the bottom of the Search form will change (see Table 4.1 below):

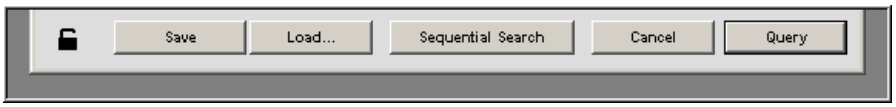
Table 4.1: Search-related functions, menu commands and results box titles

Function	Menu command	Results box title
Search for Subjects	Subjects > Search	Drop selected subject set
Export Data	Reports > Export Data	Drop Export Set
Graph Data	Reports > Graph Data	Drop Graph Set
Report Data	Reports > Report Data	Drop Report Set
Print Any Document	Reports > Print Any Document	Drop Print Set
Print Referral Document	Reports > Print Referral Document	Drop selected subject set

Saving and loading searches

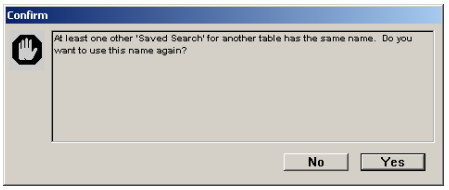
A complex search query can consist of many lines that can be time-consuming to reconstruct. AudBase allows you to save search queries and reuse them with just a few mouse clicks.

Building a saved search is the same as creating a search set. Both use the New Query form. The difference is that after you have defined your search criteria, you save the search and it becomes part of a database record that you can access easily. In addition, you can save the same search to a file on your computer, and you or another user can then reload the saved search into another database (see “Search/SeqSearch-Checklist” on page 128).



To save a search to a database record

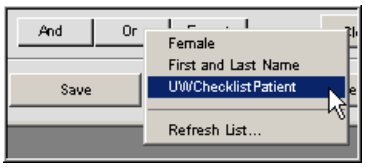
1. Enter the criteria for the search you are building on the New Query form.
2. Click Save.
3. When the dialog box appears, enter a name for your Saved Search.



If you use the name of an existing Saved Search within the same table, you will be asked if you want to replace the older version of that Saved Search. If you use the name of an existing Saved Search within a different table, you will be asked if you want to use this name again. A Saved Searches for the same table must have a unique name but a Saved Search for a different table can use the same name again.

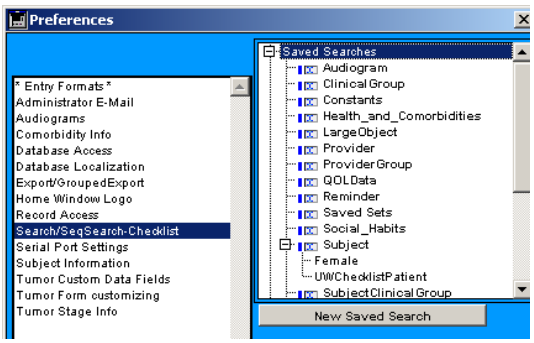
Once you save a search, you can re-load it from the New Query form.

To load a saved search from a database record



1. On the New Query form, click Load to display the available Saved Searches for the current master table.
2. Select the appropriate Saved Search.
   The search criteria appear in the upper box on the New Query form. You can modify a saved search using the data fields, combining operators and values on the form.
3. To execute the search, click Query.

If you believe there is a Saved Search available that is not in your pop-up list, click Refresh List.



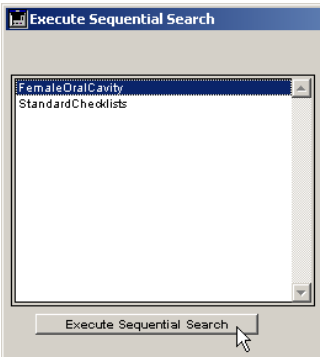
All users can review Saved Searches from the Preferences form by selecting File > Preferences and then selecting Search/SeqSearch-Checklist. The list on the right side of the Preferences form shows all tables in the database, with plus sign (Windows) or arrow (Mac) to denote tables with a saved search. Opening the sublist shows the saved searches. To view a Saved Search, double-click on its list item and a Saved Search form will appear, looking identical to the New Query form but with your search criteria already listed.

If you want to save/load a Saved Search to or from a file on your computer, use the Preferences form (see “Search/SeqSearch-Checklist” on page 128). This section also explains how users with administrator or subadministrator privileges can edit or delete saved searches.

Executing Sequential Searches

A Sequential Search is a series of saved searches executed in a predefined order. The results of the individual Saved Searches are then intersected to create a final result set. This feature can be very useful. For example, it may be more convenient and flexible to group four Saved Searches with 10 search query lines each in a Sequential Search than to create one large, inflexible Saved Search with 40 search query lines. Sequential Searches can also be useful in creating a complex search requiring the use of the OR (|) combining operator for more than one data field (see “With search queries, order does make a difference” on page 75).

To execute a Sequential Search



1. Starting from the Search form, double-click on a search set or the Create New Set item to open the New Query form.

   Note: You should select Create New Set from the table you wish to search. You can only perform a sequential search on one table at a time.

2. Click Sequential Search and the Execute Sequential Search form opens with a list of available Sequential Searches on the left.
3. Select a sequential search from the list on the left.
   You can review the individual searches by double-clicking on them in the list on the right.
4. Click Execute Sequential Search.
   A new search set is added to the Search form containing the results of your Sequential Search.

For more information, see “Search/SeqSearch-Checklist” on page 128.

Special Relation searches

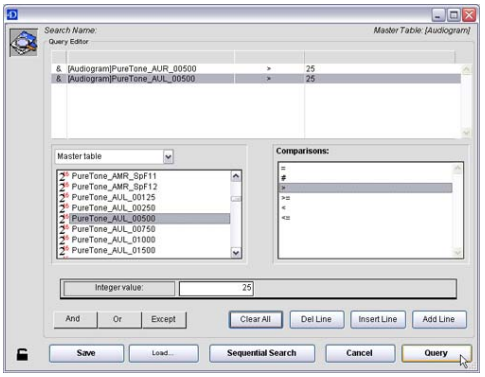
Standard searches allow you to rapidly create data sets that are related by special identifier fields, such as the Subject_ID field. However, in some cases you may wish to perform a search using values from unrelated fields to create a "pseudo-relationship." For example, using the "audiograms with thresholds > 25 dB" set to define the set of "tympanograms which are related to those audiograms". In the previous example used for searching we found a set of subjects with "audiograms with thresholds > 25 dB" and “Type C tympanograms”. We did not specify that the Type C tympanograms belong to the specific audiograms, just that they belong to the subject. It is possible that the subject had a Type B tympanogram on the same day they had their audiogram done and a Type C on another day. By executing a Special Relation query we can make sure the tympnaogram belongs to the audiogram by relating the [Audiogram]Related_Tympanogram_No field.

The Special Relation query form can be accessed by dragging-and-dropping a search set onto the Special Relation box at the bottom of the Search form. This form allows you to perform two types of searches: 1) searches comparing field values from one set of records with field values in all the available records in a table, and 2) searches performing operations on a set of records to select the records with the "minimum" or "maximum" values within subgroups of these records.

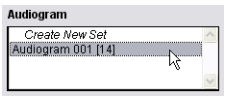
Let's work through the "find the tympanograms for the audiograms with thresholds > 25 dB" example to illustrate the first type of Special Relation query.

To perform a standard comparison query

1. In the Appendices you would find information on the Audiogram table and, subsequently, the Related_Tympnaogram_No field. This field stores a long integer with the following values:
   - 0 = No related tympanogram
   - Tympnaogram_No of the related tympanogram



2. Use the New Query form to create a new search set from the Audiogram table. Your search set is looking for audiograms with air thresholds > 25 dB as for the previou search example.
3. We have a set of 14 audiograms. Now we want to find the tympanograms which are related to these audiograms. To do this we will perform a Special Relation search.

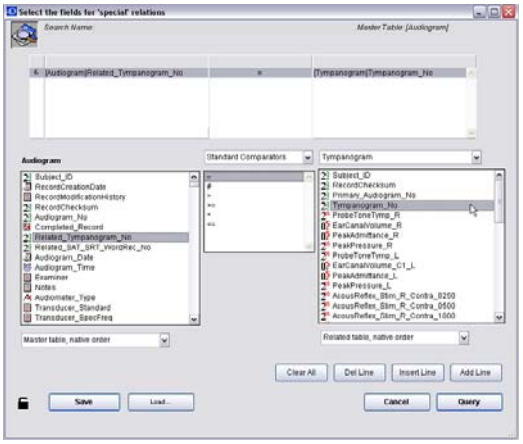


4. Drag-and-drop this set on the Special Relation box at the bottom of the Search form. The Special Relation form appears.

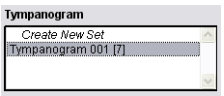
A Note about the Special Relation Form and Appropriate Fields

This form allows you to select a field from a table and relate it to any appropriate field in the database (even if the table that stores the second field is not related to the first table). In order to be appropriate, the two fields must have similar data types (string/text; integer/long integer/real; date/date). Once you have selected a field from the box on the left, AudBase displays a list of appropriate fields in the box on the right. If you are relating a string or text field, you have the option to include records with just a portion of the text or the exact text. (See “Appendices” on page 193..)

5. Use the Special Relation form to create a search set relating the Related_Tympanogram_No values in our set of 14 audiograms to the Tympanogram_No field from the Tympanogram table.



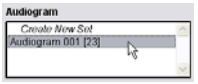
6. This results in a set of 7 tympanograms related to the 14 audiograms. You could now search within this set for Type C tympanograms by double clicking on the set to open the New Query form.



Let's work through another example to illustrate the second type of Special Relation query. In this case, you want to find the first audiogram for all subjects.

To perform a Special Operations query

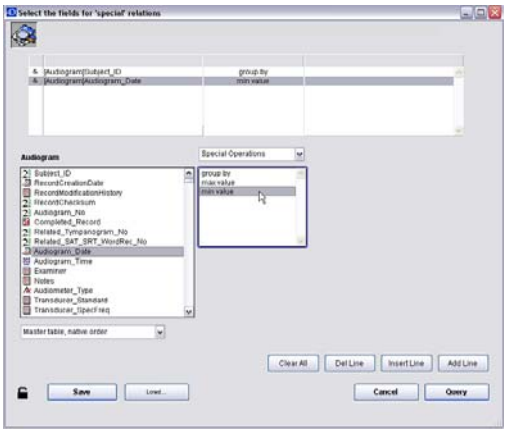
1. In the Appendices you would find information on the Audiogram table and, subsequently, the Audiogram_Date field. For subjects with multiple audiograms, the first audiogram will have the earliest Audiogram_Date.
2. Create a set of all available audiograms by holding down the shift key and double-clicking on the "Create New Set" Item in the Audiogram table list on the Search form.



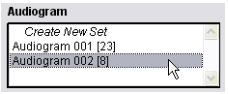
3. Next, drag-and-drop this set on the Special Relation box at the bottom of the Search form.
   The Special Relation form appears.

4. Select the Standard Comparators pop-up and change the selection to Special Operations.
   The Special Operations are applied only to the current set of records in the master table so the related table information disappears.

5. Group the audiogram records by subject by selecting the Subject_ID field and the "group by" operator.
6. Add a second line by selecting the Add Line button on the lower right of the Special Relations form.
7. Select the Audiogram_Date field and the "min value" operator to find the earliest Audiogram_Date for each subject.
8. Click on Query to create a new set with the first audiograms in it.



In this example, we started with 23 audiograms (Audiogram 001 [23]) and found data on 8 of the first audiograms (Audiogram 002 [8]). The difference in numbers is due to follow-up audiograms.



9. Find the related 8 subjects by dragging-and-dropping it on the Subject list on the Search form.
10. View the subjects, by dragging this new set to the Drop Selected Subject Set box at the bottom of the Search form.

You could also identify all the subjects with multiple audiograms by creating two sets of audiograms, the first and the last audiograms, and recombining these sets by placing the "last" audiogram set in Set 1 and the "first" audiogram set in Set 2 then creating a new set from their Difference. Drag the resulting set to the Subjects table.

6 Exporting and Reporting

This chapter describes how to extract information from the database for sharing in clinical trials, or for use in other programs.
It also explains numerous built-in reports and how to use the built-in word processor.

Exporting and Reporting

AudBase includes tools that allow you to sort, examine and export data. You can also create customized reports and form letters from information stored in the database.

AudBase's export feature is designed with clinical trials in mind. You can export the data in a variety of formats. AudBase also includes a number of security features. Whether you are participating in a clinical trial or running one of your own, you can feel confident in the security of the data.

Since many of the export and report features involve searching for data, it may be helpful to review Chapter 4, "Searching."

Exporting data

AudBase allows you to export data to other programs in several different formats. You can export complete records or a subset of data fields. You can also export a secure set of data for use in clinical trials. Exporting data involves searching for records, selecting an export format and then performing the export.

Selecting data for export

In order to export files from AudBase you must search for and select the appropriate data.

To select data for export

1. From the Subject list, select Reports > Export Data to open the Search for Export form.
2. Create a set of records to export (see Chapter 4, "Searching" on page 70).
3. Drag the set of records to Drop Export Set and the Export Data form opens.

Searching for records

Many of the export and report functions start with searching for a set of records. To review the search function, see Chapter 4, "Searching," on page 70.

Note: The following example is for an export consisting of fields from the [Audiogram] table and the [Subject] table.

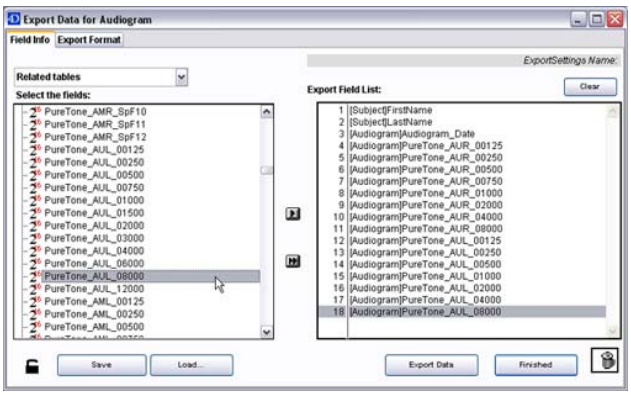
The Export Data form has two tab selections: Field Info and Export Format. Field Info allows you to choose specific fields to include in the export. Export Format allows you to select the format for export.

A pop-up above the field list controls the display of the data fields for export. To begin with, it reads “Master Table,” which is the full set. You can choose from two other options:

- “Master table, sorted” displays the data fields for the master table in alphabetical order.
- “Related tables” once again displays the master table data fields in their native order (the order in which they appear in the database), with the addition of nested sublists denoting relationships with related tables.

You can select data fields for export in the following ways:

- Drag a single field name from Select the Fields on the left to Export Field List on the right.
- Click a single field name from Select the Fields while holding down the Shift key.
- Select a single field name from Select the Fields and click the single arrow.
- Click on the double arrow to move all fields to the Export Field List.



Using the single arrow or shift-clicking on a field will add fields in the order they were selected. When you drag a field from left to right it will be placed above the field it is dropped on. You can change the order of the fields in the list on the right by dragging them to a new position.

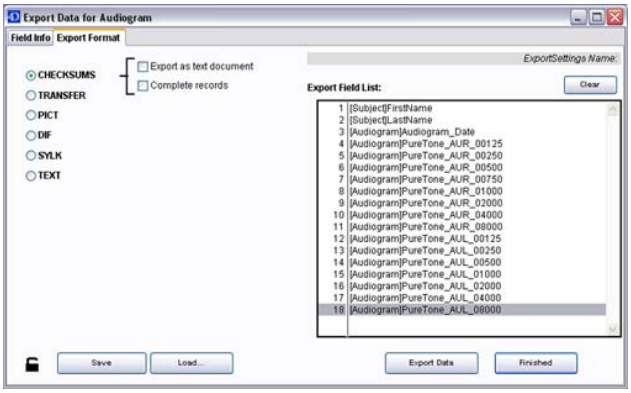
When the list fills the screen, you can add a new field name to the end of the list (no matter where you drop it) by dragging while holding down the Shift key.

To remove fields from the Export Field List, do one of the following:

- Drag a single field to the Trash in the lower right of the form.
- Click on a single field in the Export Field List while holding down the Shift key.
- Click Clear in the upper right to remove all fields in the list.

Selecting format for export

AudBase can export data files in a number of different formats depending on how the data will be used. In the Export Data Form, select the Export Format tab.



Depending on the format you choose, different options will appear. The first two formats are CHECKSUMS and TRANSFER, which are used for sharing data with other participants in a study using AudBase. Selecting the PICT format will export a graphic that you have stored in AudBase. The last three formats, DIF, SYLK, and TEXT, are all text formats, which can be imported by spreadsheets and statistical packages as well as other databases. See Table 5.1 for a list of the type of files AudBase exports.

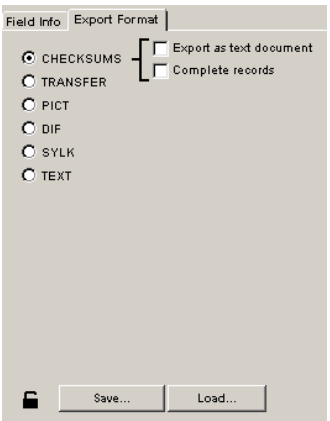
Table 5.1: Export file types and their use

Type	Format	Use
Checksum	AudBase “ot2” file or text	Shares security information for clinical study
TRANSFER	AudBase “ot2” file	Shares data for clinical study
PICT	Graphic	Exports fields containing graphics as PICT files
DIF	Text	Exports as text file for spreadsheets, statistical packages, and databases.
SYLK		
TEXT		

Exporting the Checksum format

The Checksum export type is unique to AudBase and primarily used to report interim data in a clinical trial. Exporting Checksum files allows both the sender and recipient to be sure that the data has not been tampered with or changed without having to share the actual data. For more information on how the Checksum works, see “Checksums” on page 183.

When exporting Checksums, you have two options:



- Export as text document
- Complete records

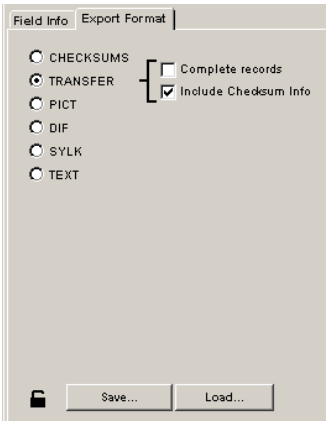
If you choose Export as text document, AudBase generates a tab-delimited text document with the checksum information. This text document can be opened by any word processing or spreadsheet program.

If you do not choose to Export as text document, AudBase generates the Checksum in a TRANSFER document, which can only be interpreted by AudBase. Although a Checksum text file will tell you if any of the data has been changed or tampered with, it does not prevent the omission of an entire record. To ensure a higher level of security for your Checksum data, do not check “Export as text document.”

When you export the Checksum as a TRANSFER document, the recipient can open the document, extract the Checksum and place this information in a text document for analysis. The recipient can also compare the Checksum information with data records they have imported in the past to check for changes. For more information, see “Importing TRANSFER documents” on page 144.

Selecting the Complete records option sends the Checksum stored internally for the entire record in the database, rather than just calculating checksums for the individual fields selected for export. If you are participating in a clinical trial, selecting the Complete records options allows you to send secure information about your files without sending all the data in the files. For more information on using Checksums and TRANSFER documents, see the Clinical Trials manual.

Exporting the TRANSFER format



The TRANSFER format is unique and can only be interpreted by AudBase. When exporting TRANSFER documents, you have two options:

- Complete records
- Include checksum info.

If you check Complete records, AudBase exports all fields in a record and ignores the export field list, with one important exception. Since TRANSFER documents may include data from more than one table, the field list is evaluated for the tables exporting complete records. Therefore, to use the Complete records option at least one field must be specified.

"Complete" records
Since TRANSFER documents may include data from more than one table, the field list is evaluated for the tables exporting complete records. Because of this, to use the Complete records option you must specify at least one field from each table used in the export.

Include Checksum Info is selected by default. This option offers a number of advantages for the person importing these files in a clinical study. First, since the checksum information can be placed in a text file, the person importing the data can check to see if the files are secure, prior to importing the records. Second, the person importing the checksum for an imported record can compare it to the checksum from any pre-existing records. In this way, the data for import can be checked prior to updating or replacing records. If the data is not secure, it will not be imported and therefore, previous secure data will not be lost. Additional import options are available based on this checksum analysis (see "Importing TRANSFER documents" on page 144).For more information on using Checksums and TRANSFER documents, see the Clinical Trials manual.

Exporting the PICT format

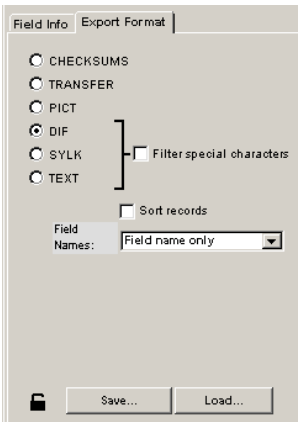
The PICT export format is designed to export picture data fields in PICT files, which can then be opened by a graphics program. Therefore, a PICT file will only be available for export if one was previously imported into AudBase. AudBase does not create graphics, but instead stores them for future use. This feature allows you to use AudBase to keep all information about a subject in one place.

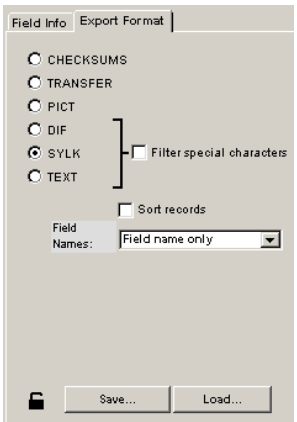
Exporting the DIF, SYLK, and TEXT formats The final three export file types, DIF, SYLK, and TEXT, allow you to export data as text. These file types can be imported by spreadsheets, statistical software and databases. When selecting options for this type of export, it is often helpful to be familiar with the preferred method of import required by the specific software you are exporting the files to.

When exporting text documents, you have three options:

- Filter special characters
- Sort records
- Field name

The DIF, SYLK, and TEXT formats require special characters, known as delimiters, for successful import into spreadsheets, statistical software and databases. Delimiters help to ensure even spacing of data in a table format. The most common delimiters in a TEXT file are tabs and carriage returns, which can be changed by the user. DIF and SYLK use different delimiters, which cannot be changed by the user.



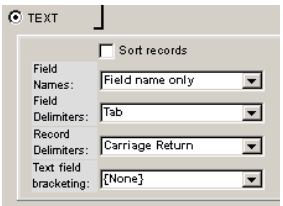


The three text export formats share the following options:

- **Filter special characters:** If a text data field includes delimiters it could interfere with proper importation. Selecting Filter special characters replaces any field delimiters and record delimiters within the text field with identifiers: {FD} and {RD}.
- **Sort Records:** By selecting Sort records you can choose the order of the records prior to export.
- **Field Names:** This pop-up list allows you to choose to include field and/or table names.

If you select the TEXT export type, three additional options appear:.

- Field Delimiters
- Record Delimiters
- TEXT field bracketing



These options give you additional choices for how your data will appear after it is exported.

In some cases you may want to specify a delimiter other than the default. For example, you may want to use the data from AudBase in a spreadsheet that requires that the delimiter be the "#" symbol.

To select your own field or record delimiter

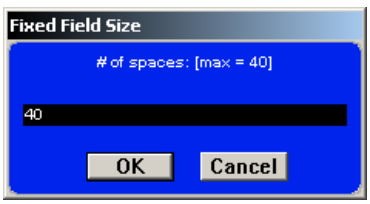
1. Select Other in the pop-up list and a text box appears.
2. Enter the character you wish to use for the field or record delimiter and click OK. On Export, the character you specified will appear in the file.

For text exports there is also a special option in the Field delimiter pop-up list: Fixed field size. Rather than use a field delimiter, some programs prefer to import fields that have a fixed length.

To specify a fixed length for an export field

1. In the Export Field List, hold down the Shift key while double-clicking on the field name.
   A Fixed Field Size dialog appears with the maximum number of spaces allocated for the field.
2. Enter the number of spaces and click OK.

   Note: If you don't specify a length, standard default lengths are used (see "Default field lengths for text exports" on page 176).



Exporting the data

After you have selected the records and defined the format, exporting data is easy.

To export the data

1. Once the fields and format have been selected, select Export Data.
2. In the Save As dialog, browse to a location and enter a name for the exported data file.
3. Click Save.

Saving/loading exports as database records

Often you may need to export the same group of fields on more than one occasion. The Saved Export feature allows you to save the settings for common exports.

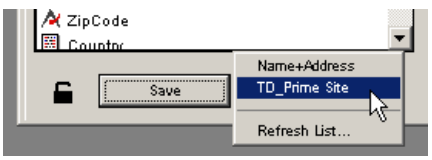
Export settings can be saved in the current database or they can be saved to disk to allow sharing with other AudBase users, specifically ones who may be participating in the same study. Saving an Export will store both the specified export fields and format.

To save an export to a database record

1. Complete the Export Data form by choosing fields and selecting a format.
2. Click Save and a Request dialog appears.
3. Enter a name for this export and click OK.
   If you use the name of an existing Saved Export within the same table, you will be asked if you want to replace the older version of that Saved Export. If you use the name of an existing Saved Export within a different table, you will be asked if you want to use this name again.

If you want to load a Saved Export from a disk, do so through Preferences (see “Export/ Grouped Export” on page 118).

To load an export from a database record



1. On the Export Settings form, click Load. A pop-up list of available Saved Exports appears.
2. Select the appropriate Saved Export.

   Note: Use the Refresh List selection if you believe there is a Saved Export available, but it does not appear in your pop-up list.

> **Saving and loading exports outside AudBase**
>
> If you create an export you would like to share with another AudBase user, you can save that export to a file on your computer. You can also load an export that another user exported. To do so you must first save the export to the database. For more information, see “Saving and loading Saved Exports outside AudBase” on page 120.

Grouped exports

In addition to individual Saved Exports, you can perform Grouped Exports, which allow you to execute a series of Saved Exports. This capability can be used to export a set of records as part of a multi-center clinical study. To create a Grouped Export see “Export/ Grouped Export” on page 118. A Grouped Export must be executed by the administrator or subadministrator (see “Exporting a Grouped Export” on page 146).

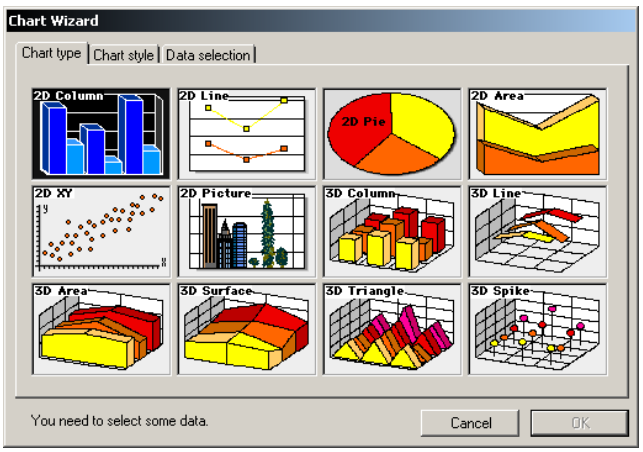
Graphing data

AudBase also allows you to use data to create virtually any form of graph in extremely flexible and sophisticated ways. First you use the search function to select a set of data and then the Chart Wizard guides you through the steps needed to create a graph. For more information see Chapter 4, “Searching” on page 70.

To access the Chart Wizard

1. Select Reports > Graph Data to open the Search form.
2. Search for a set of records to include in the report.
3. Drag the selected set of files to Drop Graph Set and the Chart Wizard form opens.
4. Choose and customize a chart.

Note: For more information about the built-in graphing function, see the 4D Supplemental documentation files, included in Adobe Acrobat format during installation. To find these files, browse to the AudBase program folder and select the Documentation folder.

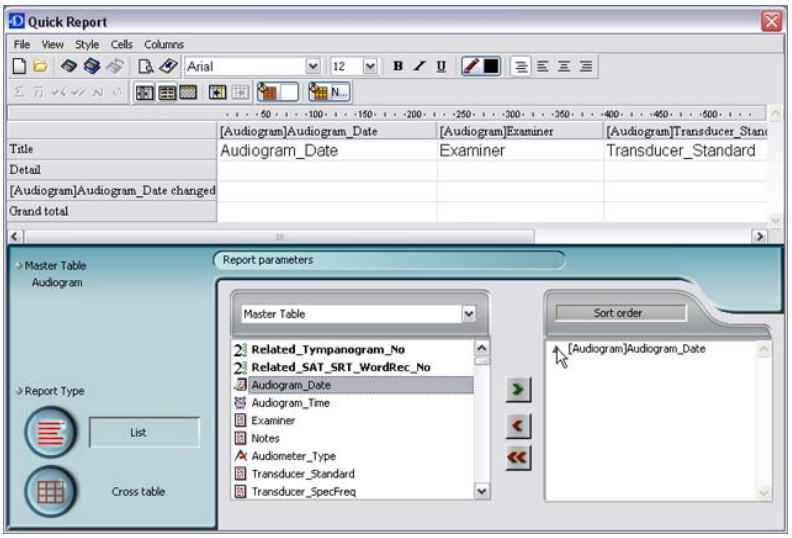


Creating reports

AudBase provides a number of built-in specialty reports and documents for your use including a quick report feature and a word processor. The Quick Report form creates different kinds of customizable, formatted reports that you can export to disk or print out.

To access the Quick Report form

1. Select Reports > Report Data.
   The Search form opens
2. Search for a set of records to include in the report.
3. Drag the selected set of files to Drop Report Set.



You can customize the Quick Report form to display the data and the order in which it appears. You can save a report template and load it from a disk for future use.

Note: For more information about AudBase's the built-in report function, see the 4D Supplemental documentation. These files were included during installation in Adobe Acrobat format. To locate these files, browse to the AudBase program folder on your computer and select the Documentation folder.

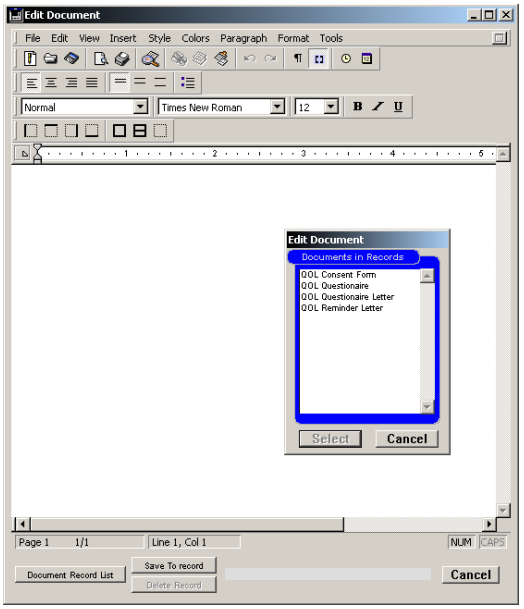
Editing documents

Included in a standalone installation of AudBase is a word processing program known as 4D Write. For client-server versions the functionality requires an additional license. This program allows you to create merged documents using the data stored in AudBase. For example, you can create documents such as subject reminder letters, clinician referrals, or operation reports.

Similar to other word processing programs, 4DWrite can open and save in a variety of formats that can be used by other word processing programs, such as Microsoft Word.

You may use 4D Write to create documents as you are working with AudBase. But you can also merge subject information from the database with standard documents. This feature allows you to create documents for different subjects in batches.

To edit an existing document in the database



1. Select File > Edit Documents.
   The Edit Document form opens.
2. Select the Document Record List pop-up on the bottom left.
   The Document Record List appears.
3. Select a document.
   The document opens.
4. Make changes or additions to the document and Click Save to Record on the bottom left.
   A Request dialog opens.
5. Save the document in one of two ways:
   - If you wish to save the changes to this document permanently, click OK.
   - If you wish to save the changes as a new document, enter a unique name and click OK.

To edit a document from a disk

1. Select File > Open from the 4D Write window.
2. Browse to the document you wish to open and select Open.

To save a document to the database

1. At the bottom of the window, select Save to Record.
   A Request dialog appears.
2. Enter a unique name and select OK.
   The document is saved to the database. It will now appear in the Document Record List.

To save a document to a disk

1. Select File > Save or File >Save As from the 4D Write window.
   A 4D Write Export window appears.
2. Enter a unique name, select a format and select Save.
   The document is saved to the location you specified.

   Note: You can save the document in a variety of formats including 4D Write, RTF, MS Word and others.

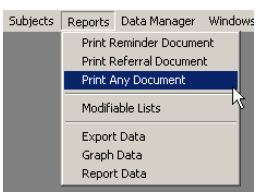
Printing documents

AudBase allows you to print documents created in 4D Write. You can print a single document you have created, such as a memo. You can also merge data within AudBase with a document such as a letter, which is often called a mail merge. Merging data allows you to print the same document for a large number of subjects.

To print a single document from 4D Write that does not have to be merged with database information, simply choose File > Print. If you are printing documents that contain subject information from the database, there are a number of choices. The menu item Reports > Print Any Document has a different context depending on which form it is accessed from. If the Home Window or the Subject List form is displayed, you can print documents that include data from any of the database records. You can load a previously saved document or create a new one.

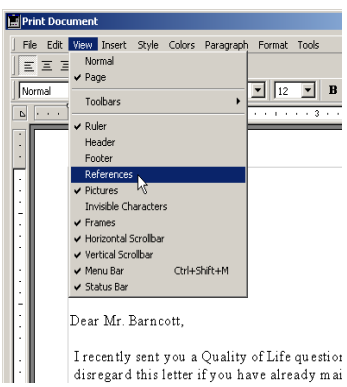
Note: You cannot edit a previously saved file from this window. To do so, see "Editing documents" on page 97.

To print a document that includes data related to any subject



1. From the Home Window or Subject List select Reports > Print Any Document to open the Search form.
2. Search for a set of records to include in the report.

   Note: For more information, see "Merging documents with data fields" on page 174.



3. Drag the selected set of files on Drop Print Set and the Print Document form opens.

   Note: The document will display the actual data in the file. If you wish to see the names of the fields you are exporting select View > References from the 4D Write Menu bar.

4. Select File > Print or File > Print Merge from 4DWrite's menu bar on the form. See the 4DWrite manual for further details.

To print a document about a specific subject

1. From the Subject Studies form select Reports > Print Any Document to open 4D Write.
2. Select Document Record List.
3. Choose a document and click Select.
4. To print the document, Select File > Print or File > Print Merge from 4DWrite's menu bar on the form.

   Note: Any document without embedded data fields, or with data fields from the Subject table only, will print correctly. If you need to print a document that includes data fields from other tables, select the Reports > Print Any Document from the Home Window or Subject List form in order to select the proper related records.

When selecting data to merge with documents it is important to understand how AudBase stores information. For example, a subject can have more than one audiogram, but an audiogram can only be associated with one subject. For more information on the concept of related fields, see Chapter 8,"Database Design and Theory" on page 168.

Printing reminders and related forms

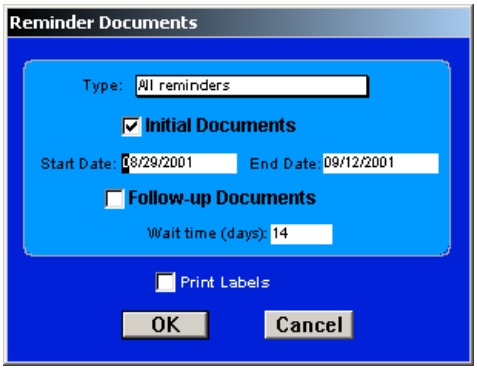
At times you may want to send a letter to a subject or a group of subjects that acts like a reminder. For example, you may want to remind a subject it is time to make an appointment or, if a subject is participating in a clinical study, you may want to send a letter asking a subject to return a QOL (Quality of Life) form.

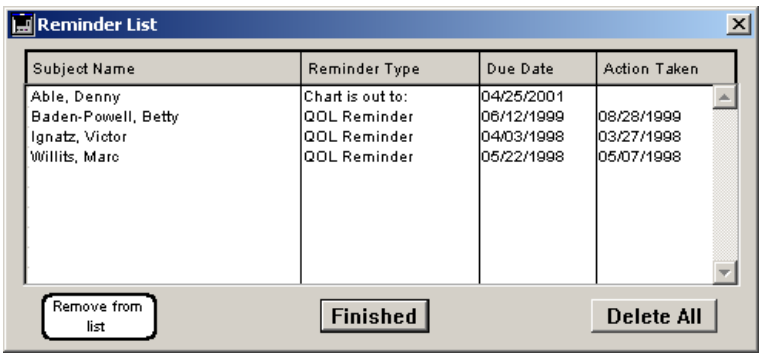
For the purposes of illustration, we'll outline a letter process for a QOL study. When a subject participates in a QOL study, he or she is asked to fill out a form at regular intervals (such as 3 months, 6 months, 12 months and so on). Subjects are also sent follow-up letters that are a reminder to return the completed form. AudBase lets you automate this process, generating the QOL forms and the reminder forms.

The forms can be generated using Reports > Print Any Document, but this method can be tedious and it also requires that clinic staff manually track the letters. When you use the reminder function in AudBase, the process is more efficient.

To print a reminder

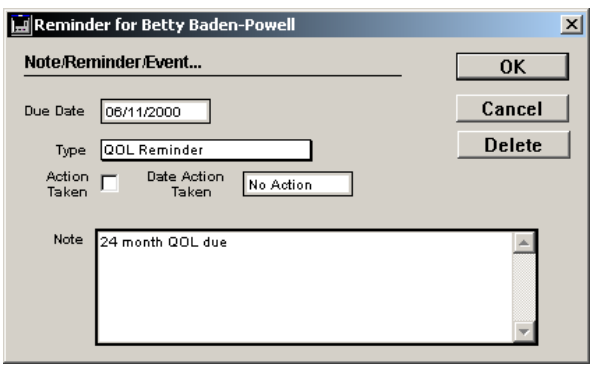
1. Select Reports > Print Reminder Document.
2. From the Reminder Documents dialog, select Type of reminder from pop-up and specify if it is an initial document or a follow-up reminder.
3. Specify a start and end date for the possible reminders.
4. Select OK and a list of Reminder Documents to Print appears.





If you do not wish to print one of the reminders in the list, remove it by selecting the reminder with one click and then selecting Remove from list.

To open an individual reminder, double-click on itFor more information see “Working with reminders” on page 46.



To print the selected document, click Print.

Note: Selecting "Remove from List" does not delete the reminder; it only removes it from the list of reminders to print.

Printing referrals

AudBase can create letters to send as referrals for a single subject or a group of subjects.

To print a referral letter for a group of subjects

1. Select Reports > Print Referral Document to open the Search form.
2. Search for a set of records to include in the report.
3. Drag the selected set of files on Drop selected Subject Set and the Print Document dialog opens.
4. Select the type of document you wish to print

You can then select the document you wish to print. It will be merged with data from the Subjects' records and with any referring Provider records.

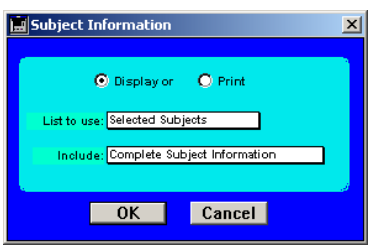
The letter or document to be merged can include data from any Subject or Provider data field. A letter or document will be generated for each referring provider.

To print a referral for a specific subject

1. Starting from the Subject Studies form, select Reports > Print Referral Document. The referral document opens.
2. Select Print.

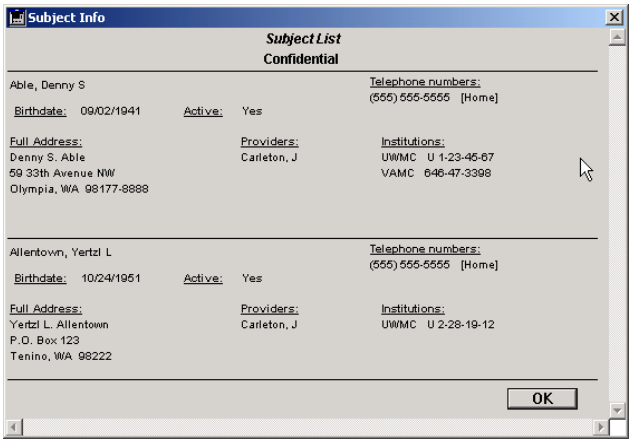
Accessing subject information

You can view or print frequently requested demographic information, such as subject address, telephone number and provider information.



To print or view subject information

1. From the Subject List, select Reports > Subject Information.
2. Select Display or Print.
3. Select OK and the Subject Info form displays.



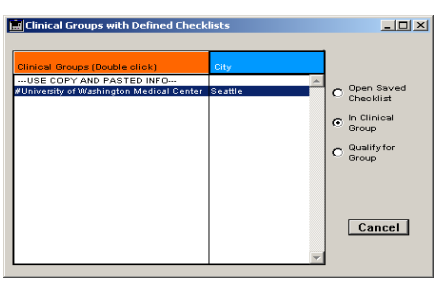
Checking for missing data

When subjects are assigned to a Clinical Group (in other words, a clinical study) you can analyze their records to ensure they comply with a Checklist. A Checklist ensures that a record is completed with at least the minimal information for that study.

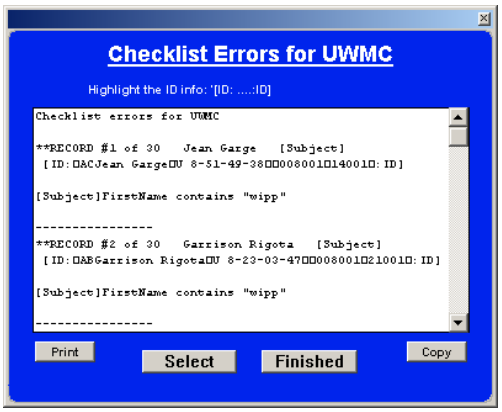
You can also search the database for subjects who have related records fitting the Clinical Group's Checklist, therefore qualifying them for inclusion in the Clinical Group (both options are limited to the subjects whom the user has access privileges for.)

To check for missing data

1. From the Home Window, select Data Manager > Check Missing Data to open the Clinical Groups with Checklists dialog.
2. Highlight a Clinical Group name by clicking once. Select one of the following options:
   - If this is the first time you are searching for incomplete records belonging to the Clinical Group, select In Clinical Group.
   - If you have previously searched for saved checklist results, you will see a "#" sign before the Clinical Group Name. To open these saved results, select Open Saved Checklist.

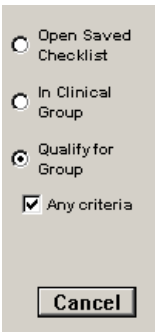


3. Double-click on the group name.
4. The result of the checklist search will be displayed in a dialog.



You can print out the information for reference by selecting Print. To open the record directly, highlight the record by selecting the string that begins and ends with "ID," then click Select.

If the Qualify for Group radio button is selected, double-clicking on the Clinical Group's name will search for subjects who are not currently part of the group, but meet the Clinical Group's checklist criteria.

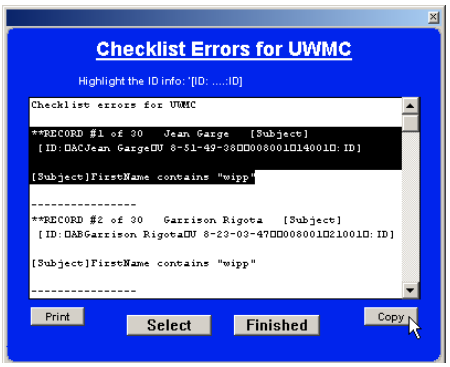


Checking Any Criteria will identify subjects who meet any table's checklist criteria, not just those who exactly meet the checklist criteria for every table. For example, if you have a checklist that requires a subject who has an audiogram with a threshold > 25 dB and is over 65, checking Any criteria will find all subjects with an audiogram with a threshold > 25 dB and all subjects over 65.

Copying and pasting Checklist errors

When checking for missing data, you may find missing information you wish to bring to another AudBase user's attention. For example, you may want to let another user know that he or she has not completed a subject's records. To help the other user easily locate the incomplete record, you can cut and paste from the Checklist Error Window.

To copy a checklist error

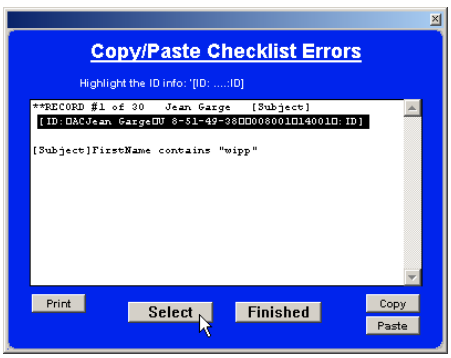


1. From the Checklist Error window, select the text you wish to copy.

   Note: Be sure to include the string that begins and ends with "ID." This specifically formatted text is the identifier used to find the record.

2. Select Copy.
3. Select Finished.
4. Paste the text into an email or text file.

To paste and use a checklist error to find a record



1. Copy the specially formatted test from an email or text file.
2. From the Home Window, select Data Manager > Check Missing Data to open the Clinical Group selection list.
3. Double-click "USE COPY AND PASTED INFO." to open a blank Copy/Paste Checklist Error window opens.Click Paste.
4. To locate the file, highlight the value beginning with [ID: and ending in :ID], and click Select.
5. The record opens so you can add the missing information.

Checking study statistics

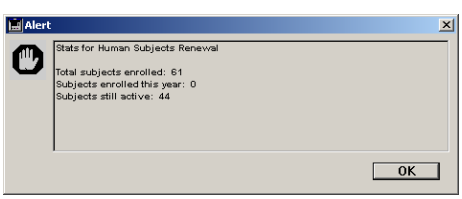
AudBase comes equipped with features that allow you to check study statistics, depending on your version of the program.

Viewing Human Subjects information

For use in year-end "Human Subjects" reports, AudBase allows you to access the total number of subjects, total enrolled over the past year and the total still active.

To view Human Subjects Info

- From the Home Window, select Data Manager > Human Subjects Info.



7 Preferences

This chapter details AudBase's user-modifiable features that you can access from the Preferences form. This form is also the starting point for creating and editing such important functions as Sequential Searches, Checklists and Grouped Exports.

Preferences

The Preferences form lets AudBase users modify their settings for a wide variety of features. To open the form, select File > Preferences from the Home Window or Subject List menu bar.

Table 6.1 below summarizes the Preference items available to various AudBase users. Open any of these items by single clicking from the Preferences form.

Table6.1: Preference items available to various users

Any user	Administrator/subadmin	Administrator only
Entry Formats Export/Grouped Export Search/SeqSearch-Checklist On Line Help Serial Port Settings Subject Info/Navigation Audiology 1-3	Comorbidity Info Database Access Database Localization Home Window logo	Database Localization Record Access Audiology (Admin only) Warning Message

The rest of this chapter will discuss the items in the order they appear on the Preferences form.

Entry Formats

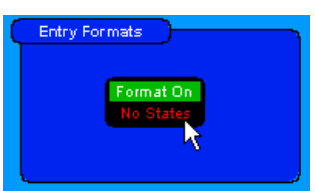
The *Entry Formats* item allows users to customize some of AudBase's data entry features to fit their needs. The Format On/State List and date checking items are available to all users, while the Modify Lists item can only be used by the administrator or a subadministrator.

Format On/No Format

The Format On/No Format item allows all users to set a preference for automatic formatting when entering data on the Subject, Clinical Group and Provider forms. When filling out a new record, you can use the Format On button to turn on or off automatic formatting of such fields as names, telephone numbers, zip code, universal ID or selected identifier. The identical button appears in Preferences to let you turn auto-formatting on or off as a global preference rather than having to change it for each new record.

State List

AudBase has a pop-up list that helps you pick out the standard two-letter abbreviation for a U.S. state when filling out a new subject form. Users outside the United States can customize an equivalent list for their country (see "Database Localization" on page 116). Here, you can set a default preference for new records on whether the state list



will appear by clicking State List, which turns to No State. You can override this setting on any form by clicking the identical button.

Turn 'date checking' off

When entering dates such as "date of death" on the Subject Info form, an informational dialog may be displayed warning the user that an expected range has been exceeded. This can be bothersome if a large volume of retrospective data is being entered. The function can be turned off for this session.

Modifying lists

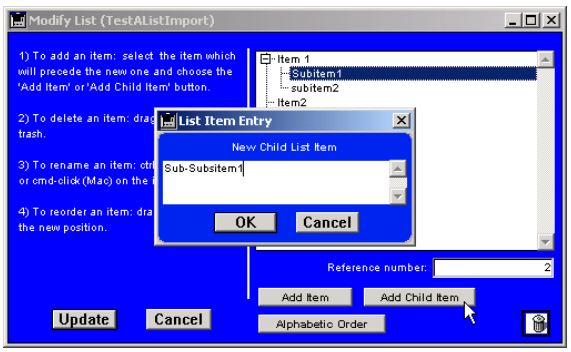
The administrator or a subadministrator can use this feature to edit pop-up lists and selection lists that help guide data entry on many of the forms in AudBase, or to create new lists. The lists may display basic data entry choices such as Salutation ("Mr." Or "Mrs.") or race, or describe tumor chemotherapy or surgery types.

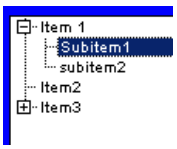
Note: You can also import lists that were created outside of the database in a word processing program (see "Importing lists" on page 149).

To create or modify a data entry list

1. With the *Entry Formats* page showing on the Preferences form, click Modify Entry Lists.
   A Modify Lists dialog appears showing all the lists currently stored in the database. List names preceded by a © symbol are central lists (see "Modifiable Lists" on page 181.
2. Click New List, or double-click on the name of the list you'd like to change.
3. If you are creating a new list, enter a name for the list and click OK.
4. Follow the directions on the Modify Lists form that displays to add, delete, change or reorder an item on the list.
   Note that certain types of lists allow you to create sublists of "parent" and "child" items.

5. To create a child item, select any item on the list, click Add Child Item, and type in the name of the child item. You can change the order of both parent and child items by dragging them. To delete items from the list, drag them to the trash.
6. When you are finished making changes, click Update to save the changes.
7. On the Modify Lists form, click Finished.
   The changes you made should now be reflected on the data entry form where the list appears.





Note that some types of lists display a unique reference number for each list item. When you add an item to these lists, AudBase automatically creates a new reference number, or you can specify one.

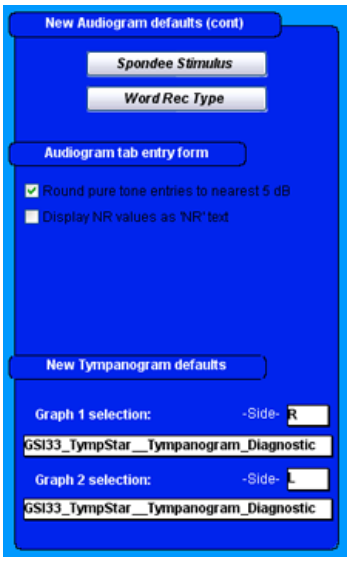
Audiology (1)

This Preferences page lets you customize defaults for new Audiograms. This feature saves you from having to repeatedly enter items like Examiner, Audiometer, Transducer, Entry Form, etc. Choose your defaults from the pop-up lists under each heading. For informational purpose the version number of the MDC_AudBaseTools plug-in is displayed at the top right.

Additionally, the Display Options list allows you to set defaults for the appearance of new Audiograms. If you want to activate a default option, click to the left of the list item. A symbol appears to indicate that the list item is active. To turn off an active list item, click on the symbol to the left of the list item. List items without a symbol are not active defaults. These list items are explained more fully in the section on Audiograms (see “Entering basic test information” on page 51). You can override any default settings on the Audiogram form itself.

IMPORTANT NOTE: Most of the items on this pageconsist of modifiable lists. If you modify one of these lists (e.g. the Examiner list) you must close the Preferences form and reopen it to refresh the pop-up lists on the Preference form.

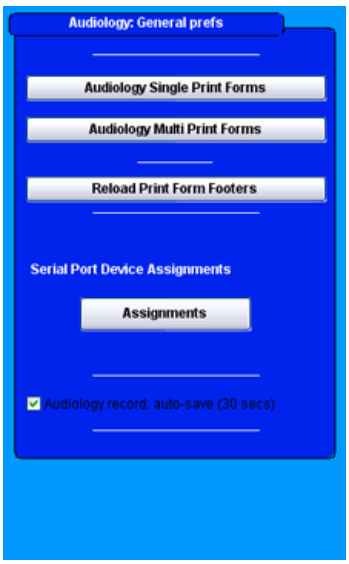
Audiology (2)



This Preferences page lets you customize additional defaults for new Audiograms and Tympanograms. You can specify default settings for Spondee Stimulus and Word Rec Type by clicking on the respective buttons. In each case, a click and drag form appears. Use this form to drag default options from the box on the left into the box on the right. When there are default settings, the button is displayed in italics. Use the pop-up lists to specify default settings for the Tympanogram graphs.

The preference items for the audiogram tab entry form control the entry of dB pure tone values and the way that No Response values are displayed on locked entry forms and printed forms.

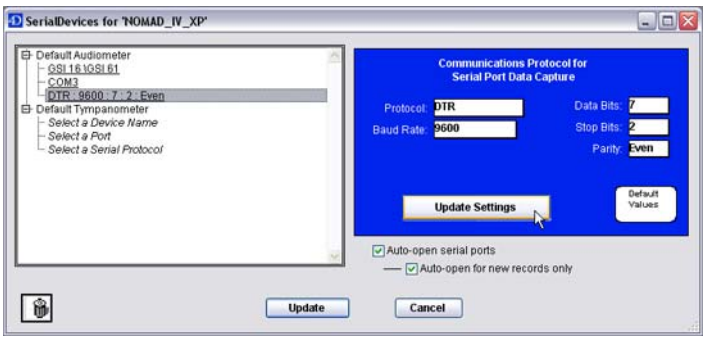
Audiology (3)



Specify default print form settings by clicking on either the Audiogram Single Print Forms or Audiogram Multi Print Forms button. In each case, a click and drag form appears. Use this form to drag default options from the box on the left into the box on the right.

Check the Audiogram auto-save box to automatically save the Audiogram form every thirty seconds. This form involves a significant amount of data, and this feature allows you to protect yourself from data loss (for instance, as the result of a computer crash). Records that have been auto-saved are marked as such on the Subject Studies form.

You can make default Serial Port Device Assignments for each type of device which can communicate through the serial port. You can override any default settings on the entry form itself. At the time of this writing audiometers and tympanometers are the only supported types. As other device types are added they will be handled in similar manner. Selecting the button will open the Serial Port Device Assignments form.



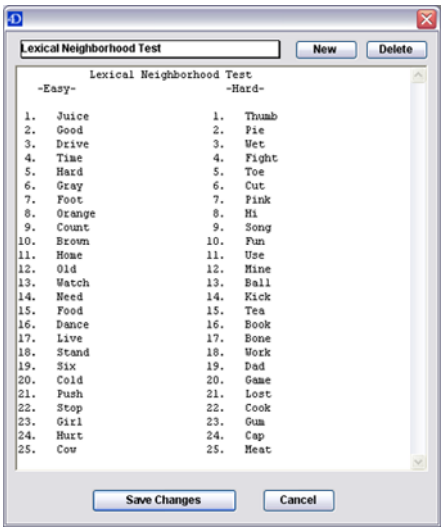
For each device type, a default device name, communications port and serial port protocol can be defined. If you are connecting an audiometer and a tympanometer, they can be connected to different serial ports. The communication protocol is automatically changed depending on the entry form page being displayed (e.g. tympanometer protocol is used when the Tymps tab is selected on the Audiogram form). The serial ports can be opened automatically when a record is open and unlocked. IMPORTANT NOTE: Most preference items belong to an individual user or to the database globally. The Serial Port Device Assignments belong to the computer which is running the AudBase program (standalone or client). The computer's network name is used to identify the preferences and needs to be unique among all the computers using the same database and which are setup for serial port communications.

Audiology (Admin)

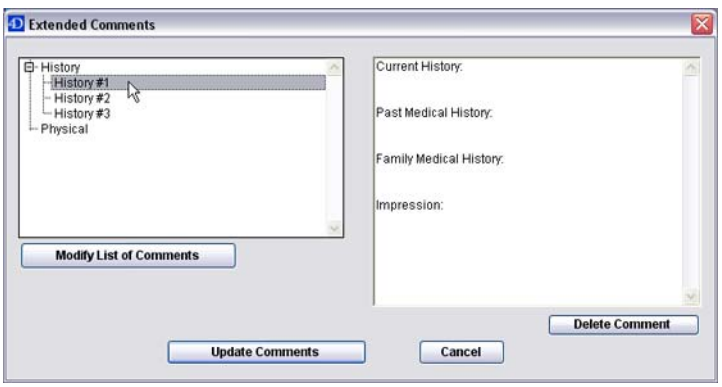
These preferences are only accessible to the Administrator.

The default Hearing Level Standard can be set for new audiograms. The hearing level standard is modifiable when the record is unlocked by selecting the Audiogram > Change Hearing Level Standard menu item.

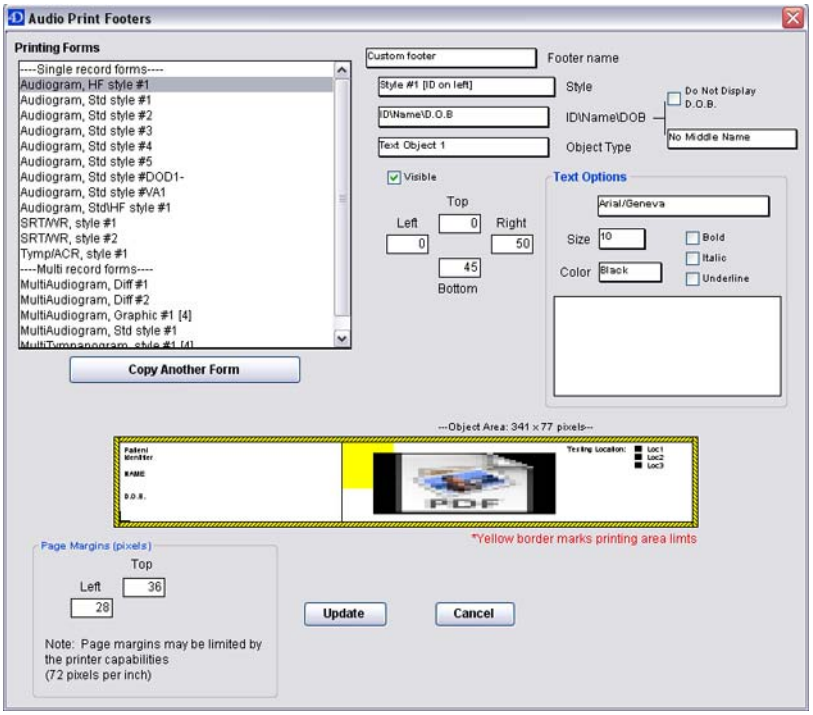
Word lists can be displayed in a floating window when an audiogram is open by selecting the Audiogram > Display Word Lists menu item. The word lists are modified and additional word lists created here.



Extended comments can be inserted into the Notes field on an audiogram. The comments can be up to 32,000 characters in length and are perfect for history and physical templates with blanks to be filled in for the individual subject.The title of the comment is created in the list on the left and the attached comment is entered on the right.



Print form footers can be customized for each print form in use. In some versions of AudBase custom forms may have been ordered which include their own footer. Selecting the Customize Print Form Footers button opens the Audio Print Footers form



Selecting the print form in the list on the left allows you to select one of the standardized versions or allows you to customize the footer to your own specifications. The footer options include three text items and three pictures. The location and sublocation entries can be displayed in the footer as well. Once you have defined your own custom footer you can copy it for use with other forms.

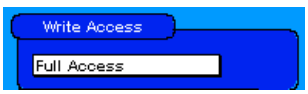
Database Access

These Preference items allow the administrator to set read/write privileges (lock/unlock) for various AudBase users, set certain subadministrator privileges, set user reminder privileges, and set password expiration.

Setting global read/write privileges

The administrator controls the “global” ability of users to lock and unlock data entry forms by granting “Write” access to records that have been previously saved. This allows users to make changes to the data entry forms and their underlying records in the database. Forms that cannot be unlocked are considered in “Read Only” mode (see “Unlocking forms” on page 40). The changes made using this Preferences item are used as a default when the user does not have special access privileges assigned (see “Assigning read/write access privileges” on page 125).

Three options are available from the pop-up list:



- Full access allows all users to unlock records at any time by default (gives them “Write” access to previously saved records).
- Limited time access allows all users by default to unlock a record for a limited number of days after it has first been saved. An entry box allows you to specify the days.
- No access restricts users from changing (unlocking) records after they have been saved for the first time.

The administrator is always capable of unlocking all records. The administrator can also use the checkboxes on this form to allow:

- Subadministrators to unlock all records.
- Subadministrators to delete records.
- Subadministrators to set lock/unlock privileges for other users.

Note: Regular users can never delete records with the exception of Reminder records.

Setting user reminder privileges

By default, users have the privilege to change or delete their own Reminder records. Removing the check from this boxon the Database Access section of the Preferences form takes away this privilege.

Setting password expiration

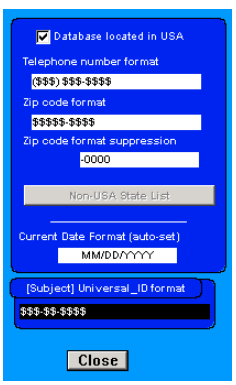
Administrators can set a time limit for user passwords by clicking the Password Expiration preference item. The dialog allows you to specify an expiration period of 1 to 32,000 days. If the Password Expiration Interval item is left blank, passwords will not expire.

Database Localization

Choosing the Database Localization preference item lets you change some data entry fields on AudBase forms to automatically reflect the customary formats in your country. If you would like to use U.S. formats for zip code, and telephone, click “Database located in USA.” Otherwise, modify formats according to the directions below.

The Current Date Format is automatically set by AudBase to reflect the user's main computer preferences. To change the Current Date Format, you must change your computer date settings, then restart AudBase. Previously entered dates will be automatically corrected to reflect the change in format.

To set or modify data entry formats



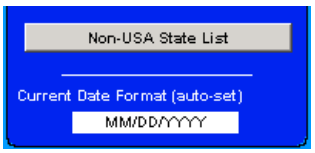
1. With Database localization selected on the Preferences form, make sure “Database located in USA” is not checked.
2. Click in the box next to the field you would like to automatically format.
3. Use the following characters to set entry formats for postal code and telephone number:
   - “$” to stand for a number
   - “@” to stand for a letter
   - “?” to stand for a letter or number.
4. Type in any fixed characters that you wish to appear, such as parentheses, hyphens or spaces.

If the postal code in your country has an optional part (for example, the last four digits in the U.S. zip code), you can use the “Zip code format suppression” box to override this part of the code on data entry forms. (You can always override the autoformat function by selecting Format On/Off). By entering zeros in place of the optional numbers here, you are telling AudBase to allow data entry personnel to skip this part of the postal code and suppress the printing of “-0000.”

Note: Regardless of which data entry format you use to save information in such fields as date or telephone number, AudBase will perform accurate searches. For example, a user in Great Britain who uses a different date format could still perform a search based on dates for records exported from a U.S. database, despite the differences in entry formats.

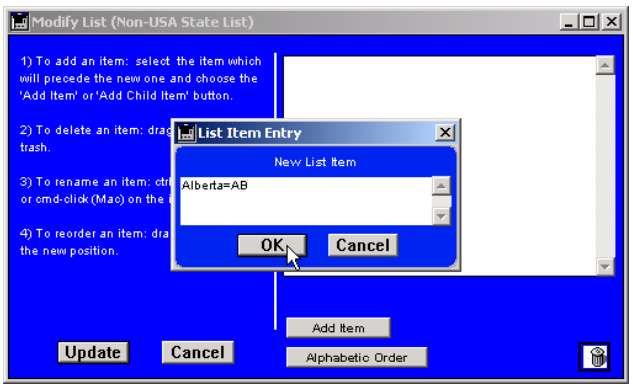
Creating a non-USA State List

This preference allows you to create a list of abbreviations for provinces or administrative subdivisions that will help guide data entry on some forms.

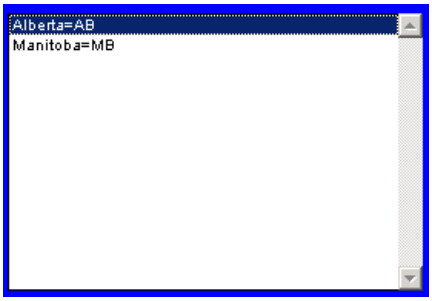


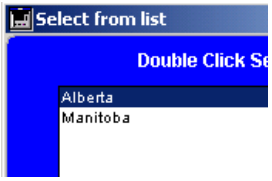
To create a non-USA State List

1. With Database localization selected on the Preferences form, make sure "Database located in USA" is not checked.
2. Click Non-USA State List.
   A Modify List form appears.
3. Click Add Item.
4. Enter the full name of the province or other administrative subdivision, followed by an equal sign ("=") and then the abbreviation you wish to use. Do not leave spaces on either side of the equal sign (for example, Alberta=AB, Edinburgh=EH, Rheinland-Pfatz=RP).
5. Continue adding items by the same method, and when finished, click Update. The data entry forms will reflect your changes.



To test your changes, go to a form such as the Subject Info form, make sure the State List button has not been disabled (turned to "No State"), and then type a letter in the State field. When you tab out of the field, a Select from List dialog should appear, with a list of the full names of the provinces or subdivisions. Double-clicking on the name will enter the abbreviation on the form.





Setting Universal ID format

All subjects entered into AudBase can have a unique identification number, known as the universal ID. The most commonly used example of a universal ID in the United States is a Social Security number, but its use is subject to legal limitations. The universal ID preferences item allows an administrator to format a unique ID to prevent different sites in a multi-center clinical trial from entering duplicate subjects.

The formatting set here will automatically apply to the Universal ID field on the Subject Info form. The auto-formatting is designed for the convenience of data entry personnel, although they can override it if desired. A format consists of the special characters "$" for any number, "@" for any letter, and "?" for either letter or number. Spaces and other characters such as hyphens should also be entered here, and will then appear automatically. For example, the University of Washington Medical Center uses the following format:

```
U 1-23-45-67
```

To set up this format, you would type the following:

```
U $-$$-$$-$$
```

The data entry person need only enter the variable number portion of the number (in the example, 1234567) and it will be automatically formatted.

Export/Grouped Export

Selecting this preference item allows users to do the following, depending on their access privileges:

- Create a Saved Export.
- Edit or delete a Saved Export.
- Save and load Saved Exports outside AudBase.
- Create a Grouped Export.
- Edit or delete a Grouped Export.
- Save and load Grouped Exports outside AudBase.

Opening the Saved Exports sublist will reveal all available tables. Clicking on a table name will enable the New Saved Export button for creating a Saved Export, which will belong to the selected master table. Table names with plus signs or arrows have a sublist consisting of any existing Saved Exports for that table. For details on creating a Saved Export, see "Saving/loading exports as database records" on page 95.

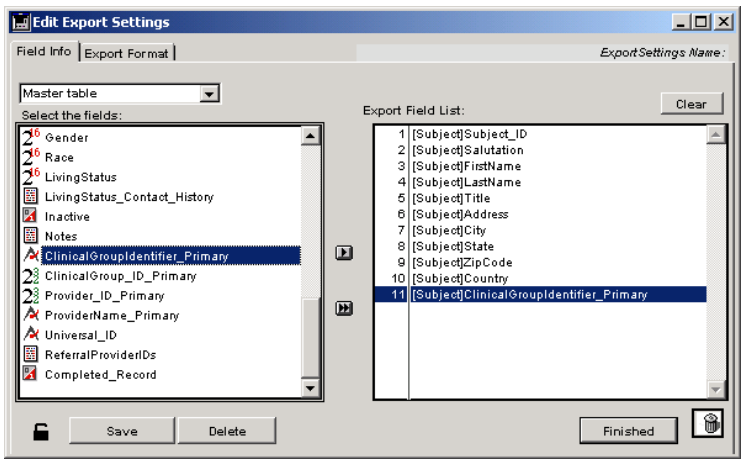
This section will discuss the other Export/Grouped Export features in the order they appear above. All of the following procedures assume you have clicked Export/Grouped Export on the Preferences form.

Editing a Saved Export

The administrator and subadministrators can make changes to Saved Exports using this feature. Other users can review a Saved Export document here. Start by selecting Export/ Grouped Export on the Preferences form.

To edit a Saved Export

1. Open the Saved Export sublist on the Preferences form, and find the Saved Export you wish to edit by opening the master table list for that export.
2. Double-click on the Saved Export name in the list.
3. On the Edit Export Settings form, make the desired changes to the Field Info or Export Format tabs.



4. Click Save.
   A dialog will ask you to name the Saved Export.
5. Do one of the following:
   - Keep the current name, which will replace the existing Saved Export with the new settings.
   - Choose a different name, which will create a new Saved Export and keep the existing one.
6. Click Finished.
   The name of any newly created Saved Exports will appear in the sublist.
7. To delete a Saved Export, double-click on the name in the sublist, then click Delete on the Edit Export Settings form.

Saving and loading Saved Exports outside AudBase

Administrators and subadministrators can save the export settings used to create Saved Exports to a file on their computer and then reload them. This is useful when exchanging data in multi-site trials. By using this function, you can avoid having to rebuild the exports that are used to create Saved Exports.

To save a Saved Export to disk

1. Open the Preferences form (File > Preferences).
2. Click Export/Grouped Export.
3. Open the Saved Exports list in the box on the right by using the plus sign or arrow.
4. Find the Saved Export you wish to save to a file on your computer by opening the tables that have plus signs or arrows next to them.
5. When you have found the Saved Export, double-click it to open the Edit Export Settings form.
6. Click File > Save to Disk.
7. In the Save As dialog, browse to a destination folder, name the file, and click Save.
   The export settings used to create the Saved Export will be saved in a special format that allows them to be reloaded into AudBase.

To load a Saved Export from disk

1. Open the Preferences form (File > Preferences).
2. Click Export/Grouped Export.
3. Open the Saved Exports list in the box on the right by using the plus sign or arrow.
4. Find the table that matches the one used to create the Saved Export you are loading, then do one of the following:
   - With the table name highlighted, click New Saved Export to open a blank Edit Export Settings form.
   - Double-click on a Saved Export name within the table to open an existing Edit Export Settings form.
5. Click File > Load from Disk.
6. In the Open dialog, browse to the file that contains the Saved Export you wish to load, and click Open.
   The Edit Export Settings form will change to reflect the settings from the file you loaded.

7. Click Save.
   A Request dialog appears.
8. Enter a unique name for this export and click OK. If you use the name of an existing Saved Export, you will be asked if you want to replace the older version of that Saved Export.

Special note on Windows vs. Mac	If you are trying to share files between platforms (for example, Windows-to-Mac), the normal open dialog may not show the file you are looking for. In this case, hold down the Shift key while selecting File > Load from Disk. This forces the Open dialog to display all files.

Creating Grouped Exports

A grouped export is an export derived from multiple tables. It is created from a series of Saved Exports in the same way that a Sequential Search is created from a series of Saved Searches.

Opening the Grouped Export sublist on the Preferences form will reveal any previously defined Grouped Exports.

To create a Grouped Export

1. Click the Export/Grouped Exports list item on the Preferences form.
2. Select Grouped Exports from the list on the right, and click New Grouped Export. The Grouped Export form displays.
3. From the Saved Export list on the left, use the plus signs or arrows to open list items containing Saved Exports.
4. Drag the Saved Exports you wish to assemble into a Grouped Export to the list of tables on the right.
   AudBase will only allow you to drag a Saved Export to the table it was created from, and you can only drag one Saved Export per table.
5. When you have built your Grouped Export, click Save.
6. Using the dialog, name your Grouped Export, then click OK.
7. Click Finished.
   The name of the new Grouped Export appears in the sublist on the Preferences form.

Note: You can save Grouped Exports to a file on your computer, and they can be reloaded into the database. This is especially useful for sharing defined exports among participants in multi-site clinical studies. This works for both new Grouped Exports and those previously saved to the database. With the Grouped Export form open, select File > Save to Disk or File > Load from Disk.

The administrator or subadministrators can modify previously saved Grouped Exports from the Grouped Export form by adding new Saved Exports or dragging old ones to the Trash. To delete a Grouped Export, open the form and select Delete.

Changing the Home Windows logo

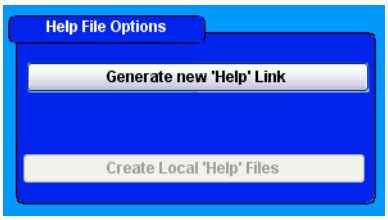
The Home Window in AudBase comes with a standard logo. You may wish to substitute your own picture or graphic to customize your version. Selecting this preference item will open a form displaying the current Home Window logo. You may then paste a new logo. The form displays the standard image size to help you design your logo.

To install a new Home Window logo

1. On the Preferences form, click Home Window logo.
2. Click on the current logo to select it.
3. Paste the new logo.
   You can change back to the current logo prior to updating by selecting the Revert button.
4. Click Update.

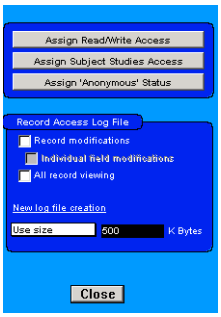
After your logo is saved, you can de-install the logo by selecting the logo and the Edit > Cut menu item. The default copyright logo will then be displayed again in the Home Window.

On Line Help



When on line help files are included in the installation package the files can exist on the local hard disk or by a web connection. Installing the help files on the local hard disk makes them accessible even if an internet connection is not available. The ‘Help’ link file can be generated if it doesn’t already exist and local ‘Help’ files can be downloaded from the server in a client-server environment by selecting the appropriate buttons. The Create Local ‘Help’ Files button will be greyed out in a standalone version.

Record Access



The administrator can use this Preferences item to set the following privileges for more than one user at a time:

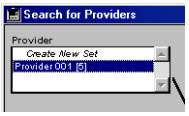
- Access to view, write, or create new records for specific tables in the database
- The ability to see or hide parts of the Subject Studies form
- Anonymous Status

Assign 'Anonymous' Status button

The administrator can change individual users to Anonymous Status by modifying their Provider record (See “Anonymous function” on page 22.). This Preferences item allows Anonymous Status to be set for a group of users all at once.

To assign Anonymous Status to multiple users

1. With Record Access selected on the Preferences form, click Assign Anonymous Status.
   A dialog appears.
2. Select Yes to assign Anonymous Status.
   The Search for Providers form appears to allow you to select providers.
3. Double-click on the Create New Set item in the Provider table list.
   The New Query form appears.

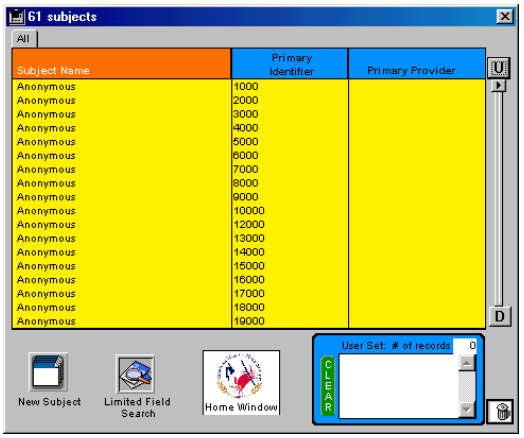


4. Use the form to search for Providers by name, Clinical Group, or other criteria (See “Searching” on page 70.).
5. Drag the newly created set to the Drop Selected Provider Set box at the bottom of the Search form.
   Anonymous Status will be changed for the group of providers you selected.

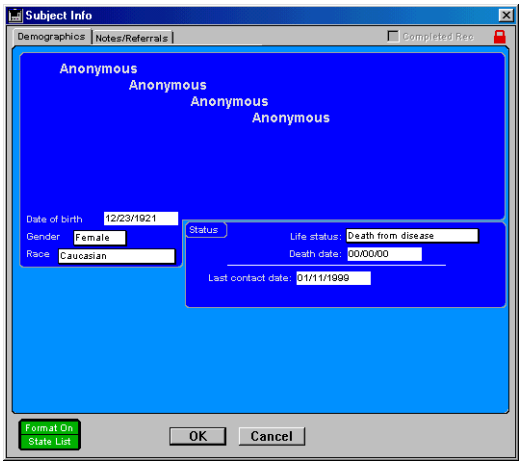
Note: If you wish to make a change for all providers in the database, hold down the Shift key while double-clicking on the Create New Set item in the Provider table list. The set of all providers will appear, and you can then drag it to the Drop Selected Provider Set box.

Once the Anonymous function has been activated, the Provider's privileges will be affected in a variety of ways. The most obvious change is the information displayed on the

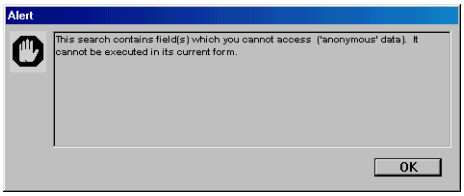
Subject List. Providers in Anonymous mode can only see a list of Anonymous subjects with a generic identification number.



The Demographics tab of the Subject Studies form will appear modified as well.



Additionally, this function limits the information available when performing exports and searches. Only non-identifying fields will appear as search and export options. If a user tries to load a saved search or export created by a user with greater database access, an alert will appear.



If the unauthorized fields are essential to the search or export, the activity cannot be executed. However, sometimes the search or export may be performed. In this case, the unauthorized fields are deleted from the display before it is shown to the user.

Assigning read/write access privileges

The administrator can set individual users' read/write access to individual tables in the database using their Provider record (see "Setting table record privileges" on page 23). This Preferences item allows table access privileges to be set for a group of users all at once.

To set table access privileges for multiple users

1. With Record Access selected on the Preferences form, click Assign Read/Write Access.
   A Table Access Privileges dialog opens. To the left of the list of tables are three columns, displaying either a "Y" (meaning "Yes, you do have this privilege") or a blank space (no privilege).
2. Toggle the letter Y on or off by clicking on them to set privileges for viewing or writing records, or creating new records. You can change an entire column by shift-clicking. After setting overall table access privileges, you can also use the pop-up list to specify default access, limited-time access (in days) or full access.
3. Use the checkboxes to set user privileges for printing or exporting data from tables they can view.
4. Click Update.
   The Search for Providers form appears to allow you to select which providers to change access privileges for.
5. Double-click on the Create New Set item in the Provider table list on the form.
   The New Query form opens.
6. Use the form to search for Providers by name, Clinical Group, or other criteria.
7. Drag the newly created set of records from the Provider table list to the orange Drop Selected Provider Set box at the bottom of the Search form.
   Access privileges will be changed for the group of providers you selected.

Note: If you wish to make a change for all providers in the database, hold down the Shift key while double-clicking on the Create New Set item in the Providers table list. The set of all providers will appear, and you can then drag it to the orange box.

Setting Subject Studies access privileges

The administrator can set an individual users' ability to customize the Subject Studies form, or their access to parts of the form, using the Provider Information form (see "Modifying Subject Studies Access" on page 24). This Preferences item allows the same access and customization privileges to be set for a group of users.

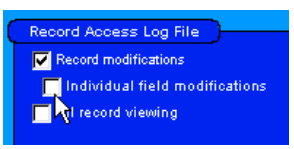
To set Subject Studies privileges for multiple users

1. With Record Access selected on the Preferences form, click Assign Subject Studies Access.
   A dialog displays the different tabs that a Subject Studies form can display, with two columns on the left for setting the following two privileges:
   - Tab accessible to user: Whether the user will see the tab on the Subject Studies form.
   - Tab modifiable by user: Whether the user has the ability to show or hide the tab.
2. Toggle the "Ys" on or off by clicking on them to set privileges. You can change an entire column by shift-clicking.

   Note: If you remove a Provider's privilege to see a tab on the Subject Studies form, it will affect his or her ability to search the database. This is because you have limited the provider's access to the tables in the database that are connected to the respective tab.
3. Click Update.
   The Search for Providers form appears to allow you to select which providers to change access privileges for.
4. Use the form to search for Providers by name, Clinical Group, or other criteria.
5. Drag the newly created set of records from the Provider table list to the orange Drop Selected Provider Set box at the bottom of the Search form.
   Access privileges will be changed for the group of providers you selected.

If you wish to make a change for all providers in the database, hold down the Shift key while double-clicking on the Create New Set item in the Providers table list. The set of all providers will appear, and you can then drag it to the orange box.

Tracking user record access



AudBase automatically keeps track of basic record modification activity within the database, showing which user has changed a record, and when. The results are stored in a field called Record Modification History that appears in every table. By using the Record Access Log File item, the administrator can choose to have a separate log file created that will not only show that records

have been changed, but also which individual fields were modified and by whom, and even who has looked at what records.

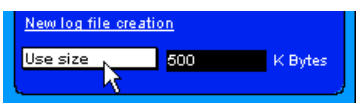
The administrator can choose what kind of information to save to the log file using this Preferences item. The choices, and the types of log files they create, are:

- Record modifications: Lists all records that have been changed.
- Individual field modifications: Shows not only the record that was changed, but the individual fields within that record that were changed.
- All record viewing: Shows all records that have been viewed whether or not they were changed.

To log individual field modifications, you must first check Record modifications. This is because a file showing all changes to all fields must include the entire record that those fields are part of.

When one of these options is selected, AudBase creates a text file in the same folder where the program's data files are saved, and names it with your version of AudBase plus "Log.TXT."

Dividing record access log files

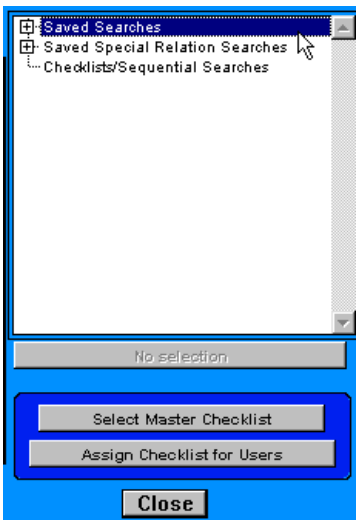


Log files of activity within the database can quickly grow quite large, especially if you choose to keep track of all record viewing. This feature generates a new text file when the initial log file grows beyond a set size in kilobytes, or based on the number of days of database activity recorded.

The default setting is Use Size, which allows you to set a log file size limit between 500 and 65,534 kilobytes. When the file reaches your specified limit, AudBase creates a new text file in the same folder. You can also choose Use Days, and specify a number of days between 1 and 1,000. A new log file will be created after the number of days has elapsed.

The current log file will be named using your version of AudBase and the word Log. Archived versions of the log file will be named with the date following "Log." If more than one file is created per day, AudBase will number the files consecutively with the number appearing before the date.

Search / SeqSearch-Checklist



Saved Searches, Saved Special Relation Searches, and Sequential Searches can be created, edited and deleted using this preference item. Checklists can also be created and edited here (see “Creating Checklists” on page 131). Saved Searches, Saved Special Relation Searches, and Sequential Searches opened here can be saved to your computer or reloaded by selecting the File > Load from Disk or File > Save to Disk menu items attached to the Saved Search, Saved Special Relation Search or Sequential Search forms (see “Saving and loading Saved Exports outside AudBase” on page 120

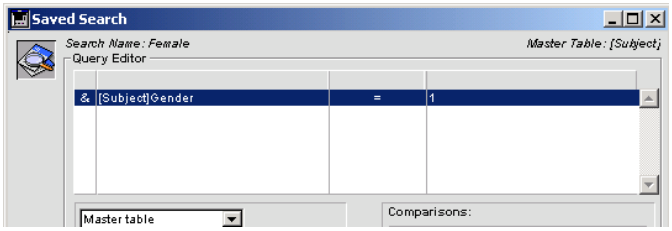
Opening the Saved Searches or Saved Special Relation Searches sublist will reveal all available tables. Clicking on a table name will enable the New Saved Search or Saved Special Relation Search button for creating a Saved Search or Saved Special Relation Search, which will belong to the selected master table. Table names with plus signs or arrows have a sublist of any existing Saved Searches or Saved Special Relation Searches for that table.

Editing a Saved Search

The privilege to edit or delete a Saved Search or Saved Special Relation Search is reserved for the administrator and subadministrators though all users can review a Saved Search or Saved Special Relation Search at any time.

To edit a Saved Search

1. Double-click on the Saved Search name in the list.
2. On the Saved Search form, modify your search criteria.
3. Click Save.
   A dialog will ask you to name the Saved Search.
4. Do one of the following:



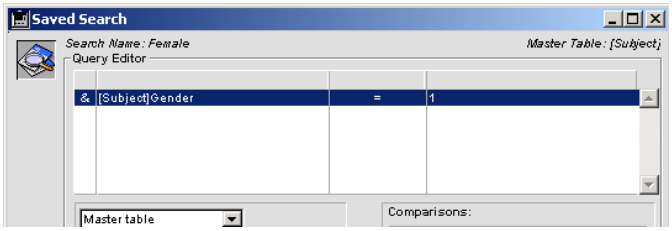
   - Keep the current name, which will replace the existing Saved Search with the new settings.
   - Choose a different name, which will create a new Saved Search and keep the existing one.
5. Click Finished.
6. The name of any newly created Saved Searches will appear in the sublist.

To delete a Saved Search, double-click on the sublist item to open the Saved Search form, then click Delete.

To edit a Saved Special Relation Search

1. Double-click on the Saved Special Relation Search name in the list.
2. On the Saved Special Relation Search form, modify your search criteria.
3. Click Save.
   A dialog will ask you to name the Saved Search.

4. Do one of the following:



   - Keep the current name, which will replace the existing Saved Special Relation Search with the new settings.
   - Choose a different name, which will create a new Saved Special Relation Search and keep the existing one.
5. Click Finished.
6. The name of any newly created Saved Special Relation Searches will appear in the sublist.

To delete a Saved Special Relation Search, double-click on the sublist item to open the Saved Search form, then click Delete.

Creating Sequential Searches

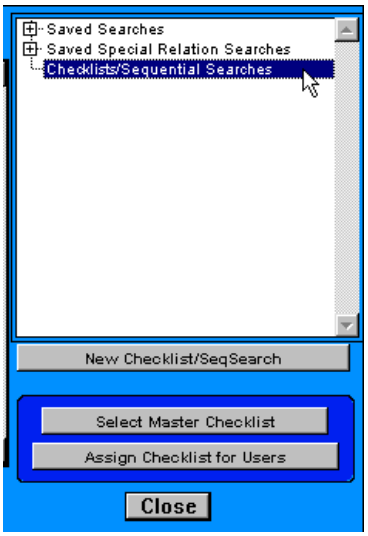
The administrator and subadministrators can use this item to create, edit and delete Sequential Searches. This is a very useful function that works by performing a series of Saved Searches and then combining the results to create a final set. This capability can be especially helpful in allowing you to define a set of records for export as part of a multi-center clinical study.

For example, it may be more convenient and flexible to group four Saved Searches with 10 search query lines each in a Sequential Search than to create one large, inflexible Saved Search with 40 search query lines.

When you execute a Sequential Search, individual Saved Searches are combined using the AND combining operator, also known as “intersection.” This means AudBase finds only those records that meet the criteria in all of the saved searches.

Note: Sequential Searches can consist of Saved Searches from multiple tables, which can be very useful for exporting related records. Sequential Searches that are executed from the New Query form will only display and use the searches from the master table that was used to open the New Query form (see “Using the New Query form” on page 72).

To create a Sequential Search



1. Click the Search/SeqSearch-Checklist item on the Preferences form.
2. Select Checklist/Sequential Searches from the list on the right, and click New Checklist/ SeqSearch.
3. From the Saved Searches list on the left, use the plus signs or arrows to open list items containing Saved Searches.
4. Drag the Saved Searches you wish to assemble into a Sequential Search to the list on the right. You can change the order of the Saved Searches by dragging them to a different position in the sublist.
5. When you have built your Sequential Search, click Save.
6. Using the dialog, name the search, then click OK.
7. Click Finished.
   The name of the new Sequential Search appears in the sublist on the Preferences form.

The administrator or subadministrators can modify Sequential Searches from the Sequential Search/Checklist form by adding new Saved Searches or dragging old ones to the Trash.

To delete a Sequential Search, open the form and select Delete.

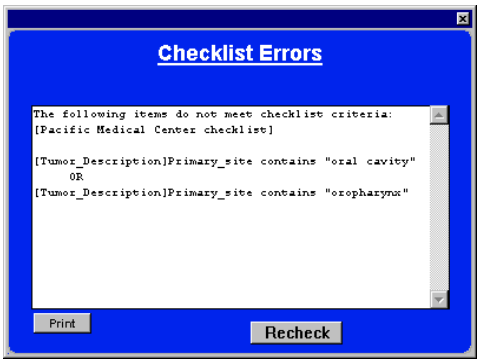
Creating Checklists

Especially in the case of a clinical study, it is important to make sure records saved in AudBase meet certain minimum criteria. For example, you would want a new subject record to have at least a first and last name before it can be saved. To simplify and enforce this process, AudBase allows the administrator to create Checklists that will review a data entry form when it is being saved, and prompt the user if any of the minimum information is missing.

Checklists are built from Saved Searches in the same way you build a Sequential Search (see “To delete a Saved Special Relation Search, double-click on the sublist item to open the Saved Search form, then click Delete.” on page 130). But instead of using the search to find all the records meeting certain criteria, you use a Checklist search to ensure that a new record being saved in AudBase meets certain criteria to begin with.

In the following example, a Checklist was created for a hypothetical Clinical Group study where all the subjects were treated for tumors whose primary site is either spine or pelvis. To create this checklist, the New Query form was used to build a Saved Search for the Tumor_Description table.

When used as a Saved Search for the Tumor_Description table, this set of query lines would find all spine or pelvis tumors. When you create a Checklist from the search and assign it to a Clinical Group, AudBase performs the same search whenever a user belonging to this group (and who has been assigned this Checklist) tries to save a Tumor_Description record. The criteria for being able to save the record is that it must contain spine or pelvis.



Any attempt to save a Tumor_Description record that does not satisfy all the Checklist criteria will prompt a dialog telling the user about the deficient fields. This is especially useful in controlling data for the purposes of a study.

To create a Checklist

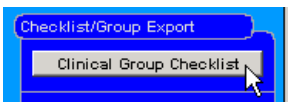
1. Using the Search form and New Query form, create one or more Saved Searches that define the criteria for your Checklist.
2. From the Preferences form, select Search/SeqSearch-Checklist.
3. Click on the Checklists/Sequential Searches list item in the right-hand box.
4. Click New Checklist/SeqSearch.
   The Sequential Search/Checklist creation form appears. On the left, a list contains all Saved Searches in the database, organized by table. An item with a plus sign or arrow contains a sublist of Saved Searches.
5. Open the sublists and find the Saved Search(es) that you created.
6. Drag the Saved Search sublist item(s) that you wish to define your Checklist to the list on the right.
   You can change the order of the Saved Searches by dragging them to a different position in the sublist.
7. Once you have defined your Checklist, click Save.
   A request dialog will ask you to name your Checklist search.
8. Enter a name and click OK.
9. Click Finished.
   The newly created Checklist search appears in the list of Checklists and Sequential Searches on the Preferences form.

Assigning Checklists

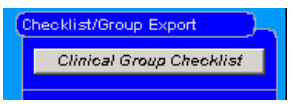
Once you have created a checklist, you must assign it to a Clinical Group, and then to Providers, to make it properly test for your criteria.

To assign a Checklist to a Clinical Group and Providers

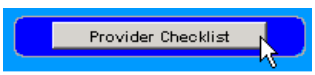
1. From the Home Window or Subject List menu bars, select File > Clinical Group Info to open the Clinical Group List, then double-click on the group you wish to assign the checklist to.
   The Clinical Group form opens.
2. Unlock the Clinical Group form by clicking on the black lock.
3. Click Clinical Group Checklist.
   A form opens with a list on the left of all Checklists saved in the database.

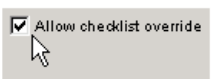


4. Click the Checklist you would like to associate with this Clinical Group.
   The Checklist Definition box displays all tables, with sublists attached to the tables that contain the Saved Searches comprising your checklist. You can double-click a Saved Search to display it and check the criteria.
5. Click Update Checklist Selection.
   The Clinical Group form appears again. The text on the Clinical Group Checklist button has changed to italics to signal that a Checklist is associated with this Clinical Group.



6. Open a Provider Information form by selecting File > Provider Info from the Home Window or Subject List menu bar.
   The Provider List appears, allowing you to choose the provider record you wish to assign the Checklist to.
7. Unlock the Provider Information form, then click Provider Checklist.
   A list creation form appears, allowing you to select a Checklist and also decide whether to allow the user to override the Checklist.
   Whenever the user saves a record, AudBase will run the Saved Searches used to create this Checklist to enforce the criteria you set.





Using an assigned Checklist

You can pre-test the Checklist before saving a new or modified record or test it on a previously saved record by selecting the Data Checklist menu item found in one of the menus attached to the data entry form (for example, Subject > Data Checklist or > Data Checklist)

A Checklist pretest can always be dismissed by selecting the Close button. The administrator or a subadministrator has the option to enforce a Checklist when the record is saved (Recheck is the only option) or allow a user to save the record anyway (Accept is also an option).

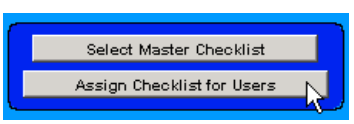
The Checklist is displayed in a dialog that you can keep open for informational purposes while modifying a data entry form. When satisfied with your changes, you can select Recheck.

Master Checklist for data entry

You can choose one Clinical Group's Checklist as the default master checklist for the database by clicking the Select Master Checklist button from the Search/SeqSearch-Checklist item on the Preferences form. A list-creation form will open and allow you to choose one group's checklist (see "Assigning a Clinical Group Checklist, Search and Export" on page 30). Whatever checklist you select will become the default checklist for users who have not been assigned a Checklist. Clicking the Allow checklist override box will allow a user to save a record that does not satisfy the checklist criteria.

Note: If a Saved Search making up the Master Checklist is modified, you will have to update the Checklist by reselecting the Master Checklist button and choosing the Clinical Group's checklist again. This is done automatically on database startup, but in a client-server mode the server would otherwise have to be restarted.

Assigning Checklists to multiple users

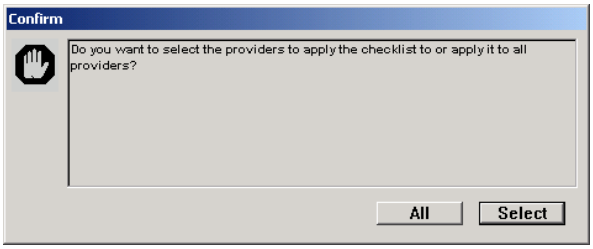


The administrator can assign a Checklist to one or more users that overrides the Master Checklist, allowing the selected users to save records that meet other criteria. To make this change for one user, go to the Provider Information form (see "Assigning a Provider Checklist" on page 25). The "Assign Checklist for Users" item allows the administrator to assign a checklist that differs from the Master Checklist to a batch of users.

Note: The administrator can assign him or herself a checklist using a special menu item attached to the Provider List form. See "Assigning an Administrator Checklist" on page 19.

To assign a Checklist to a group of users

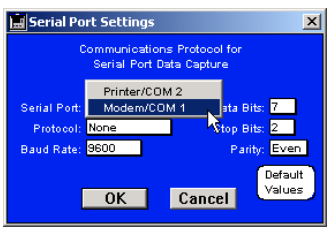
1. With Search/SeqSearch-Checklist selected on the Preferences form, click Assign Checklist for Users.
   A List Creation form displays all the defined Clinical Groups or Checklists on the left, and the default Master Checklist on the right.
2. Drag the name of the Clinical Group whose Checklist you would like to assign to this group of users to the box on the right.
   The new Checklist replaces whatever was previously in the box.
3. Click Update.
   A Confirm dialog displays.



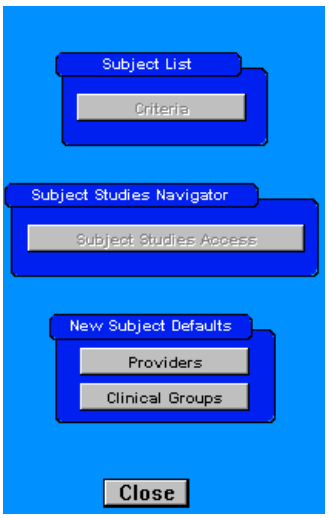
4. Do one of the following:
   - Click All to make the Checklist apply to all providers in the database.
   - Click Select to choose which Providers the Checklist will apply to.
     A Search for Providers form displays, allowing you to create a set of Providers (see “Opening the Search form” on page 71). Drag the set to the Drop Selected Provider Set box at the bottom of the search form.

Serial Port Settings

Generic serial port settings can be specified for data capture via the serial port. These settings should match the settings on the equipment you are connecting to. Refer to specialized version serial port settings elsewhere in this manual as needed.



Subject Info/Navigation



You can customize your Subject List form using this Preferences item by defining which patients will appear on the form, and also choose which navigation tabs will appear on the Subject Studies form. This item also allows you to set default providers and Clinical Groups for new subject records.

When you click Criteria to modify your Subject List criteria, your changes will be retained the next time you launch AudBase, unlike when you modify the Subject List criteria with the Home Window or the Subject List form open (see “Setting Subject List criteria” on page 11).

This form also allows users to decide which of the navigational tabs on the Subject Studies form they wish to view (hide tabs that they never use, for example). The ability to hide these tabs can be restricted by the administrator, however, using the individual Provider record (see “Modifying Subject Studies Access” on page 24), or for more than one user through the Preferences form (see “Setting Subject Studies access privileges” on page 126).

To change the appearance of the Subject Studies form (for Providers)

1. With Subject Info/Navigation selected on the Preferences form, click Subject Studies Access.
   A dialog displays the tabs on the Subject Studies form you have privileges to remove from view.
2. Click “Y” (“Yes”) in the Tab Displayed column to remove the tab from the form.
3. Click Update, and then click OK on the Preferences form to save the changes.
4. To restore the tab, open the dialog and click in the left column. The “Y” will reappear.

Note: User preferences will not affect whether or not tables appear on Search forms.

Setting new subject defaults

You can also use the Subject Info/Navigation part of the Preferences form to set default provider and clinical institutions that will appear automatically on each new Add Subject Records form. A Create List form appears and you can drag names from the Full Provider List to the list of default providers on the right. You can designate multiple providers and Clinical Groups using this method. Clicking on one provider or Clinical Group name before saving the preference will designate them as the primary provider or group.

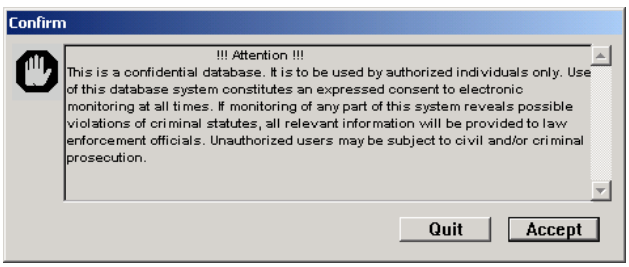
Warning Message

The Warning Message item allows the administrator to set a message that appears when any user logs into AudBase. This can be useful, for example, to comply with regulations to inform users that they are logging onto a confidential database program.

AudBase provides a default message that you can activate, or you can add your own custom message. The final item allows you to remove a message.

To set the default message

1. From the pop-up menu, select Default Message.
   The default message appears for your review.
2. If you wish to activate this message, select Update.
   The message at right will appear the next time a user logs into AudBase.
3. If you wish to print the message, select Print.



Note: You cannot edit or modify the default message.

To set a custom message

1. From the pop-up menu, select Custom Message.
   A blank text box appears.
2. Type in a custom warning message.
3. Select Update to save what you have typed. When you are done, click Finished.
   The message appears next time a user logs into AudBase.
4. If you wish to print the message, select Print.

To remove a message

1. From the pop-up menu, select No Message.
2. Select Update.

8 Administrator Functions

The administrator is in charge of data security and assigning user privileges in AudBase, as well as most of the export and import functions. This chapter details the special administrator menu bar and other administrator tasks.

Administrator Functions

In AudBase, the administrator is a sort of chief security officer, in charge of protecting the integrity of the database and making sure data is shared in a secure manner. This chapter explains tasks that users with administrator privileges carry out.

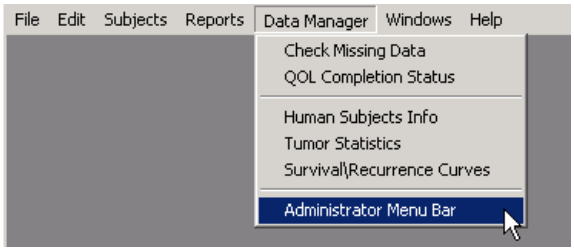
It begins with the special administrator menu bar that controls some of the import and export functions of AudBase, then describes such tasks as deleting records, assigning passwords, and upgrading to a new version of the program.

Using the Administrator Menu Bar

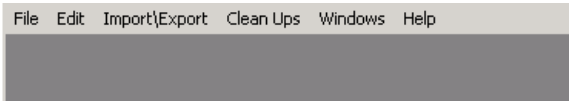
AudBase has a special menu bar where you will find options for administrator-only import and export functions, along with a special Search form for administrators, and several other functions. This section will discuss each item on the administrator menu bar in the order in which they appear in AudBase. Subadministrators can select any menu item except one: The Clean Ups > Clear Unconnected Recs menu item is only available to the administrator.

To view this special menu bar:

- From the Home Window, select Data Manager > Administrator Menu Bar.
  The menu bar will change to display menu items only available to the administrator or a subadministrator.



Home Window menu bar (above)



Administrator menu bar

You can return to the standard menu bar by selecting File > Home Window Menu Bar.

Import\Export Menu items

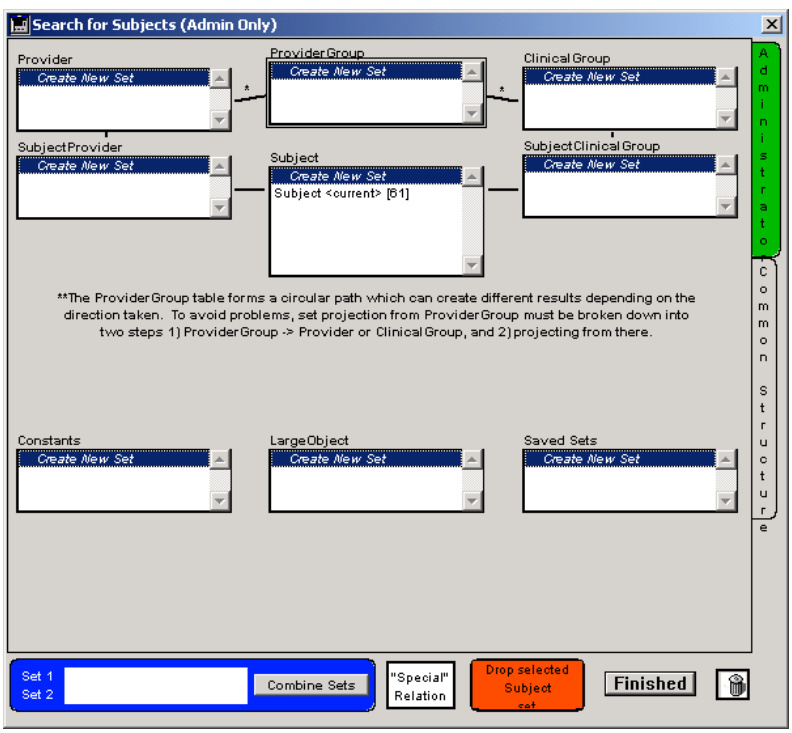
The Import\Export menu on the administrator menu bar is where many of the administrator-only functions related to the sharing of data are carried out. An explanation of each option follows.

Performing administrator-only searches

Selecting Import\Export > AdminOnly Search opens the AdminOnly Search form for tables that are not accessible to regular users. The form has two navigation tabs on its right side, allowing the administrator to switch back and forth between the AdminOnly Search form, and the Search form that is available to all users (labeled “Common Structure”).

The administrator-only table list includes three tables with no direct relationships with the other tables in the database: Constants, LargeObject, and Saved Sets. These tables can be searched for diagnostic and informational purposes and are also included in the Admin-Only Export Search form (see “Note: To access the standard search format, select the Common Structure tab. Any Clinical Group, Provider or Subject sets defined on one tab will appear on the other tab.” on page 142).

In addition to the three unconnected administrator-only tables, the form displays three



special linkage tables: SubjectProvider, SubjectClinicalGroup, and ProviderGroup. These linkage tables are normally hidden from the user and are only useful in special circumstances to an administrator.

An example is the circular path formed by these three linkage tables and the Provider table, the ClinicalGroup table, and the Subject table. Because this is a circular path, searches can end up with different answers depending on which way the search is performed. This only affects the special situation where the administrator or subadministrator would like to know which subjects belong to group administrators for the various Clinical Groups.

In the normal Search form, creating a Provider set and dragging it to the ClinicalGroup table list first creates a set of all the Subject records related to the Provider set and then creates a set of all the ClinicalGroup records related to those Subject records. This does not answer the original question: Which subjects belong to the group administrators for those Clinical Groups? Since this is a circular path, the program must be "forced" to get the desired answer. This is accomplished through a two-step process that is explained on the AdminOnly Search form. Briefly, a ProviderGroup set is first created by dragging the starting Provider set or ClinicalGroup set to the ProviderGroup table list. Then, you can choose one of two directions on the "circular" path:

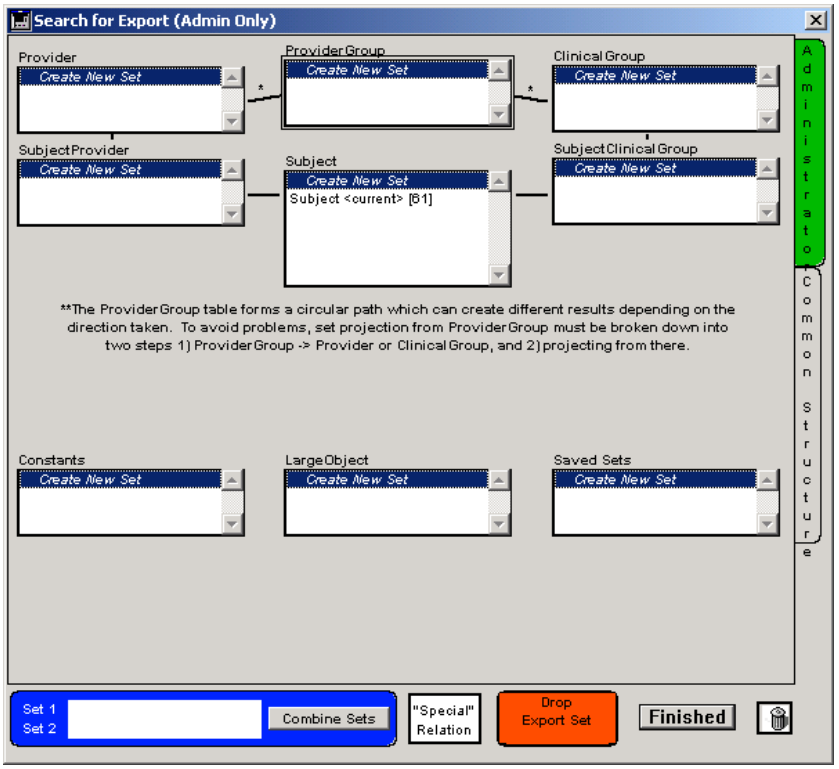
- Drag the ProviderGroup set to the Provider table list, then to the Subject list.
- Drag the ProviderGroup set to the ClinicalGroup table list, then to the Subject list.

You will obtain a different set of subjects depending upon which direction you drag the sets.

Note: To access the standard search format, select the Common Structure tab. Any Clinical Group, Provider or Subject sets defined on one tab will appear on the other tab.

Performing administrator-only exports

The AdminOnly Export item on the administrator menu bar allows you to create sets for export by searching the tables that are only available to the administrator or a subadministrator. Clicking it brings up a form called Search for Export (Admin Only).



You can export records from all tables except Constants and Saved Sets. Constants and Saved Sets records only have a context in the data file in which they reside. LargeObject records include exportable items such as the tumor stage info records, modifiable lists, picture data, documents created with the 4DWrite plug-in program, and Saved Search, Sequential Search, Saved Export, and Grouped Export records. Exporting these records allows you to share them with other sites. You export records from these tables in the same manner as the other tables (see “Exporting and Reporting” on page 88).

Note: To access the standard export tables, select the Common Structure tab.

Import Raw Data menu item

Importing some data types into AudBase requires a custom application. Selecting this menu item from the administrator menu bar displays an alert box that tells you to contact the AudBase vendor (e-mail: AudBase@u.washington.edu). Once the Import_AudBase application is added, you can use this item to import TEXT type exports from other database programs into AudBase, or import information in the DIF, SYLK or DBF formats.

Importing TRANSFER documents

The Import TRANSFER Doc menu item allows you to open, examine and import TRANSFER type export documents that contain data records and/or checksum data. Selecting this item will open the standard dialog to let you choose a file to import.

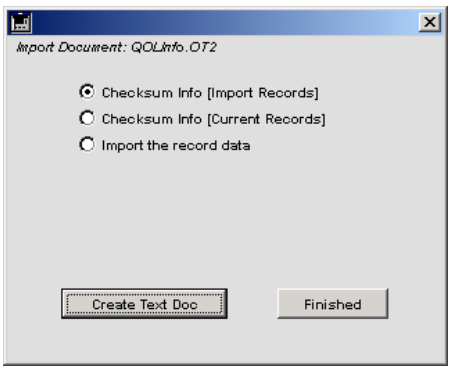
After you choose the file, the Import TRANSFER Doc dialog appears, giving you three options:

- Checksum Info import records
- Checksum Info current records
- Import the record data.

Here is a look at how the three options work:

Checksum Info Import Records

This option allows you to simply examine the TRANSFER document to see what information it contains before taking steps to import it. Selecting this option then clicking the Create Text Doc button will generate a tab-delimited text file that will include the required internal ID fields for each record that has been exported, along with the checksum for the exported data fields. If data fields were exported without checksum calculations, the text file will so indicate.

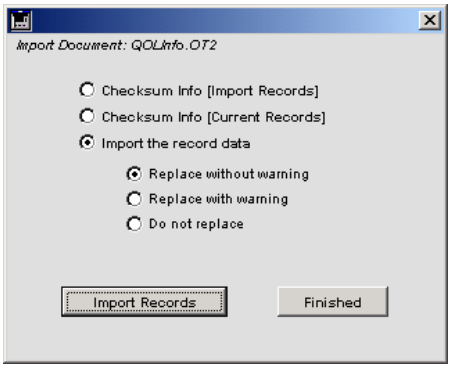


Checksum Info Current Records

This option allows you to compare the exported records to the records that they would replace if you imported them. Selecting this option then clicking the Create Text Doc button will create a tab-delimited text file containing the required internal ID fields for each record exported. The text file will also show the calculated checksum for any existing records with the same internal IDs currently residing in the destination data file that would be updated if the "new" record data were imported. In addition, if the checksum data was included in the TRANSFER-type document, AudBase will compare the existing destination data file record fields and the data fields that would be imported from the TRANSFER-type file.

Import the record data

Selecting this option gives you three more choices before you import data. AudBase uses the required internal ID fields that are always included in the TRANSFER type document to search for an existing record in the data file. The three options differ in how they affect existing records:



- **Replace without warning:** This will update the data fields in existing records with the imported data without warning the user.
- **Replace with warning:** This will warn the user before each update is performed. The user can choose to skip that record or update it accordingly. The displayed confirmation dialog will include the required internal ID fields for that record.
- **Do not replace:** This will leave any existing records untouched.

If no existing record is found, AudBase creates a new one and populates it with the imported data fields.

Note on the location of files used in a Grouped Export

A Grouped Export is an export that comes from more than one table. A series of TRANSFER type documents are created with the records from each table included in the Grouped Export. All of the TRANSFER documents will be placed in a folder that you select when they are created. You must keep these documents together for importing by the Import a Grouped Export function. Otherwise, you will see an error message. Since each one of the documents in a Grouped Export is a standard TRANSFER type export document, you can open them individually by selecting the Import\Export > Import TRANSFER Doc menu item.

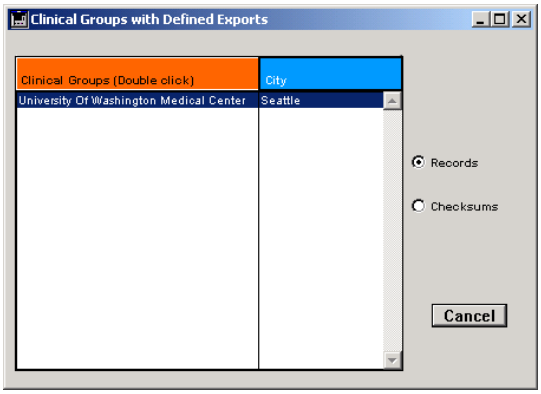
When you send the export documents via e-mail, AudBase saves a backup copy of each document in the OTBEC folder on your computer. The location of this folder is always available by looking in the File Info tab of the About AudBase dialog (from the Home Window Menu bar, Help > About AudBase). The folder will be automatically named for the date of the mailing, for example '4_21_2001' to signify April 21, 2001.

Note: If the TRANSFER type document does not include the actual record data, the Import the Record Data button will be disabled.

For more information, see “Exporting and Reporting” on page 88 and “Exported records and required internal ID fields” on page 174, as well as the AudBase Clinical Trials manual. For an example of the tab-delimited text file, see“Checksum Reports” on page 184.

Special note on Windows vs. Mac	When exchanging TRANSFER documents between platforms (for example, Windows to Mac), the normal Open dialog may not show the file you are looking for. In this case, hold down the Shift key when you select Import/Export > Import TRANSFER Doc. This will force the Open dialog to display all files.

Exporting a Grouped Export



For the purposes of sharing data in a clinical study, you can create a group of related records or subsets of their data fields pertaining to the study, and then export this data. This simplifies exporting for users in a clinical study and helps to ensure that fields for the study are valid and complete. You define the data fields that make up a Grouped Export using the Preferences form (see “Export/Grouped Export” on page 118) and then assign the Grouped Export to a Clinical Group. For more details on this process, see the AudBase Clinical Trials manual.

Selecting the Export a Grouped Export item on the administrator menu bar opens the form called Clinical Groups with Defined Exports.

The form displays a list of all Clinical Groups. If you double-click on one of the groups, AudBase will execute the predefined searches for the records to be exported. In addition to selecting the appropriate Clinical Group for export, you can choose to export just the checksums without the actual data.

If you select the Checksums option, AudBase will export the checksums in a TRANSFER type document.

Selecting the Records option will add the records that make up a Grouped Export to a set of previously exported records. If you try to export the same records, you will see an Alert dialog reminding you that the records have already been exported (“There are no new records to export”). To export these records again in the future, open the Clinical Group form and select the Clinical Group > Erase Grouped Export Set menu item.

If the Clinical Group was designated as a study and if an encryption key pair has been assigned to the study, the export files will be encrypted automatically. In addition, if a study participant ID was assigned, it will be substituted in all ID fields (see “Assigning the Participant ID” on page 7).

Importing a Grouped Export

Selecting Import a Grouped Export on the administrator menu bar will open a dialog that asks you to choose an import method, either Disk File, Disk File from E-mail, or E-mail. Depending on your choice, you will either browse to a folder containing the Grouped Export documents, or be asked to enter your password for your AudBase e-mail connection. For more information, see the AudBase Clinical Trials manual.

If you choose a Grouped Export document and all of the associated disk documents are in the same folder together, the Import GroupedExport form displays (see“Importing TRANSFER documents” on page 144 for information concerning the different options on the form, and a note about opening files saved in a different operating system).

If you select either of the two Checksum Info options on the Import GroupedExport form, a tab delimited text document will be generated for each of the Grouped Export TRANSFER documents and placed in the same folder with the Grouped Export’s TRANSFER documents.

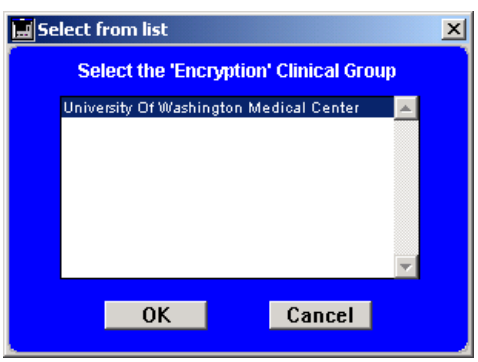
For more information see the AudBase Clinical Trials manual.

Encrypting a TRANSFER document

To ensure the security of clinical data being shared by disk, e-mail or networked computers, as well as for verification purposes, AudBase allows you to encrypt TRANSFER documents and generate an encryption key that the person importing your data can use for decryption. AudBase will manually encrypt a TRANSFER document when you select this menu item. For this function to work, the Clinical Group you are encrypting the document for must be designated as a study by checking the appropriate box on the Clinical Group form. You must also have generated a private (encryption) key for the group (see “Study Export” on page 34). For more information, see the AudBase Clinical Trials manual.

To encrypt a TRANSFER doc

1. From the administrator menu bar, click Import/Export > Encrypt TRANSFER Doc.
2. Select the TRANSFER document you want to encrypt.
   A Select From List dialog appears with the names of Clinical Groups that have been designated as studies and have private (encryption) keys.
3. Click the appropriate group name on the list, and click OK.
   The encrypted document will replace the unencrypted copy.



Note: Study Participant IDs are not substituted during a manual encryption. This only occurs as part of an automated Clinical Group export.

Special note on Windows vs. Mac

If a disk document(s) you are trying to encrypt or decrypt has been exported by a Windows computer and is being imported on a Mac, you must hold down the Shift key when you select one of the three encrypt/decrypt menu items. Otherwise the document(s) will not appear in the “Open File” dialog box.

Decrypting a TRANSFER document

An encrypted TRANSFER document can be manually decrypted using the Decrypt TRANSFER Doc item on the administrator menu bar. First, a standard dialog will be presented to let you select the TRANSFER document to be decrypted.

The encrypted TRANSFER document includes information that is used to select the proper decryption key. The decryption key to be used is identified by:

- The Clinical Group’s List Name, which should be unique for all the participants in a multi-site trial.
- The study participant’s ID.

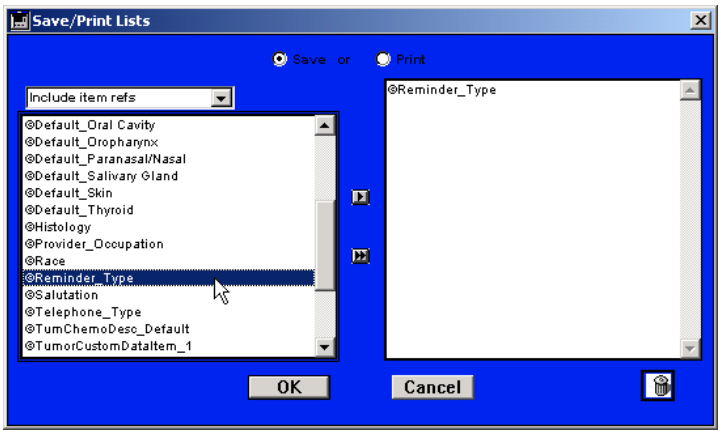
The decrypted document will replace the encrypted copy. For more information, see the AudBase Clinical Trials manual.

Decrypting Grouped Exports

The Decrypt a Grouped Export menu item on the administrator menu bar allows you to manually decrypt a Grouped Export document set. Decrypting is mandatory for Grouped Exports saved to disk, whereas e-mailed documents are automatically decrypted after downloading and conversion. Choosing the Decrypt a Grouped Export menu is item will open a standard dialog allowing you to select one of the TRANSFER documents to be decrypted. For more information, see the AudBase Clinical Trials manual.

The decrypted documents will replace the encrypted copies.

Export Lists menu item



The Export Lists menu item allows the administrator or a subadministrator to view modifiable lists to verify their current contents. You can choose to save the lists to a disk document, or print them. This is the same function available by selecting Reports > Modifiable Lists menu item attached to the Home Window. It is here for convenience and proximity to the Import Lists menu item on the administrator menu bar.

Importing lists

Two types of modifiable lists exist:

- “Central” lists that are saved as part of the database structure file (identified by a “©” in the list of modifiable lists). Distributing a copy of the database structure file would include these lists. It is important to recognize that there are only a limited number of central lists in the structure file.
- Lists stored as LargeObject records in the data file.

A list can be created or modified in a word processor or a spreadsheet program and saved as a text document. The list can then be imported and interpreted by AudBase. These lists can be replaced by importing updated versions.

Note: In the case of a list in a LargeObject record that is being shared by a multi-center clinical study, the originator of the list should use the Import\Export > AdminOnly Export function to export the list as a TRANSFER type document. The resulting file can then be distributed and imported in a more efficient, error-resistant fashion using the Import TRANSFER Doc item on the administrator menu bar (see “Importing TRANSFER documents” on page 144). It can also be encrypted/decrypted.

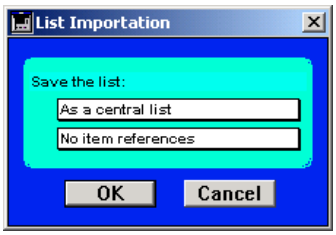
Each item in a list must have a unique reference number. Lists can be imported with or without special item references. If item references are not included in the imported text file, AudBase will generate a unique item reference for the list item. The item reference number is a long integer (+/- 2,147,483,647). This allows the creation of special lists that include item numbers such as CPT codes in the tumor surgery list .

ProcedureList	***ProcedureList w/ CPT codes***
List Item 1	***Thyroid Gland 1***
Sublist Item 1	***Partial 60210***
Sublist Item 2	***Secondary 60260***
Sub-Sublist Item 1	***Total 60240***
List Item 2	***Thyrotomy 31300***
Sublist Item 3	

TEXT documents being imported must follow a predetermined format. The first line of the TEXT document must include the name of the list by itself (“ProcedureList” in the example above). In the case of multiple version lists the first line includes the “ListFamilyName$ListName.” The second line must be blank. Place the first list item on the third line of the text file. Put one tab before sublist items (in the “Procedure List” example below, the sublist items are Sublist Item 1, Sublist Item 2). The second sublist item has its own sub-sublist (Sub-Sublist Item 1). Precede sub-sublist items with two tabs. You can define up to six levels of sublists. The name of the list and any list items can be up to 255 characters in length. The example list on page 150 includes CPT codes for the list items. The CPT codes are preceded by a single tab separating them from the list item’s text.

To import a new list

1. After creating a list, select Import/Export > Import List from the administrator menu bar.
2. Specify where the list is to be saved by choosing “As a central list” or “As a database record” from the dialog.
3. From the same dialog, choose whether the list includes item references.
4. Click OK and an Open dialog displays allowing you to select the text document containing the new list for import.
5. Verify whether the list replaces an existing list.



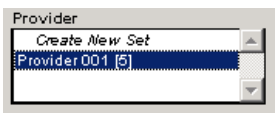
For more information, see “Modifiable Lists” on page 181.

Creating a User Privileges Report

AudBase provides you with an easy way to keep track of user privileges to view, write or create new records. By selecting the User Privileges Report item on the administrator menu bar, you can create a report that lists the access privileges for one or more users, and save the report to a file on your computer.

To create a User Privileges Report

1. With the administrator menu bar on your screen, select Import/Export > User Privileges Report to open a Search for Providers form.
2. Select which users you will create a report for. You can create a set of all providers by shift-double-clicking on the Create New Set item in the Provider table list. Or, build a more specific search by double-clicking on the Create New Set item and using the New Query form.
3. Drag the search set to the orange Drop Selected Provider Set box at the bottom of the form.
4. From the Save As dialog, browse to a location on your computer where you’d like to save the report, give the file a name, and click Save.



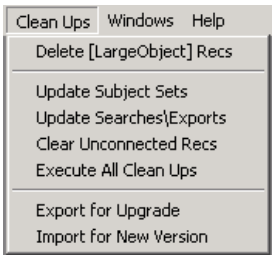
The resulting tab-delimited text file shows users’ names, their login names for the database, and their levels of access.

Database Structure Menu item

Information on all the data fields in the database can be saved to a file on your computer or printed by selecting this menu item on the administrator menu bar. You can find this same information in the appendices.

Clean Ups Menu items

The Clean Ups Menu is mainly focused on performing housekeeping chores that may be occasionally necessary in a multi-user environment. Two items, Export for Upgrade and Import for New Version, are important for saving central modifiable lists and other customized items when you switch to a new version of AudBase. Here is an item-by-item look at the Clean Ups menu:



Deleting LargeObject records

The LargeObject table in the database stores some user modifiable items such as multiple-version lists. Large Object records are not directly accessible to the database user. If it is necessary to delete LargeObject records, an administrator can select and delete them using the Clean Ups > Delete LargeObject Recs item on the administrator menu bar.

Updating subject sets

Subject sets are Saved Sets that AudBase uses to define the user's access to subject records. These sets are updated every time a Subject record's Provider(s) and/or Clinical Group(s) are modified. It is extremely rare that such a set will not be updated. If you click Clean Ups > Update Subject Sets from the administrator menu bar, AudBase will check the sets, update them as necessary and display statistics on the updating for the administrator.

Updating searches and exports

AudBase checks Saved Searches, Sequential Searches, Saved Exports and Grouped Exports for validity each time you use them. Selecting the Clean Ups > Update Searches\Exports menu item on the administrator menu bar lets you update all searches and exports at the same time. This is especially useful if major changes have been made in the database since the last time any of these searches or exports were used. AudBase will continue to update all searches and exports individually when you use them; this menu item just gives you the convenience of updating them with a single click.

Clearing unconnected records

The Clean Ups > Clear Unconnected Recs item on the administrator menu bar is only available to the administrator. Unconnected records are created when someone deletes a record while another user has locked an associated record in Read Write mode. For example, someone may delete a Subject record while one of the subject's Tumor_Description records was locked and thus could not be deleted. In this case, the Tumor record would no longer have a Subject record to connect with.

This option must be used carefully if the data file includes records imported from participants in a multi-site clinical study. In this case, records may have been imported for the purposes of the study that are not connected to a Subject record in the data file. By default, this function will avoid deleting these unconnected records as long as the Participant IDs for the different study sites are all unique.

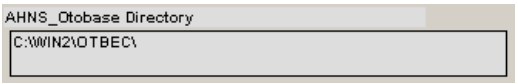
After selecting Clear Unconnected Records, you can remove all unconnected records for:

- This participant only
- All participantsFor more information, see “Assigning the Participant ID” on page 7 and “What makes up an internal ID number” on page 176.

Execute All Clean Ups menu item

You can execute three of the Clean Ups menu items, Update Subject Sets, Update Searches\Exports, and Clear Unconnected Recs, by selecting the Clean Ups > Execute All Clean Ups menu item on the administrator menu bar. AudBase will perform the functions in that order.

Exporting items before upgrading versions



The Export for upgrade item on the administrator menu bar allows you to export all central modifiable lists and other customizable items. These lists are stored in the database's structure file, which is replaced when you upgrade to a new version of AudBase. When you select this item, a special document is created in a special AudBase folder called OTBEC on your computer. To find this folder, with the Home Window or Subject List on your screen, click Help, then click on the File Info tab of the About AudBase form. The box under AudBase directory will show you the location of the OTBEC folder.

Note: If you work on a networked computer system you may not have access to the OTBEC folder. If this is the case, contact your network administrator.

For steps to follow in exporting these lists before an upgrade, see "Upgrading to a new version of AudBase" on page 157.

Importing items for a new version

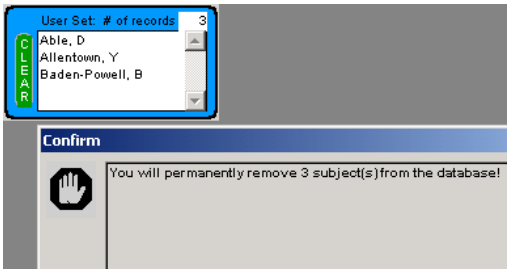
Selecting the Import for a new version item on the administrator menu bar lets you import central modifiable lists and other customizable items from an older version of AudBase. For steps to follow in importing these lists before an upgrade, see "Upgrading to a new version of AudBase" on page 157.

Web Server menu item

If your are using the standalone version of AudBase that has Web server capability, you will see the Web Server on the administrator menu bar. This item allows you to start and stop the Web server. If you have Web server capability, you can set an IP address and port through the Preferences form.

If you are using the AudBase Server, you will not see this option since the Web settings are controlled by 4D Server. The Web Server menu appears in the 4D Server menu bar. You can set the IP address and port number through File > Database Parameters. For more information, see AudBase.

Deleting records



By default, the administrator is the only one who can delete records in AudBase. He or she can extend the privilege to sub-administrators. The administrator can also allow all users to delete Reminder records. For directions on changing the default delete privileges, see “Setting global read/write privileges” on page 115.

To delete records, use the menu item that goes along with the form you are using (for example, Subject > Delete Subject, Tumor > Delete Tumor Record). The Provider and ClinicalGroup forms have delete buttons on the associated list while Reminder records have a button on the form.

Reminder records are handled individually or in a group. In each case you will be asked to confirm your choice prior to deleting; once you’ve deleted a record it can’t be recovered. If you delete a record, all related records will also be deleted. For example, deleting a subject record would automatically delete that subject’s tumor records, etc.

You can delete multiple subjects by using the Subject List form. Select a group of subjects for the “User Set” then click the Subjects > Delete Subject menu item.

Marking complete records

An important part of managing a database is checking to make sure that records have been completely filled-in. AudBase simplifies this process by allowing administrators to create data entry checklists that scan for completeness whenever users try to save a record. In cases where checklists are optional, administrators can set up saved searches to find all incomplete records. They can then use the built-in Internal Mail or e-mail to send reminders to people who should complete the records.

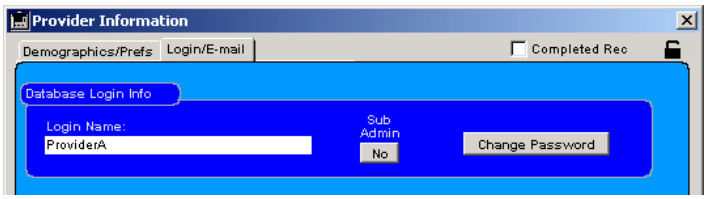
However, sometimes a record is as complete as it will ever be and the data manager will want to exclude it from a search for incomplete records. To mark a record as complete, the administrator can use the Completed checkbox on many of the forms in AudBase. Checking this option adds a “true” value to the Boolean field called Completed_Record in the respective table, allowing you to exclude these records from a search.

Assigning passwords

The administrator can change a user's login password, as can the user. Only the administrator can add, remove or modify the login names for users and add or remove users from the subadministrators group. While subadministrators can add provider records, only the administrator can enter a login name for them or assign their first password. To add a new user, the administrator should select the New button on the Provider List form.

The administrator will need to enter a first name and last name. A login name also must be entered if the provider is to be given login privileges or be added to the subadministrators group. Upon saving a new provider record, the administrator will be asked to assign a login password. Granting of all other database privileges can be left to a subadministrator with the exception of the subadministrator's group privilege. The administrator can designate a provider as a subadministrator by selecting Sub Admin on the Provider form.

To permanently remove login privileges for a user, the administrator should delete the user's provider record. As a temporary measure, the administrator can change the user's password.



For more information, see "How privileges and access are controlled" on page 7 and "Entering Provider data" on page 18.

Dividing large data files

Data files can become very large, especially with the storage of picture information. There are practical limits to the size of files and it is recommended that data files be segmented as they approach 2 Gigabytes in size. Segmentation expands the practical limits by splitting data into multiple files. This process is transparent to the user of the database and data is handled as if it belongs to a single data file. Segments can be added using the Add data file segment button on the second tab of the About dialog (Help > About).

For a quick way to locate the data and structure files on your computer, with the Home Window or Subject List on your screen, click Help. The About AudBase form appears. The second tab of the form lists the complete path names of the structure file and the data file. In addition, administrators can access the Add data file segment button. For further information on creating new segments please refer to the 4D_Supplemental_User_Ref.pdf manual included on your installation CD.

Switching data files

The first time you open AudBase, the program may ask you to find your data file. Once a data file has been assigned you are not normally asked again unless AudBase cannot find the file because it has been moved. For more information on data files, see “Working with data files” on page 4.

To switch to a different data file

1. Launch AudBase.
2. After entering your login and password, hold down the Option key on a Mac or the Alt key on Windows when clicking the Connection button.
3. From the Open file dialog, browse to the data file you wish to substitute, and click Open.

‘File not found’ error Occasionally when the folder structure on your computer has been modified, AudBase will have trouble finding your data file and may display a “File Not Found” dialog box giving you no option but to quit the program.

If that happens, log in again and follow the same procedure as shown in “Switching data files” on page 157.

Upgrading to a new version of AudBase

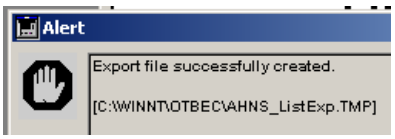
Before installing a new version and connecting it to your old data file, you may wish to import all central modifiable lists and other customizable items from your old version, especially those you have changed. Because these lists are stored in the structure file, which will be replaced by the new version, you need to export them from the old version to a file on your computer, then import them into the new version.

> ***Caution:*** ***Make a backup copy of your data files before converting to a new version of AudBase.***

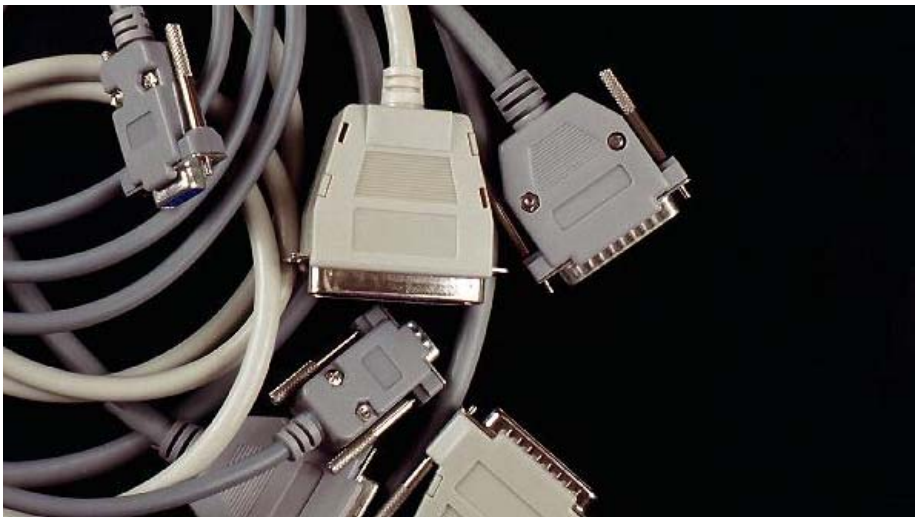
Exporting/importing modifiable items

To move modifiable lists into a new version

1. In your current version of AudBase, switch to the administrator menu bar (Data Manager > Administrator Menu Bar), then select Clean Ups > Export for Upgrade.
2. Read the Confirm dialog, then click OK.
   An Alert displays, telling you that an export file has been created. This file contains all the central modifiable lists. The Alert also shows the location of the file on your computer (for example, C:\WINNT\OTBEC\file name.TMP).
3. Click OK.
4. Install the new version of AudBase (see “Installing AudBase” on page 2).
5. From the administrator menu bar in the new version, select Clean Ups > Import for New Version.
6. Read the Confirm dialog, then click OK.
   A Lists to be Imported dialog appears.
7. Click OK.



9 AudBase Server



The AudBase Server contains all the features of the standard version of AudBase but also allows you to run the program in a client-server environment. This chapter explains how to install, configure and use the server program.

AudBase Server

AudBase is a flexible solution that can be used over a network so multiple users can access the same data file. The AudBase Server contains all the features of the standard version of AudBase but also allows you to run the program in a client-server environment. Therefore, if you install the AudBase Server, you do not have to install the standalone version of AudBase.

AudBase Server integrates a database server engine called 4D Server which is a product of 4D Inc. (www.4d.com). AudBase Server is cross-platform, which means you can install the server on either a Windows or Macintosh and it will easily communicate with clients on both operating systems. Prior to using AudBase Server, you must first obtain and install the Runtime Server License from 4D along with AudBase licenses from Sienna Software Inc (www.SiennaSoftwareInc.com). The 4D Runtime Server License comes with two concurrent client licenses. You may install clients on as many machines as you wish, but the number of clients that can be logged in at the same time depends on the number of licenses you have. If you wish to have more than two clients logged in at the same time you should purchase additional concurrent client licenses from 4D and Sienna Software

This chapter explains how to install and get started with AudBase Server. Instructions on installation are available for both Windows and Macintosh in addition to general information for both platforms.

The installation and configuration of the server should be performed by a network administrator who can set-up the proper folder privileges for the AudBase installation. Keep in mind that a user who has administrator privileges for a machine or a network is not necessarily the same person as the AudBase administrator.

Installing AudBase Server

Installing AudBase Server on the server machine will enable client machines to connect remotely. In this section you will learn how to install and configure AudBase Server for Windows and Macintosh.

System requirements

To use AudBase Server, you need the following:

- 70 MB of available hard-disk space for installation of AudBase Server
- CD-ROM drive

When establishing a client/server environment for AudBase, you will need to install the following software.

1. For the server machine:
    - AudBase Server

    - 4D Write (optional, a 4D license is needed)
2. For the client machine:
    - AudBase Client

Note: If this is a upgraded version installation, remember to back up your data file(s) before proceeding further.

To install AudBase Server for Windows

1. Insert the AudBase CD in the CD-ROM drive.
2. Browse to your computer's CD drive using Windows Explorer or My Computer. Open the AudBase Server folder.
3. Double-click on the Setup_SVR file.
   An install dialog appears.
4. Click Yes indicating you want to install AudBase.
   A wizard opens to guide you through the installation.

To install AudBase Server for Mac

1. Insert the AudBase CD in the CD-ROM drive.
2. Browse to your computer's CD drive.
3. Double-click the AudBase Server Install file.
   An install dialog appears.
4. Click Yes indicating you want to install AudBase.
   A wizard opens to guide you through the installation.

Note: In order for AudBase Server to run properly, it is necessary for the folder with all AudBase files to have Read/Write access for itself. In addition the folder with the data-file must also be Read/Write accessible for AudBase Server. AudBase Server will also setup a series of folders in the ....\Application Data folder on Windows or the ....\Library folder on Mac. These folders include a 4D folder and an OTBEC folder which contain the respective licenses. IMPORTANT: The desired default directory for AudBase application data on Windows is the 'System Drive\Documents and Settings\All Users\Application Data\' and on Mac is the "System Drive\Library\Application Support\" common user folder. If the common user folder is locked AudBase will try to make use of the current system user's folder. This is not optimal because the licenses and other common documents may not be available to all system users who use AudBase. The best solution is to give AudBase server and standalone installations access to the common user Application Data or Application Support folder. 4D Client installations since they do not require local machine licenses will make use of the current system user's folders.

Note: To see a list of files installed with AudBase, see Appendix A, "Installation Files," on page 194.

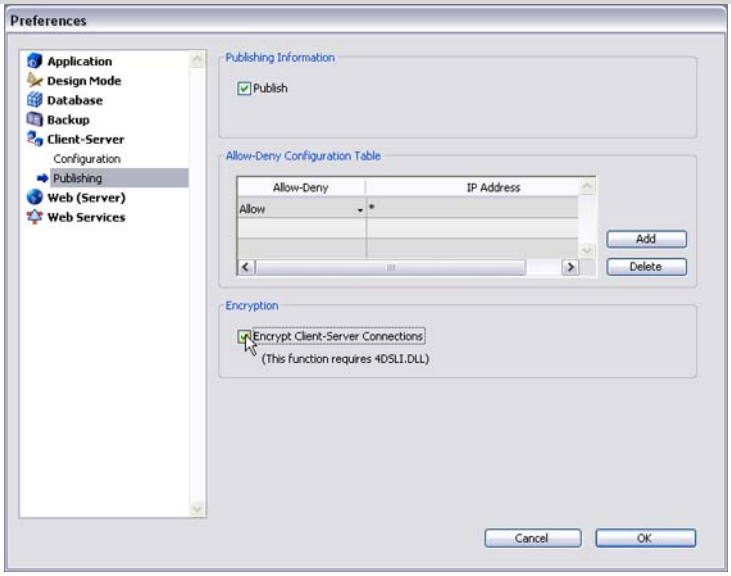
Running AudBase Server

1. Browse to the AudBase Server. folder
2. Double-click on the AudBase Server executible file.
3. When a dialog prompts you to find the AudBase data file, do one of the following:
   - If this is your first time working with AudBase, we highly recommend that you use the Example Data file. Find it in the AudBase root directory in the Example Data folder. You may create a new data file at anytime in the future by simply moving the current data file or renaming it. You will get the Find Datafile dialog again and can click on the New button.
   - If you wish to create a new data file, click New, choose a name for the new file and click OK.
   - If you wish to use an existing data file, browse to the file and click OK.

Encrypted connections in a client/server environment

In order to increase the security of your connection, you can stipulate that clients only access the server over an encrypted network. Establishing an encrypted connection is highly recommended to maintain the security of your data. Encryption is turned on in the server by going to the Edit > Preferences menu item on WIndows or File > Preferences menu item on Mac within AudBase Server. Select the Client-Server/Publishing list item on the left to display the proper page and then select the Encrypt Client-Server Connections checkbox.

Note: Encrypted connections may slow down the communication between server and client.



Using 4D Write

Some of AudBase's features, such as generating reminder letters, are enabled by a built-in word processing program called 4D Write. The 4D Write license is included in standalone versions of AudBase. In a client/server environment, if you wish to use 4D Write you can purchase a license from 4D.

To install a license for 4D Write

1. Run 4D Server.
2. With the server running, select Help > Update Licenses.
3. A dialog appears, enter the expansion number and click OK.

4D Write and the server

In a client/server environment, 4D Write is installed on the server machine and you must purchase a license if you wish to use these features. If you do not have a license for 4D Write, an alert appears stating that the 4D Write plug-in requires an expansion number. If you do not wish to install 4D Write, just dismiss the alert.

You can permanently dismiss the alert by removing the 4D Write files from both the Win 4Dx and Mac 4Dx folders.

Configuring the client machine

The AudBase Client installer programs run just like the server installer programs do (see "Installing AudBase Server" on page 160). The AudBase Client software must be installed on each client machine that is connecting to the server. You can install the AudBase client on as many machines as you like, but the number that can be connected to the server simultaneously depend on the number of licenses you have. Install the AudBase Client folder in the ....\Program Files directory on Windows or the ....\Applications directory on a Mac.

To connect to the server for the first time

1. Double-click on the AudBase Client executible file and a dialog will prompt you to select a server to connect to. Since this is the first time you are using the client no servers will be listed under the Recent tab.
2. If the server you wish to connect to is on the same network subnode, then AudBase Client should automatically detect the server and display its name on the TCP/IP tab. Just double-click the server name.
3. If the server is not visible you must tell AudBase Client where the server is this first time. After you have

logged into it once the server's name will be added to the Recent tab and you will be ableto select it just by double-clicking on it.

•Go to the Custom tab.

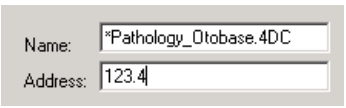
•Type in a nickname for the server which will be used in the Recent list to identify it (e.g. MyAudBase).

Note: for encrypted connection names see the next section

•Enter the IP address for the server computer and click OK. The login dialog should appear. Enter in your user name and password

Connecting to an encrypted server

If the server you are connecting to is encrypted (see "Encrypted connections in a client/server environment" on page 162E, a caret (^) needs to precede the server's name.



This indicates that the server is encrypted and the client will know to choose the proper protocol to login. Encrypted servers located on your network subnode will automatically display the caret in their nicknames.

To manually connect to an encrypted server

1. Next to Name, type in a nickname for the server you are looking for, including an asterisk, such as ^MyAudBase.
2. Enter the IP address for the computer running the server.
3. Click New.
4. When the server appears in the list, double-click the server name.

Using AudBase Server in a cross-platform environment

The following section will give you a better idea of how AudBase works in a networked environment.

Using a cache system

AudBase Server interacts with clients using an efficient disk cache system. A cache allows you to download and store frequently used files in order to speed up connection times.

As a client, when you connect to AudBase Server for the first time a number of resource files are downloaded immediately and cached, or saved, on your computer. As long as these resources remain the same on the server you do not need to download them again. Each time you request a new file from the server, it is downloaded and cached for future use. As you continue to use AudBase and your cache files increase, your communication with the server consists mainly of just record data. You will notice a significant increase in the speed of AudBase's data entry and display.

Processing information in a cross-platform environment

Since AudBase Server can handle both Mac and Windows clients, the cached files on the client-side must be compatible with the client's platform.

The AudBase Server structure file contains code for both client platforms. Likewise, plug-in documents such as the MDC_Audiotools must be in both Mac and Windows formats.

After installing AudBase Server, you may note that there are two folders for plug-in files: Mac4DX and Win4DX. Although these plug-in files may have similar names, they are not the same. Be sure not to delete or combine these folders.

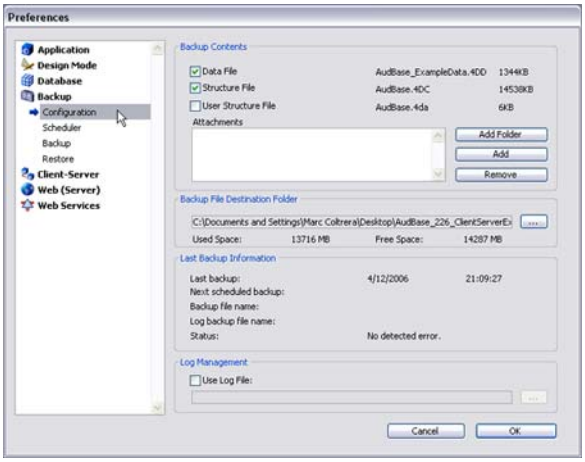
Upgrading to a new version of AudBase Server

Upgrading to a new version of AudBase Server is similar to upgrading the stand-alone version of AudBase. Please refer to "Upgrading to a new version of AudBase" on page 157 for details. AudBase Server requires the administrator to have access to a client machine for two functions: Export for Upgrade, which is run before upgrading AudBase Server, and Import for New Version, which is run after upgrading AudBase Server. "For this purpose you can run AudBase Client from the same machine the AudBase Server is on.

Note: The AudBase administrator should perform the upgrade to a new version of AudBase Server.

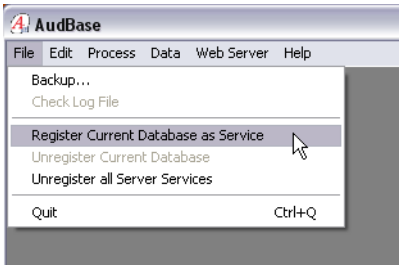
AudBase Server Backup

Data backup is a critical function. AudBase Server has a number of ways to backup the data including the use of log files to allow for data restoration between scheduled data file backups. To configure the backup options go to the Edit > Preferences menu item on Windows or File> Preferences menu item on Mac within AudBase Server. Select the Backup list item on the left. There are four pages devoted to configuration of the backup. For further details consult the 4D Server manual.



AudBase Server Service Registration

To further automate AudBase Server you should register it as a "service" of your operating system, Windows or Mac. As a registered service AudBase Server will be automatically restarted in case of a system crash. To do so go to the File > Register Current Database As Service menu item.



AudBase Server Routine Maintanance

AudBase Server requires little in the way of configuration or on-going support. As with all programs which run for extended lengths of time, it is prudent to restart the program every few months to clear out memory and increase the program's efficiency.

10 Database Design and Theory

This chapter gives you a behind-the-scenes look at the structure of AudBase and explains some of the theory behind the program's design and AudBase security measures. Understanding more about the tables and fields of the database will help you build more effective searches and use the full power of the program.

Database Design and Theory

To get the most from the data gathering, exporting and reporting capabilities of AudBase, it helps to understand a few design considerations.

AudBase was written using 4th Dimension, a relational database development system available from 4D, Inc. AudBase is a complete software package with no need for additional software when used in a stand-alone implementation. Additional capabilities, such as a multi-user client-server system and interfacing with other databases (for example, ORACLE or SQL servers), can be added through software packages that are available through 4D, Inc. (www.4d.com). For more information on client-server applications, see Chapter 8, “AudBase Server” on page 160.

During the development of AudBase a considerable amount of thought went into the organization of the data. The biggest weakness of some databases is the difficulty of retrieving information. This can be due both to poor relationship structure (for example, the inability to relate two disparate pieces of data because the potential relationship was not recognized at the time the database was developed) and the incompatibility of the exported data with other programs, such as statistical software. AudBase attempts to solve these shortcomings, and this chapter will describe some of the essential elements of its structure.

Note: Some of the examples in this chapter are based on a version of AudBase used to study tumors.

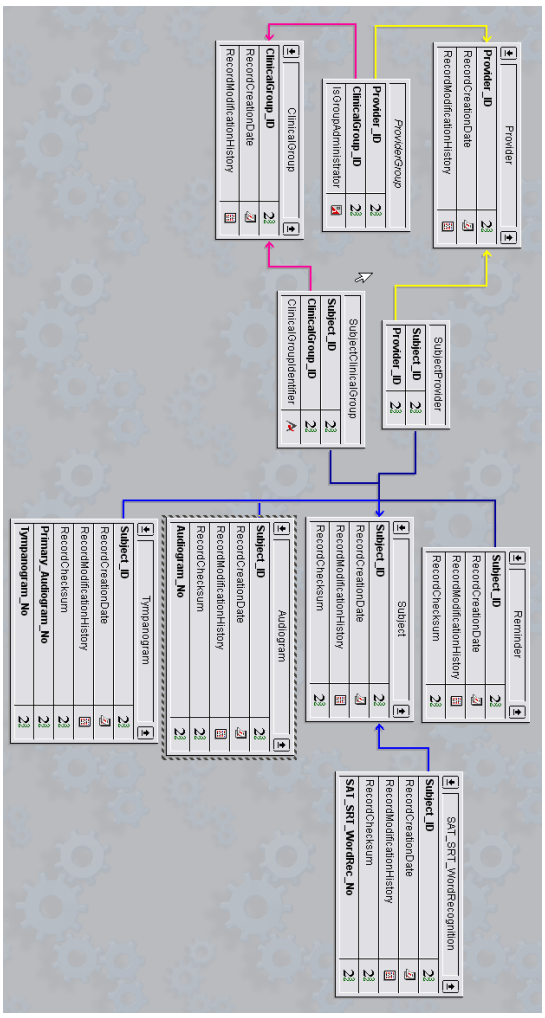
Table structure

The illustrations on the next three pages show:

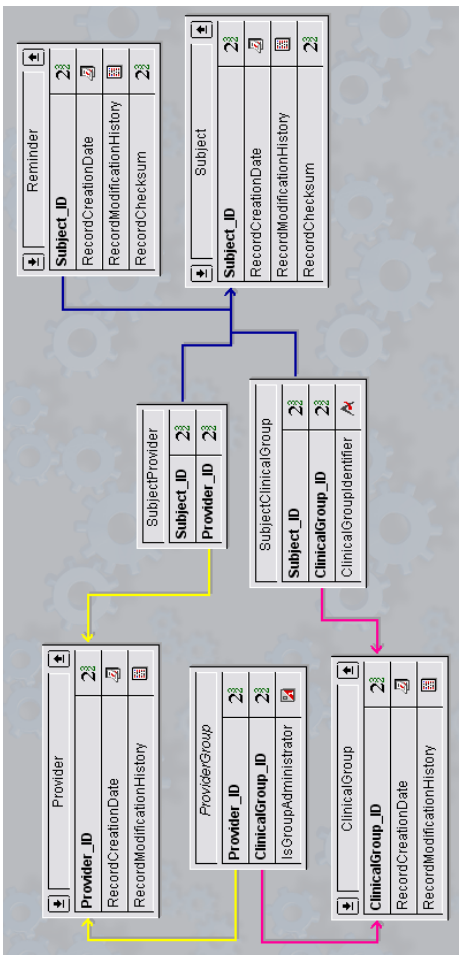
1. The entire structure of AudBase
2. A close up of the structure of the provider/Clinical Group/reminder section
3. A close up of the customized data section.

Please refer to the schematics as you read this section. Lines connect related tables. The arrows point from the “many” table to the “one” table (see: “Table relationships and design philosophy” on page 173 and “Merging documents with data fields” on page 174).

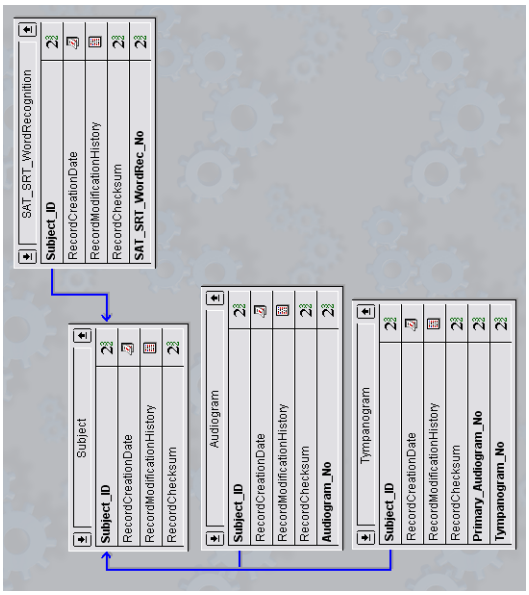
AudBase Tables



AudBase Kernal Tables



AudBase Specific Tables



Complete subject-related table list

In AudBase, the complete subject-related table structure that is normally accessible to the user consists of a number of tables, listed below:

Kernel

- ClinicalGroup
- Provider
- Reminder
- Subject

AudBase tables

- Audiogram
- SAT_SRT_WordRecognition
- Tympanogram

AudBase uses three additional tables internally as “bridging” tables: SubjectProvider, ProviderGroup and SubjectClinicalGroup. Under normal circumstances users do not access these tables directly (see “For administrators and subadministrators only” below).

For administrators and subadministrators only

Six additional tables are not accessible to the typical user: two subject-related tables (SubjectProvider, SubjectClinicalGroup), a provider/Clinical Group-related table (ProviderGroup) and three tables with no direct relationships (LargeObject, Constants and Saved Sets).

The tables SubjectProvider and SubjectClinicalGroup are not accessed directly for any normal needs. They are “bridging” tables that relate two tables with a relationship more complex than a simple Many-to-One.

For example:

A Subject record can have more than one Provider. Likewise a Provider record can have more than one Subject.

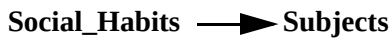
The “bridging” table, ProviderGroup, tracks Group Administrators (see “How privileges and access are controlled” on page 7). This table creates a circular relationship path that requires special handling when searching (see “Performing administrator-only searches” on page 141).

Table relationships and design philosophy

Table relationships are typically referred to as Many-to-One or One-to-Many. The arrows in the database structure illustrations represent the relationships between tables with the arrow pointing to the “one” table. Records in all of the subject-related tables relate to a single Subject record. It can be said that these tables have a Many-to-One relationship with the Subject table either directly, for example:

or indirectly. For example, in a tumor database, an indirect relationship exists for a tumor treatment and a subject.

Some of these tables can have multiple records for each Subject record. For example, a subject can have many Reminder records and several Audiogram records, since they can have multiple audiograms. Other tables are limited to a single record because of design philosophy:



In a medical database, each Subject record has only one Social_Habits record tracking smoking and alcohol history. The design philosophy is that Social_Habits data is cumulative and should be updated (for example, total number of years smoking).

Merging documents with data fields

In order to use information from AudBase in documents such as letters and reminders, it helps to understand two general relational database concepts referred to as the Related Many table and the Related One table.

Consider this example from a tumor database: a subject can have many tumors and a tumor can have many chemotherapy treatments attached to it. With respect to the Tumor_Description table, the Subject table is the Related One table (one subject per tumor) while the TumorChemotherapy_Description table is the Related Many table (many chemotherapy treatments per tumor). Seen from the TumorChemotherapy_Description table's perspective, both the Tumor_Description table and the Subject table are Related One tables (for each TumorChemotherapy_Description questionnaire there is only one tumor and one subject). In the table structure illustration, the arrows point toward the Related One table in each relationship.

When you search the database to create sets of records, the Search form handles the nuances of these relationships without your need to know except in one instance: Documents with embedded data fields that will be merged with the data from the records in the search set.

Let's say you have a letter with fields from the Tumor_Description table (for example, primary site) and the Subject table (name, address, etc.). If you were to select a set of Subject records and use the Reports > Print Any Document menu item to print them, AudBase has a dilemma: Some subjects have multiple tumors, and which tumor record do you choose to fill in the primary site field value? In this case you should use the Tumor_Description set to print from instead of the Subject set, since each Tumor_Description record only relates to one Subject record.

Exported records and required internal ID fields

When exporting records it is usually necessary to uniquely identify the records. Most tables in AudBase have required internal ID fields to accomplish this. Exported records in a TRANSFER or CHECKSUM type document automatically include the required internal ID fields whether or not the Saved Export document specified them (see "Exporting and Reporting" on page 88 and "Importing TRANSFER documents" on page 144). In the case of TEXT type export documents, you must explicitly include these fields to be able to uniquely identify the exported record data. The following fields are the required internal ID fields for exported records:

This group requires two internal ID fields, but has no unique record identification:

Kernal

- [Reminder]Subject_ID, [Reminder]Provider_ID

Version-specific

AudBase

- None

This group requires one internal ID field for unique record identification:

Kernal

- [ClinicalGroupClinical]Group_ID
- [Constants]Constant_Name
- [Subject]Subject_ID
- [Provider]Provider_ID
- [Saved Sets]Set Name

Version-specific

AudBase

- None

This group requires two internal ID fields for unique record identification:

Kernal

- [LargeObject]LargeObject_ComboID, [LargeObject]LargeObject_SubID
- [SubjectClinicalGroup]Subject_ID, [SubjectClinicalGroup]ClinicalGroup_ID
- [SubjectProvider]Subject_ID, [SubjectProvider]Provider_ID
- [ProviderGroup]Provider_ID, [ProviderGroup]ClinicalGroup_ID

Version-specific

AudBase

- [Audiogram]Subject_ID
- [Audiogram]Audiogram_No
- [SAT_SRT_WordRecognition]Subject_ID
- [SAT_SRT_WordRecognition]SAT_SRT_WordRec_No
- [Tympanogram]Subject_ID
- [Tympanogram]Tympanogram_No

This group requires three internal ID fields for unique record identification:

Kernal

- None

AudBase

- None

What makes up an internal ID number

AudBase internal ID numbers identify and relate records in different tables. The Participant ID number, assigned when you first create a new data file, is part of the internal ID numbers see “Exported records and required internal ID fields” on page 174). The following discussion about the Subject_ID applies to all uses of internal ID numbers in AudBase.

All subject-related records have a Subject_ID field that uniquely identifies the subject the record relates to. The internal Subject_ID number is a long integer (+/- 2,147,483,647). The first 3 digits of the Subject_ID have been reserved for the Participant ID number. The Participant ID number, which is set the first time the database is used with a new data file, is a number between 0 and 999. It in turn is used to set the first 3 digits of any new Subject_ID.

Viewing unique ID fields

Sometimes you may want to quickly view the unique ID fields in one of the tables associated with a data entry form. An example of this would be telling a fellow study participant to examine a subject record without your having to disclose the subject's name.

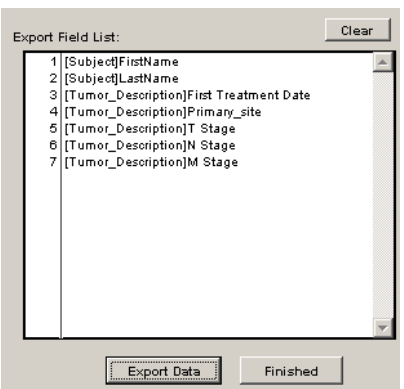
As the administrator or subadministrator, you can do this easily by holding down the shift key when you click on the Data Checklist item on the menu bar (for example, Subject > Data Checklist or Tumor > Data Checklist). A dialog appears with the name of all unique ID fields in the tables associated with the form that is active on your screen. The other study participant could then do a search within the table for a record with that ID field.

Note: If you are running a consortium study and are dealing with independent sites for data collection, make sure all the participating sites have been assigned their own Participant ID for the purposes of this study. This way when the data is pooled all Subject_ID numbers will be unique for all study participants. This is also true for all similar ID numbers.

Other internal ID numbers are constructed in the same way as the Subject_ID to uniquely identify records where Subject_ID is not sufficient.

Default field lengths for text exports

You can export data in a text document using the Fixed field size option to separate each field value, rather than using field delimiters such as tabs or commas (see “Exporting and Reporting” on page 88). AudBase uses nine types of data fields. Two are alphanumeric (String, Text), two are numeric-related (Date, Time), three are numeric (Integer, Long Integer, Real) and two are special formats (PICT, BLOB). PICT and BLOB data fields are not exported in text documents. Of the remaining fields, Date and Time have a non-vari-



able size. Integer, Long Integer, Real, String and Text have default sizes that you can vary up to a maximum size.

Table 9.1 below shows the default and maximum sizes of the various types of data entry fields in AudBase, noting which have variable sizes.

Table 9.1: Data field types and their sizes

Field Type	Variable size?	Default size	Maximum size
Date	No	10	
Integer	Yes[1]	6	6
Long Integer	Yes[1]	11	11
Real	Yes[1]	10.10	10.10
String	Yes[2]	Declared size	Declared size
Text	Yes	40	32000
Time	No	8	

Notes:

[1] Numeric fields have a maximum size that would be the size of the string needed to accommodate all the significant positions if they were filled (for example, an integer = -32767; 6 places). For Real types the maximum is 10 places to the right and 10 places to the left of the decimal point (10.10). The maximum size is the default size. If you know that the maximum field value requires fewer spaces, you can specify a shorter export field size. If you specify an export field length less than the maximum, any data value that requires more spaces will be cut off.

[2] String fields in the database have a 'declared' length. The 'declared' length is the default size. If the data value stored in the string field is shorter blank spaces are padded onto the end to fill in the specified export field size. If you know that the maximum field value requires fewer spaces, you can specify a shorter export field size. If you specify an export field length less than the maximum, any data value that requires more spaces will be cut off.

Set theory and searching

Searches consist of multiple search query lines created by using the New Query form (see "Using the New Query form" on page 72).

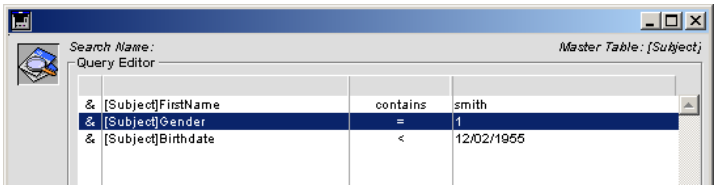
Each query line in a search consists of a combining operator (AND {&}, OR {|}, NOT {#}), a data field, a comparison operator (for example, >, =, <) and the value for the comparison. Each search query line in effect defines a set of records that meet the criteria in the line (SubjectLastName contains 'Smith'). Each search query line is combined with the previous line by means of the combining operator. The combining operators (AND {&}, OR {|}, NOT {#}) act in the same manner that the Intersection, Union and Difference selections do on the Combine Sets form (see Chapter 4, 'Searching'). The results of each search query are combined in a linear sequence. The order of the search query lines is critical when using the OR operator. Consider the following search:

Line 1: [Subject]LastName contains “Smith”
Line 2: [Subject]Gender = 1(1 = Female; 2 = Male)
Line 3: [Subject]Birthdate < 12/02/1955

Query line 1 by itself finds 20 records that meet the criteria.
Query line 2 by itself finds 50 records that meet the criteria.
Query line 3 by itself finds 70 records that meet the criteria.
Assume that all 20 of the Smiths are male, 10 of the Smiths were born before 12/02/1955, and 25 of the females were born before 12/02/1955:

The search lines are executed two at a time, from left to right.

Line 1 OR Line 2 AND Line 3: The first comparison (Line 1 OR Line 2) yields 70 records (all 20 Smiths plus all 50 females). Next, that result is compared with Line 3 using AND. This search returns the 25 females, plus the 10 Smiths born before 1955. So the query returns a total of 35 records.



Line 1 AND Line 2 OR Line 3: The first comparison (Line 1 AND Line 2) yields no records, because there are no records that meet both criteria (none of the Smiths are female). Next, that zero result is ‘OR’d’ with Line 3. The search returns all of the Line 3 records (all subjects born before 1955) because only one **OR** the other line needs to be true. So this query returns 70 records.

The lesson to remember from this is that an OR at the end of a search can only expand the number of records in the set. This tends to swamp out the careful selection that the previous query lines have achieved.

Follow these two rules of thumb:

- If possible, place all OR’d query lines at the beginning of a search.
- Don’t combine OR statements from more than one field in a search.

Use different searches and combine them with the Intersection selection on the Combine Sets form. You can get the same results by executing a Sequential Search containing multiple Saved Searches for a table.

Let's use a tumor database for an example. In this example tumor subsite involvement is stored in string fields consisting of combinations of three characters depending on the location of involvement: 'R'ight 'C'enter and 'L'eft. When a location is not involved an asterix, '*', is used as a placeholder. For example if only the center and left portions of the brain are involved the stored value would be '*CL'. Using these

&Tumor_SubsitesBrain contains “*”
|Tumor_SubsitesBrain contains “RCL” (the only combination without an ‘*’)

You can also write it without OR’d search query lines:

&Tumor_SubsitesBrain is not equal to“(<blank>)”
&Tumor_SubsitesBrain is not equal to “No”

Note: <blank> is the Not Done value, see below.

The “Not Done/N.D.” field value

To ensure that AudBase searches produce accurate results, it is important to be able to tell which fields have not been filled in. The ‘Not Done/N.D.’ value is designed to solve this problem. For example, when describing subsite involvement in a Tumor form, there’s a critical difference between the following two entries:

- “No” (no involvement in this subsite)
- Field simply left blank.by the data entry person or the subsite was not examined (“Not Done/N.D”).

Within the database, special values are assigned to the “Not Done/N.D.” response so that searches can distinguish it from real data. This section will explain those values, first looking at two general principles that underlie the “Not Done/N.D.” value, and then explaining two special cases.

Note: See Appendix B, ‘Tables and Fields,’ page 196 and Appendix C, ‘Data lists and their stored data field values,’ on page 231 for specific information on all the data fields and the interpretation of their values. Special cases have comments attached to the individual fields.

General Principles

- For alphanumeric text and string data fields, the <blank> string value is reserved for the “Not Done/N.D.” value. To search for fields with the “Not Done/N.D.” value, you would leave the value on the New Query form blank. “No” is placed in the data field as a real value when selected from a pop-up. So in this case, you would search for “No.” For text fields not associated with pop-ups the user must place a “No” or ‘None’ in the field explicitly. Most associated lists of values have a selectable “No/None” value to ensure correct spelling and to prompt the user.
- For numeric data fields, the number “0” value is reserved for the “Not Done/N.D.” value unless “0” is a valid answer for the data field (see Special Case No. 1 below). In the case of pop-up lists associated with integer data fields, the stored value is based on the relative position in the pop-up list (item at top of list is “1,” etc.). This is true for every list item except the “Not Done/N.D.” item. In AudBase the “Not Done/N.D.” item always appears at the end of the list, so its stored value (“0”) does not reflect its position in the list.

Special cases

- For numeric fields where “0” is a valid answer (for example, number of siblings) the special “out of range” value, -32767, is used. These data fields are not displayed on forms directly since the field would display “-32767,” which may cause confusion. Instead the fields are <blank> when displayed without a valid data entry.
- Since “Not Done/N.D” is not a possible entry for fields that store only true-false (yes-no) values (such as whether there were surgical complications), these fields store “0” for the “Not Done/N.D.” value, “1” for “No” and “2” for “Yes.”

Searching for “Not Done/N.D.” values

When searching for “Not Done/N.D.” alphanumeric fields, the search value is simply left blank. For an example of how searching for a blank field could be useful, consider a search for any involvement of a tumor subsite (see “Set theory and searching” on page 177). You could put together an OR’d search for every possible combination of (R)ight, (C)enter and (L)eft. Alternatively you could simply exclude records with “No” and ones that are <blank>. See the example on page 179.

When searching for values other than “Not Done/N.D.” in numeric fields, construct the search query line to look for values greater than (>) the “Not Done/N.D.” value. For example:

[Subject]Gender > 0 (“0” is the “Not Done/N.D.” value.)
-or-
[Subject]NumberOfSiblings >= 0 (“0” is a real value while “-32767” is the “Not Done/N.D.” value.)

Modifiable Lists

Many of the lists used to aid data entry in AudBase, such as pop-up lists or lists in text boxes on forms, can be modified. The administrator or a subadministrator have privileges to modify lists.

The easiest way to modify lists is by using the Modify Entry Lists feature on the Preferences form (see “Modifying lists” on page 109). This feature allows you to type in new list items and add them to the list or modify/delete old ones. There are two restrictions on adding new items or rearranging old ones:

- If the underlying data field is an alphanumeric field (for example, diagnosis in a tmor database) then the ordering of the list is not crucial since the actual stored value comes straight from the list display values.
- If the underlying data field is an integer value then you should only add new items to the end of the list and should not rearrange list orders. This is because the stored integer value represents the position of the selected item in the list in ascending order from top to bottom.

Subadministrators are usually not allowed to modify lists in a way that violates the list restrictions. The administrator will be warned if they are violating the restrictions, but they can override the warning.

You can also print out or create a text file copy of the most current version of a list by selecting the Reports > Modifiable Lists menu item attached to the Home Window. The administrator and subadministrators can do the same by selecting Import\Export > Export Lists attached to the administrator menu bar.

These lists can also be updated by importing a modified version. In the case of an imported version, the “Not Done/N.D.” item needs to be explicitly included at the end of the list.

Note: you should never add a “Not Done/N.D.” item to a pop-up list when modifying the list using the list-creation form. It will be automatically added to all modifiable pop-up lists. If you are importing a new version of a pop-up list you should export the old version to a file on your computer and use it as your starting point.

To export the old version, do one of the following:

- Click the Reports > Modifiable Lists menu item attached to the Home Window.
- Click Import\Export > Export Lists in the administrator menu bar attached to the Home Window.

Some lists are always presented in scrollable areas (for example, a list of surgeries in a tumor database). These lists may be hierarchical with attached sublists. These lists can be updated by using the list modification form or by importing a modified version. In some cases the hierarchical list items must be identified by special reference numbers. You can

view the list item reference numbers by opening the modifiable list form or exporting the old version with list set numbers to a file on your computer. Lists requiring special reference numbers are noted in Appendix C, “Data Lists and their Stored Field Values” on page 231.

Multiple version lists

Central lists (lists that are only kept in the structure file) have only one version. An example of this is the Gender list. Only the administrator can import new versions of these lists. Some lists in the database can exist in multiple versions that the administrator can make available to a user via a button on the entry form. In a tumor database these would include the Tumor Surgery Description list and the Tumor Chemotherapy Description list. These lists could have a default version that is stored in the structure file. All other versions are saved as LargeObject records. This means that if you distribute a copy of AudBase to another site, you need to include a “starter” data file with the LargeObject records in it. You can also export the LargeObject records as a TRANSFER type document and have them imported into a new, empty data file as templates.

The multiple versions of a list belong to a list family. The list family name is limited to 12 characters and is used as part of the default list’s name stored in the structure file (ListFamilyName + “_Default”). In a tumor database, for example, the Tumor Surgery Description list has a list family name of “TumSurgDesc.” The default Tumor Surgery Description list stored in the structure file is named ‘TumSurgDesc_Default’. All other lists in the “TumSurgDesc” list family are stored in LargeObject records where [LargeObject]LargeObject_ComboID = ListFamilyName (with a modifier that is automatically added by AudBase) and [LargeObject]LargeObject_ComboID = ListName.

When you open a form with a multiple-version list, AudBase searches for a list to be displayed. It searches the LargeObject table first for a default list replacement. If none is found the default list in the structure file is loaded. If one of the LargeObject lists has a ListName = “TumSurgDesc_Default” (the same name as the default list in the structure file) it will be loaded preferentially as the default list. Since only the Administrator can import and replace lists stored in the structure file, a subadministrator can override the structure file default list by this mechanism.

When importing multiple version lists the first line of the import file should be:

‘ListFamilyName$ListName’ (‘$’ separates the two names)

ListFamilyName can be up to 12 characters long. The ListName can be up to 31 characters long (see “Importing lists” on page 149 for more details).

Equivalent value lists

Some modifiable AudBase lists have two values for each list item:

- The value to display on a form.
- The value or values to save in the underlying data field.

Each list item has the format: “DisplayValue=StorageValue.” The list of U.S. states is an example of an equivalent list:

State
Alabama=AL
Alaska=AK
American Samoa=AS
Arizona=AZ
Arkansas=AR
California=CA

The full name of the state is displayed in the selection list, but the underlying data field only stores two characters. For Alabama, “AL” is stored. Some lists have numeric values instead of string values (for example 5dB=5). If you are modifying an equivalent value list, you must include the “=” sign with a value or else the StorageValue will be interpreted as <blank> or 0 depending on the underlying data field type.

Some equivalent value lists form the basis for parsed text entries where the data is entered by a multiple choice pop-up. For example, you may have a list of House Colors where the pop-up includes Brown, Yellow, Red. The item and its associated choices are stored in the list as:

House Colors=Brown;Yellow;Red;N.D. (NOTE: ‘N.D’ or its equivalent. is added to the end of the choices)

Appendix C, “Data lists and their stored data field values” on page 231 shows which lists can be modified and has information on their location in the database and their modifiability.

Checksums

Checksums are an extremely helpful tool in verifying that the data sent from one computer arrives at another computer without being changed. Especially in the case of multi-site clinical studies, checksums can also be used to make sure that subject data sent from various sites is never changed after first being collected. In essence, checksums are a mathematical way of analyzing a data stream and reducing it to a single, representative long integer (+/- 2,147,483,647). The data stream is made up of data bits, each equal to 0 or 1. By processing a series of repeated calculations using a specially selected “polynomial,” a computer can examine a data stream and detect the change in a single bit.

Checksums are most often used in data transmission where a data stream is sent followed by its calculated checksum. The receiving computer calculates its own checksum on the data stream and compares it to the received checksum. If the two match, the data stream has remained unchanged during transmission and is therefore valid.

The same theory underlies the use of checksum calculations in AudBase for entire database records and exported data field subsets. All records or fields exported in a TRANSFER type export document include their unique internal ID fields in addition to the requested export fields. Calculating a checksum on all of these fields virtually guarantees that a record or selected subset of data fields cannot be modified without changing the checksum. It is important to realize that subtle changes such as capitalizing a letter in a text field result in a completely different checksum calculation.

Control of data in multi-center clinical studies

If checksums are used it is not even necessary for participating institutions or individuals to exchange the actual data until the conclusion of a study. Instead, a CHECKSUM-type export document can be exchanged with the coordinating institution. At the conclusion of the study the actual data can be exchanged and the checksums compared to verify that no data has been altered.

Checksum Reports

When you create CHECKSUM or TRANSFER type export files, checksum data is included in a special format. If you select the CHECKSUM option on the Export Settings form, you can export the checksum information in a text format document or in a TRANSFER document (see “Since many of the export and report features involve searching for data, it may be helpful to review Chapter 4, “Searching.”” on page 88).

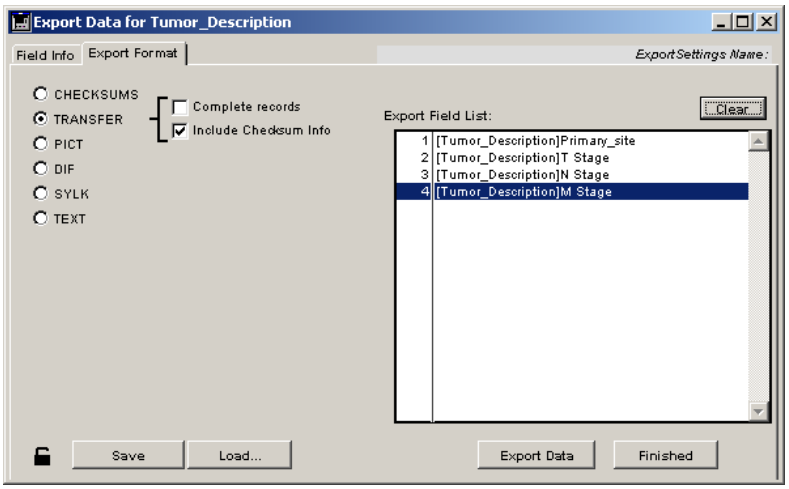
Note: The TRANSFER document does not have to include the actual data from the records selected for export.

Any spreadsheet or word processing software can open the text format document. In contrast, you must open a TRANSFER document that contains checksums by clicking Import\Export > Import TRANSFER Doc on the administrator menu bar. You can then place the TRANSFER document checksum information in a text format document for inspection.

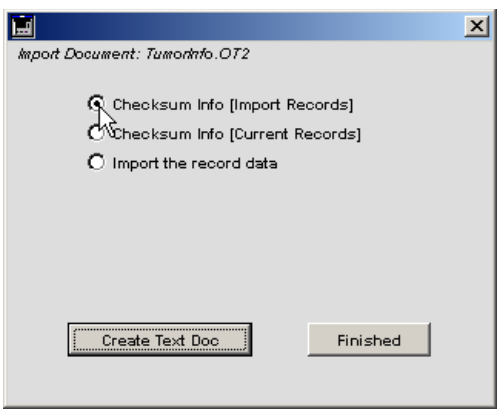
The advantage to using a TRANSFER document rather than a plain text documents is that it is harder to tamper with the checksum data and the TRANSFER document can be encrypted for additional protection against tampering.

The following example, using a tumor database version, will show the type of checksum information included in the resulting text format document. For this example, a TRANSFER document was generated by selecting Reports > Export Data. A search set was created for records from the Tumor_Description table where the primary site contains “paranasal.”

The TRANSFER document, called PARANASALTransfer, included the record data from four Tumor_Description data fields: Primary_site, T stage, N stage, and M stage. In this example we are only exporting the Tumor_Description records so only the Tumor_Description fields will be in the TRANSFER document. Because the Include Checksum Info option was checked, the TRANSFER document also included checksum information on the exported data fields.



The TRANSFER document was opened by selecting the Import\Export > Import TRANSFER Doc menu item on the administrator menu bar. Since the document includes the actual data along with the checksum information, all three options are available:



- Checksum Info import records
- Checksum Info current records
- Import the record data.

You can generate two types of text format documents from the checksum data:

- The Checksum Info import records option will include the checksum data on the records in the TRANSFER document. This is a fast process since no further analysis of data needs to be done.
- The Checksum Info current records option will additionally analyze the checksums for any pre-existing records in the data file that will be updated by the import operation. Since these checksums need to be calculated, the process may take longer.

Checksum Info import records

With the Checksum Info [Import Records] radio button selected, click on the Create Text Doc button to save the text file version of the Checksum Information. Opening the text format document created by the Checksum Info [Import Records] option will reveal the following:

```
Record Export Checksum Info
Export date: 04/25/1999:

Tablename                 Exported Field Numbers
Tumor_Description         1,5,9,16,17,18,

Tablename                 ID Field #1       ID Field #2
Tumor_Description         Subject_ID        Tumor_No

Tablename                 ID Field #1       ID Field #2       Checksum for exported fields
Tumor_Description         251000            174000            81827828
Tumor_Description         275000            215000            1520154295
Tumor_Description         277000            218000            584311072
Tumor_Description         38000             224000            1094207930
```

The file includes:

- File type identification and date of export
- The table(s) included in the export and their exported field numbers. In this example, only Tumor_Description fields were included in the export since we were only exporting records from the TumorDescription table (see the Export Settings form in the figure above). Six fields were included in the exported data and the checksum calculations: 1 (Subject_ID), 5 (Tumor_No), 9 (Primary_site), 16 (T Stage), 17 (N Stage), and 18 (M Stage). These are the four fields specified on the Export Settings form plus the two required ID fields for the Tumor_Description table.

  Note: The ID fields could have been explicitly included in the Export Settings. Since they were not, the required ID fields were automatically added.

- Names of the required ID fields for the included table(s).

As you can see from the final group of data, each exported record is identified by the table of origin, any required ID field values and the calculated checksum for the exported fields.

Since critical data records are identified by a unique ID or unique combination of IDs, the checksum is a unique identifier for the record it represents (1 in 2,147,483,647). Even if two records have the same data in the data fields specified in the Export Settings form, the two checksums will be different because of the unique ID fields that are automatically included in all CHECKSUM and TRANSFER type documents. This is why study participants do not have to exchange the actual data to guarantee that the data has not been tampered with. The checksums allow you to say with certainty that the data for the entire study is valid.

Checksum Info [Current records]

When you are importing a TRANSFER type document, the text format document created when you select the Checksum Info [Current Records] option includes all the information for the Checksum Info [Import Records]. In addition, AudBase uses the unique ID field(s) for each record to find any existing records in the current data file that would be updated by the data import. A checksum is then calculated for the corresponding data fields and compared with the checksum for the import data.

Here is the text document for the same set of Tumor_Description records, this time with the Checksum Info [Current Records] option selected.

```
Record Export Checksum Info
Export date: 08/25/1999:

Tablename               Exported Field Numbers
Tumor_Description       1,5,9,16,17,18,

Tablename               ID Field #1       ID Field #2
Tumor_Description       Subject_ID        Tumor_No
Previous record status: 0=none, 1=found w/ same checksum, 2=found w/ different checksum, 3=more
than one record found

Tablename               ID Field #1       ID Field #2       Checksum for      Previous record
                                                            exported fields   status
Tumor_Description       251000            174000            81827828          1
Tumor_Description       275000            215000            1520154295        1
Tumor_Description       277000            218000            584311072         2
Tumor_Description       38000             224000            1094207930        0
```

You can use the information in the “Previous record status” column to verify any changes in previously shared data. Note the number “2” in the second to last record; this indicates that the checksums did not match and something has changed.

By exchanging checksum data on a regular basis, a coordinating institution can monitor data collection and guarantee data integrity without having to control all or any of the actual data. Use of the Checksum only option for Clinical Group Grouped Exports will guarantee the selection of the records qualifying for a clinical study and the export of the proper data fields for the clinical study (see “Exporting a Grouped Export” on page 146).

Troubleshooting

This section details a number of procedures to follow if you believe your files have been corrupted, and offers additional tips on how to maintain healthy files. It also includes a procedure to follow if you are having trouble with your password.

Backing up files

As with any program, always make backup copies of your AudBase files. This will ensure that if the files are damaged you can retrieve them while keeping data loss to a minimum.

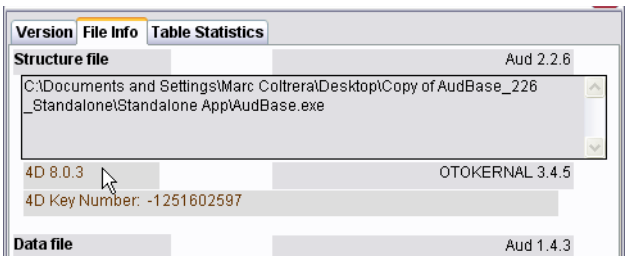
Corrupted files

From time to time computer files may become corrupted. This can happen for many reasons, including power surges, hardware problems and computer viruses, along with others.

You may be able to repair a corrupted AudBase file by using the 4D Tools application. 4D Tools allows you to diagnose and repair corrupted data and structure files. If you are using AudBase Server, the 4D Tools were installed with the program. 4D Tools are included on your installation disk or you can download the 4D Tools application and documentation at from 4D at http://www.4d.com.

Download the version of 4D Tools compatible with the 4D version associated with AudBase. To find out the 4D version number, do one of the following:

- If you are using Windows, see Help > About, and select the File Info tab.
- If you are using Macintosh, select Apple > About AudBase, and select the File Info tab.



Fixing data and structure files

If your data or structure file has been corrupted, use 4D Tools to diagnose and repair the file. If the structure file cannot be repaired, reinstall the AudBase program and log in with the initial administrator password (see “Initial passwords for a structure file” on page 4).

When repairing a data file with 4D Tools, the internal references associated with a record may become altered. Under normal circumstances, AudBase relies on the stability of these internal references to speed up processes, such as limiting record access for different users. To ensure these functions operate correctly after using 4D Tools, the first time a repaired data file is used the administrator needs to execute two items from AudBase’s Clean Up Menu.

To clean up a data file after repair

1. Log in as the administrator.
   If necessary, synchronize the data and structure files.
2. From the Home Window, select Data Manager > Administrator Menu Bar.
3. Select Clean Ups > Update Subject Sets.
4. Select Clean Ups > Update Searches\Exports

For more information, see “Clean Ups Menu items” on page 152.

Ongoing file maintenance

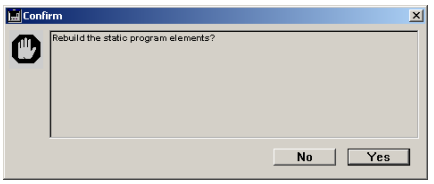
Over time data files can fragment, which can affect the performance of your files. It is recommended that you occasionally use 4D Tools to defragment and compact data files. Once the files have been compacted, you must execute the Clean Up Menu items described above.

Rebuilding static program elements

To increase efficiency, structure information, such as the table and field lists on an Export form, is stored in records in the data file. If you suspect that these records have become corrupted or do not reflect changes you know have occurred (such as a new field that does not appear in the list), you can force AudBase to rebuild these records.

To force AudBase to rebuild a static program element record

1. Log in as the administrator.
2. After entering the user name and password, hold down the shift key while clicking Connect.
   A dialog displays asking if you wish to rebuild the static program elements.



3. Click Yes.

Note: Using the Shift-Alt key combination (Windows) or Shift-Option (Mac) while clicking Connect will switch data files.

Trouble with passwords

Because AudBase passwords are stored in the data file, when you switch to a different data file you must enter a password for that file to successfully log in. Synchronization of the structure file and the data file passwords can sometimes become confusing when switching between different data files (see “How passwords work” on page 4). If you forget which data file you were last connected with and cannot log in, follow these steps.

To log in if you forget which password to use for AudBase

1. Uninstall AudBase (this will not affect your data files).
2. Reinstall the program.
3. Use the initial Administrator/Otolith2 login and password combination.
4. Browse to whatever data file you wish to work with and click Open to connect with it.
5. Following synchronization of the structure file and data file, log in with the password stored in that data file (or create a new password at this time).

Note: When using multiple data files, it is best to keep a record of the passwords for each.

Appendices

This section contains reference information about the structure and organization of the AudBase software.

Appendix A: Installation Files

Files and folders installed with AudBase include:

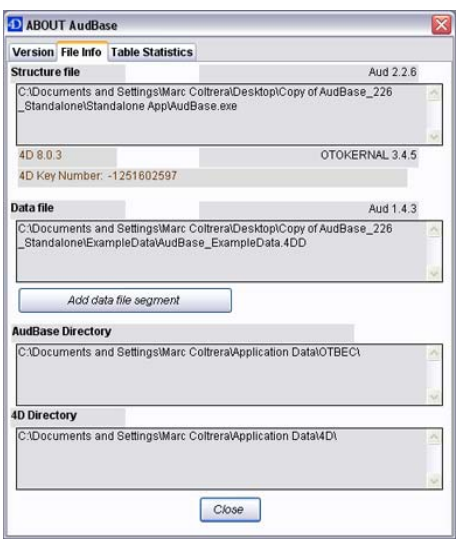
1. Structure file and associated files. These files include the executible program and all resources.
2. Example data file. This data file uses the default Administrator password and is meant to allow a new user to learn to use the program. When you start with your actual data you should create a new data file (see “Creating new data files” on page 5)
3. Documentation. PDF documents including the User manual and Tutorial are installed together. Additional 4D manuals are inluded as required to explain special features such as 4D Write. Web Help files are also installed within the Mac4DX or Win4DX directories included with the database structure files.
4. Templates. Templates allow the administrator to add functionality to a new data file by importing the template records

AudBase License Installation

AudBase licenses are stored in HTML-compatible documents which can be displayed in a web browser. The actual license data read by the program is encrypted. The license documents are kept within the Licenses directory (folder) located within the AudBase directory also known as the OTBEC directory. You can find the location of your current OTBEC directory by opening the About AudBase form by one of the following methods:

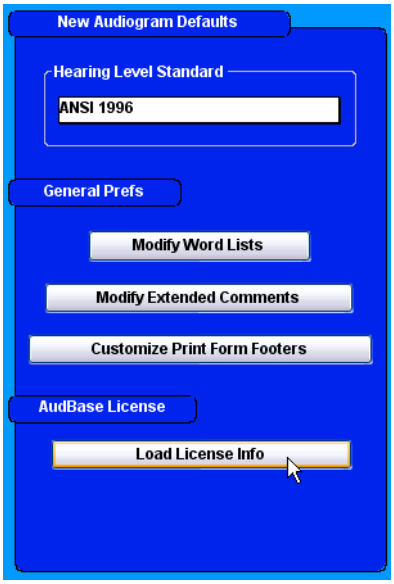
- If you are using Windows, see Help > About, and select the File Info tab.
- If you are using Macintosh, select Apple > About AudBase, and select the File Info tab.

Select the File Info tab and you will see the directory information displayed for the AudBase directory.



You can place your AudBase licenses within the directory manually or you can transfer them from their present directory to the license directory by opening the Preferences form and selecting the Audiology (Admin) page.

The encrypted license data is loaded by the program automatically on start-up. If new licenses are manually placed in the license folder while the program is running they must be loaded by selecting the Load License Info button before becoming active. Alternatively when you select the Load License button you will be asked if you want to move licenses from their present location. If you answer yes you will be asked to select the folder (directory) which the licenses are currently in. If appropriate licenses are found they will be copied to the Licenses directory and the new licenses will then be loaded automatically.



Licenses for an AudBase server installation must reside on the server machine. A request to load new licenses is generated from a client connection which can be performed on the server machine or remotely. Licenses can be moved to the server's Licenses directory from a remote client machine.

Appendix B: Tables and Fields

This appendix consists of two sections that contain a list of tables and their fields. Within each section the data fields are divided into kernel tables, included with all versions of AudBase, followed by any custom tables specific to this version.

In the first section the data fields appear in their native order, in other words, the order they appear in the database structure.

Each field lists:

1. Table field number
2. Field name
3. Field type
4. Associated data list name and other special notes.

The associated data lists contain the text items displayed on the forms for data entry purposes. The actual data stored in the data field may be an integer value. Find the associated data lists and their data field values in “Appendix C: Data lists and their data field values” on page 231. Using these two appendices you can search for any data in the database. For example, the [Subject]Gender field uses the Gender list. The data field values corresponding with the Gender list selections are: 1 = “Female”, 2 = “Male” and 0 = “N.D.” A search for female subjects would include the query line: “[Subject]Gender” = 1.

In the second section the data fields appear in alphabetical order for cross-referencing with field numbers.

Fields listed in native order

In this section, fields are listed in native order, in other words, the order they appear in the database structure.

Kernel Tables

ClinicalGroup

Field #	Field name	Field type	Associated data list/Notes
1	ClinicalGroup_ID	Long Integer	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	Name	Alpha 50	
6	Address	Text	
7	City	Alpha 20	
8	State	Alpha 2	
9	ZipCode	Alpha 10	
10	Country	Alpha 20	
11	Phone1	Alpha 20	
12	Phone1Type	Integer	Telephone Type
13	Phone2	Alpha 20	

14	Phone2Type	Integer	Telephone Type
15	Phone3	Alpha 20	
16	Phone3Type	Integer	Telephone Type
17	EMail_Address	Text	
18	ListName	Alpha 20	
19	ClinicalGroupIdentifierFormat	Alpha 15	
20	Is_A_Study	Boolean	
21	ClinicalGroupChecklist	Text	
22	ClinicalGroupGroupedExport	Text	
23	ClinicalGroupExportSeqSearch	Text	
24	EMail_AttachmentMaxSize	Integer	
25	EMail_SingleAttachmentsOnly	Boolean	
26	PrivateKeyEncrypted	Text	
27	PublicKeyEncrypted	Text	
28	Study_ParticipantID	Integer	
29	Study_ImportKeysEncrypted	Blob	
30	CountryPhoneCode	Alpha 5	
31	Completed_Record	Boolean	
32	Group_Type	Alpha 40	ClinicalGroup_Type

Constants

Field #	Field name	Field type	Associated data list/Notes
1	Constant_Name	Alpha 60	
2	LongInt_ID	Long Integer	
3	Alpha_Constant	Alpha 20	
4	Text_Constant	Text	
5	Blob_Constant	Blob	
6	Date_Constant	Date	

LargeObject

Field #	Field name	Field type	Associated data list/Notes
1	LargeObject_ComboID	Alpha 41	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	LargeObject_SubID	Alpha 31	
6	LargeObject_Blob	Blob	
7	LargeObject_Text	Text	
8	LargeObject_Pict	Picture	

Provider

Field #	Field name	Field type	Associated data list/Notes
1	Provider_ID	Long Integer	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	Salutation	Alpha 4	Salutation
6	FirstName	Alpha 20	
7	LastName	Alpha 20	
8	MiddleName	Alpha 20	
9	Title	Alpha 4	
10	Address	Text	
11	City	Alpha 20	
12	State	Alpha 2	
13	ZipCode	Alpha 10	
14	Country	Text	
15	Gender	Integer	Gender

16	Phone1	Alpha 20	
17	Phone1Type	Integer	Telephone Type
18	Phone2	Alpha 20	
19	Phone2Type	Integer	Telephone Type
20	Phone3	Alpha 20	
21	Phone3Type	Integer	Telephone Type
22	EMailAddress	Text	
23	LoginName	Alpha 30	
24	ListName	Alpha 24	
25	LocalProviderList_Set	Blob	
26	LocalClinicalGroupList_Set	Blob	
27	ClinicalGroupsInsubjectList_Set	Blob	
28	AllsubjectPrivileges	Boolean	
29	EMail_OutgoingServerName	Text	
30	EMail_OutgoingUserName	Text	
31	EMail_IncomingServerName	Text	
32	EMail_IncomingUserName	Text	
33	CountryPhoneCode	Alpha 5	
34	Occupation	Alpha 31	
35	Info_Blob	Blob	
36	Completed_Record	Boolean	
37	E_Mailbox_Type	Integer	

ProviderGroup

Field #	Field name	Field type	Associated data list/Notes
1	Provider_ID	Long Integer	
2	ClinicalGroup_ID	Long Integer	
3	IsGroupAdministrator	Boolean	

Reminder

Field #	Field name	Field type	Associated data list/Notes
1	Subject_ID	Long Integer	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	Provider_ID	Long Integer	
6	Study_ID	Long Integer	
7	DueDate	Date	
8	OrigDueDate	Date	/Date saved when reminder is originally created
9	ActionDate	Date	
10	ActionTaken	Boolean	
11	Note	Text	
12	ReminderType	Alpha 20	Reminder Type
13	Study_Name	Alpha 30	
14	Subtype_Num	Long Integer	

Saved Sets

Field #	Field name	Field type	Associated data list/Notes
1	Set Name	Alpha 31	
2	File Number	Integer	
3	Rec Mod	Date	
4	Set Data	Blob	
5	Records_In_set	Long Integer	

Subject

Field #	Field name	Field type	Associated data list/Notes

1	Subject_ID	Long Integer	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	Salutation	Alpha 4	Salutation
6	FirstName	Alpha 20	
7	LastName	Alpha 20	
8	MiddleName	Alpha 20	
9	Title	Alpha 4	
10	Address	Text	
11	City	Alpha 20	
12	State	Alpha 2	
13	ZipCode	Alpha 10	
14	Country	Text	
15	Phone1	Alpha 20	
16	Phone1Type	Integer	Telephone Type
17	Phone2	Alpha 20	
18	Phone2Type	Integer	Telephone Type
19	Phone3	Alpha 20	
20	Phone3Type	Integer	Telephone Type
21	CountryPhoneCode	Alpha 5	
22	Birthdate	Date	
23	DeathDate	Date	
24	LastContactDate	Date	
25	Gender	Integer	Gender
26	Race	Integer	Race
27	LivingStatus	Integer	Yes/No
28	LivingStatus_Contact_History	Text	Subject_Living Status (Subject_Living Status in special text format)
29	Inactive	Boolean	
30	Notes	Text	
31	ClinicalGroupIdentifier_Primary	Alpha 15	
32	ClinicalGroup_ID_Primary	Long Integer	
33	Provider_ID_Primary	Long Integer	
34	ProviderName_Primary	Alpha 24	
35	Universal_ID	Alpha 20	
36	ReferralProviderIDs	Text	
37	Completed_Record	Boolean	

SubjectClinicalGroup

Field #	Field name	Field type	Associated data list/Notes
1	Subject_ID	Long Integer	
2	ClinicalGroup_ID	Long Integer	
3	ClinicalGroupIdentifier	Alpha 15	

SubjectProvider

Field #	Field name	Field type	Associated data list/Notes
1	Subject_ID	Long Integer	
2	Provider_ID	Long Integer	

Audiogram / Tympanogram / SAT_SRT_WordRecognition Tables

The following section lists the specialized tables for AudBase. For a better understanding of the fields in this section, it may be helpful to understand the naming conventions

For right and left pure tone fields, the following abbreviations are used:

- First character: A = air, B = bone
- Second character: U = unmasked, M = masked
- Third character: R = right, L = left
- Frequencies: 00125 - 12000 or SpFxx = special frequency field number

For example “PureTone_AUR_00125” means AirUnmaskedRight at 125 Hz; “PureTone_AUR_SpF01” for a special frequency audiogram it is the first unmasked special frequency field. To determine the corresponding special frequency value, refer to the SpecFrequencyAudiogram_FieldHz field.

For comfort levels, the first two character abbreviations are used:

- MC = maximum level
- UC = uncomfortable level

For example “PureTone_MCR_02000” means MaximumComfortRight at 2000 Hz.

All soundfield names begin with the two characters “Sf”. For unaided sound fields a single character is added designating side or bilaterality:

- SfU/SfR/SfL = soundfield unaided, bilateral/right/left

For example “PureTone_SfU_01000” means SoundfieldUnaided, bilateral at 1000 Hz.

For aided soundfields the type of aid is designated along with the side (R=right, L=left, B=bilateral). Combinations are ordered following the convention of the image of the patient facing the examiner:

- SfA = soundfield Aided (hearing aid)
- SfCI = soundfield Cochlear Implant
- SfH = soundfield Hybrid

For example “PureTone_SfCIR_04000” means SoundfieldCochlearImplantRight at 4000 Hz. “PureTone_SfHB_01000” means SoundfieldHybridBilateral at 1000 Hz. “PureTone_SfARCIL_02000” means SoundfieldAidedRightCochlearImplantLeft at 2000 Hz

For word recognition fields use the same basic abbreviations for type and side plus:

- Binaural = binaural under phones
- #number = position (1 - 4)
- pct = percent
- dB = decibel level

For example “WordRecognition_L_2_pct” means left, 2nd position, percentage. Binaural under phones word recognition values have an additional character denoting which ear for the two dB values. “WordRecognition_Binaural_2L_dB” means binaural, 2nd position, left ear component, decibel level.

When appropriate the fields storing decibel levels use the following special values:

- N.D. (Not Done) = -32767
- UdB (Unspecified dB [used for some acoustic reflex tests]) = 300
- CNT (Could Not Test) = 400

No response, or NR, values are encoded as their negative values. For example, no response at 75 decibels would be encoded as -75dB. There is an exception to this rule. Because the dB range from -20 to 20 is a valid range for testing purposes, this means that NR values for dB levels from -20 to 20 cannot be simply encoded as their negative values. Though it would be extremely rare that a NR value would be recorded for this range the NR values for values in this range are calculated as their negative value PLUS -200. Thus the NR value for -10 db would be -(-10) + (-200) = -190, for 15 dB the NR value would be -(15) + (-200) = -215.

The tympanogram peak pressure field has a special No Peak (NP) value:

- NP (No Peak) = -500

Audiogram

Field #	Field name	Field type	Associated data list/Notes
1	Subject_ID	Long Integer, indexed	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	Audiogram_No	Long Integer, indexed	
6	Completed_Record	Boolean	
7	Related_Tympanogram_No	Long Integer, indexed	
8	Related_SAT_SRT_WordRec_No	Long Integer, indexed	
9	Audiogram_Date	Date	
10	Audiogram_Time	Time	
11	Examiner	Text	Audio_Audiologist
12	Notes	Text	Audio_CommentsShort/ Audio_CommentsExtended
13	Audiometer_Type	Alpha 31	Audio_AudiometerType
14	Transducer_Standard	Text	Audio_Transducer
15	Transducer_SpecFreq	Text	Audio_Transducer
16	Reliability	Alpha 4	Audio_Reliability
17	Testing_method	Text	Audio_TestingMethod
18	Testing_location	Text	Audio_TestingLocation
19	Testing_Sublocation	Text	Audio_TestingSublocation
20	PackedDisplay_selector	Integer	
21	Audiogram_SpecFrequencyType	Integer	
22	SpecFrequencyAudiogram_FieldHz	Text	
23	PureTone_AUR_00125	Integer	
24	PureTone_AUR_00250	Integer	

25	PureTone_AUR_00500	Integer
26	PureTone_AUR_00750	Integer
27	PureTone_AUR_01000	Integer
28	PureTone_AUR_01500	Integer
29	PureTone_AUR_02000	Integer
30	PureTone_AUR_03000	Integer
31	PureTone_AUR_04000	Integer
32	PureTone_AUR_06000	Integer
33	PureTone_AUR_08000	Integer
34	PureTone_AUR_12000	Integer
35	PureTone_AMR_00125	Integer
36	PureTone_AMR_00250	Integer
37	PureTone_AMR_00500	Integer
38	PureTone_AMR_00750	Integer
39	PureTone_AMR_01000	Integer
40	PureTone_AMR_01500	Integer
41	PureTone_AMR_02000	Integer
42	PureTone_AMR_03000	Integer
43	PureTone_AMR_04000	Integer
44	PureTone_AMR_06000	Integer
45	PureTone_AMR_08000	Integer
46	PureTone_AMR_12000	Integer
47	PureTone_BUR_00125	Integer
48	PureTone_BUR_00250	Integer
49	PureTone_BUR_00500	Integer
50	PureTone_BUR_00750	Integer
51	PureTone_BUR_01000	Integer
52	PureTone_BUR_01500	Integer
53	PureTone_BUR_02000	Integer
54	PureTone_BUR_03000	Integer
55	PureTone_BUR_04000	Integer
56	PureTone_BUR_06000	Integer
57	PureTone_BUR_08000	Integer
58	PureTone_BUR_12000	Integer
59	PureTone_BMR_00125	Integer
60	PureTone_BMR_00250	Integer
61	PureTone_BMR_00500	Integer
62	PureTone_BMR_00750	Integer
63	PureTone_BMR_01000	Integer
64	PureTone_BMR_01500	Integer
65	PureTone_BMR_02000	Integer
66	PureTone_BMR_03000	Integer
67	PureTone_BMR_04000	Integer
68	PureTone_BMR_06000	Integer
69	PureTone_BMR_08000	Integer
70	PureTone_BMR_12000	Integer
71	PureTone_MCR_00125	Integer
72	PureTone_MCR_00250	Integer
73	PureTone_MCR_00500	Integer
74	PureTone_MCR_00750	Integer
75	PureTone_MCR_01000	Integer
76	PureTone_MCR_01500	Integer
77	PureTone_MCR_02000	Integer
78	PureTone_MCR_03000	Integer
79	PureTone_MCR_04000	Integer
80	PureTone_MCR_06000	Integer
81	PureTone_MCR_08000	Integer

82	PureTone_MCR_12000	Integer
83	PureTone_UCR_00125	Integer
84	PureTone_UCR_00250	Integer
85	PureTone_UCR_00500	Integer
86	PureTone_UCR_00750	Integer
87	PureTone_UCR_01000	Integer
88	PureTone_UCR_01500	Integer
89	PureTone_UCR_02000	Integer
90	PureTone_UCR_03000	Integer
91	PureTone_UCR_04000	Integer
92	PureTone_UCR_06000	Integer
93	PureTone_UCR_08000	Integer
94	PureTone_UCR_12000	Integer
95	PureTone_AUR_SpF01	Integer
96	PureTone_AUR_SpF02	Integer
97	PureTone_AUR_SpF03	Integer
98	PureTone_AUR_SpF04	Integer
99	PureTone_AUR_SpF05	Integer
100	PureTone_AUR_SpF06	Integer
101	PureTone_AUR_SpF07	Integer
102	PureTone_AUR_SpF08	Integer
103	PureTone_AUR_SpF09	Integer
104	PureTone_AUR_SpF10	Integer
105	PureTone_AUR_SpF11	Integer
106	PureTone_AUR_SpF12	Integer
107	PureTone_AMR_SpF01	Integer
108	PureTone_AMR_SpF02	Integer
109	PureTone_AMR_SpF03	Integer
110	PureTone_AMR_SpF04	Integer
111	PureTone_AMR_SpF05	Integer
112	PureTone_AMR_SpF06	Integer
113	PureTone_AMR_SpF07	Integer
114	PureTone_AMR_SpF08	Integer
115	PureTone_AMR_SpF09	Integer
116	PureTone_AMR_SpF10	Integer
117	PureTone_AMR_SpF11	Integer
118	PureTone_AMR_SpF12	Integer
119	PureTone_AUL_00125	Integer
120	PureTone_AUL_00250	Integer
121	PureTone_AUL_00500	Integer
122	PureTone_AUL_00750	Integer
123	PureTone_AUL_01000	Integer
124	PureTone_AUL_01500	Integer
125	PureTone_AUL_02000	Integer
126	PureTone_AUL_03000	Integer
127	PureTone_AUL_04000	Integer
128	PureTone_AUL_06000	Integer
129	PureTone_AUL_08000	Integer
130	PureTone_AUL_12000	Integer
131	PureTone_AML_00125	Integer
132	PureTone_AML_00250	Integer
133	PureTone_AML_00500	Integer
134	PureTone_AML_00750	Integer
135	PureTone_AML_01000	Integer
136	PureTone_AML_01500	Integer
137	PureTone_AML_02000	Integer
138	PureTone_AML_03000	Integer

139	PureTone_AML_04000	Integer
140	PureTone_AML_06000	Integer
141	PureTone_AML_08000	Integer
142	PureTone_AML_12000	Integer
143	PureTone_BUL_00125	Integer
144	PureTone_BUL_00250	Integer
145	PureTone_BUL_00500	Integer
146	PureTone_BUL_00750	Integer
147	PureTone_BUL_01000	Integer
148	PureTone_BUL_01500	Integer
149	PureTone_BUL_02000	Integer
150	PureTone_BUL_03000	Integer
151	PureTone_BUL_04000	Integer
152	PureTone_BUL_06000	Integer
153	PureTone_BUL_08000	Integer
154	PureTone_BUL_12000	Integer
155	PureTone_BML_00125	Integer
156	PureTone_BML_00250	Integer
157	PureTone_BML_00500	Integer
158	PureTone_BML_00750	Integer
159	PureTone_BML_01000	Integer
160	PureTone_BML_01500	Integer
161	PureTone_BML_02000	Integer
162	PureTone_BML_03000	Integer
163	PureTone_BML_04000	Integer
164	PureTone_BML_06000	Integer
165	PureTone_BML_08000	Integer
166	PureTone_BML_12000	Integer
167	PureTone_MCL_00125	Integer
168	PureTone_MCL_00250	Integer
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171	PureTone_MCL_01000	Integer
172	PureTone_MCL_01500	Integer
173	PureTone_MCL_02000	Integer
174	PureTone_MCL_03000	Integer
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176	PureTone_MCL_06000	Integer
177	PureTone_MCL_08000	Integer
178	PureTone_MCL_12000	Integer
179	PureTone_UCL_00125	Integer
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185	PureTone_UCL_02000	Integer
186	PureTone_UCL_03000	Integer
187	PureTone_UCL_04000	Integer
188	PureTone_UCL_06000	Integer
189	PureTone_UCL_08000	Integer
190	PureTone_UCL_12000	Integer
191	PureTone_AUL_SpF01	Integer
192	PureTone_AUL_SpF02	Integer
193	PureTone_AUL_SpF03	Integer
194	PureTone_AUL_SpF04	Integer
195	PureTone_AUL_SpF05	Integer

196	PureTone_AUL_SpF06	Integer
197	PureTone_AUL_SpF07	Integer
198	PureTone_AUL_SpF08	Integer
199	PureTone_AUL_SpF09	Integer
200	PureTone_AUL_SpF10	Integer
201	PureTone_AUL_SpF11	Integer
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205	PureTone_AML_SpF03	Integer
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210	PureTone_AML_SpF08	Integer
211	PureTone_AML_SpF09	Integer
212	PureTone_AML_SpF10	Integer
213	PureTone_AML_SpF11	Integer
214	PureTone_AML_SpF12	Integer
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216	PureTone_SfU_00250	Integer
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218	PureTone_SfU_00750	Integer
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222	PureTone_SfU_03000	Integer
223	PureTone_SfU_04000	Integer
224	PureTone_SfU_06000	Integer
225	PureTone_SfU_08000	Integer
226	PureTone_SfU_12000	Integer
227	PureTone_SfR_00125	Integer
228	PureTone_SfR_00250	Integer
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244	PureTone_SfL_01500	Integer
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246	PureTone_SfL_03000	Integer
247	PureTone_SfL_04000	Integer
248	PureTone_SfL_06000	Integer
249	PureTone_SfL_08000	Integer
250	PureTone_SfL_12000	Integer
251	PureTone_SfU_SpF01	Integer
252	PureTone_SfU_SpF02	Integer

253	PureTone_SfU_SpF03	Integer
254	PureTone_SfU_SpF04	Integer
255	PureTone_SfU_SpF05	Integer
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261	PureTone_SfU_SpF11	Integer
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263	PureTone_SfR_SpF01	Integer
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265	PureTone_SfR_SpF03	Integer
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274	PureTone_SfR_SpF12	Integer
275	PureTone_SfL_SpF01	Integer
276	PureTone_SfL_SpF02	Integer
277	PureTone_SfL_SpF03	Integer
278	PureTone_SfL_SpF04	Integer
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280	PureTone_SfL_SpF06	Integer
281	PureTone_SfL_SpF07	Integer
282	PureTone_SfL_SpF08	Integer
283	PureTone_SfL_SpF09	Integer
284	PureTone_SfL_SpF10	Integer
285	PureTone_SfL_SpF11	Integer
286	PureTone_SfL_SpF12	Integer
287	PureTone_SfAR_00125	Integer
288	PureTone_SfAR_00250	Integer
289	PureTone_SfAR_00500	Integer
290	PureTone_SfAR_00750	Integer
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293	PureTone_SfAR_02000	Integer
294	PureTone_SfAR_03000	Integer
295	PureTone_SfAR_04000	Integer
296	PureTone_SfAR_06000	Integer
297	PureTone_SfAR_08000	Integer
298	PureTone_SfAR_12000	Integer
299	PureTone_SfAL_00125	Integer
300	PureTone_SfAL_00250	Integer
301	PureTone_SfAL_00500	Integer
302	PureTone_SfAL_00750	Integer
303	PureTone_SfAL_01000	Integer
304	PureTone_SfAL_01500	Integer
305	PureTone_SfAL_02000	Integer
306	PureTone_SfAL_03000	Integer
307	PureTone_SfAL_04000	Integer
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309	PureTone_SfAL_08000	Integer

310	PureTone_SfAL_12000	Integer
311	PureTone_SfAB_00125	Integer
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317	PureTone_SfAB_02000	Integer
318	PureTone_SfAB_03000	Integer
319	PureTone_SfAB_04000	Integer
320	PureTone_SfAB_06000	Integer
321	PureTone_SfAB_08000	Integer
322	PureTone_SfAB_12000	Integer
323	PureTone_SfCIL_00125	Integer
324	PureTone_SfCIL_00250	Integer
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328	PureTone_SfCIL_01500	Integer
329	PureTone_SfCIL_02000	Integer
330	PureTone_SfCIL_03000	Integer
331	PureTone_SfCIL_04000	Integer
332	PureTone_SfCIL_06000	Integer
333	PureTone_SfCIL_08000	Integer
334	PureTone_SfCIL_12000	Integer
335	PureTone_SfCIR_00125	Integer
336	PureTone_SfCIR_00250	Integer
337	PureTone_SfCIR_00500	Integer
338	PureTone_SfCIR_00750	Integer
339	PureTone_SfCIR_01000	Integer
340	PureTone_SfCIR_01500	Integer
341	PureTone_SfCIR_02000	Integer
342	PureTone_SfCIR_03000	Integer
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353	PureTone_SfCIB_02000	Integer
354	PureTone_SfCIB_03000	Integer
355	PureTone_SfCIB_04000	Integer
356	PureTone_SfCIB_06000	Integer
357	PureTone_SfCIB_08000	Integer
358	PureTone_SfCIB_12000	Integer
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361	PureTone_SfHR_00500	Integer
362	PureTone_SfHR_00750	Integer
363	PureTone_SfHR_01000	Integer
364	PureTone_SfHR_01500	Integer
365	PureTone_SfHR_02000	Integer
366	PureTone_SfHR_03000	Integer

367	PureTone_SfHR_04000	Integer
368	PureTone_SfHR_06000	Integer
369	PureTone_SfHR_08000	Integer
370	PureTone_SfHR_12000	Integer
371	PureTone_SfHL_00125	Integer
372	PureTone_SfHL_00250	Integer
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376	PureTone_SfHL_01500	Integer
377	PureTone_SfHL_02000	Integer
378	PureTone_SfHL_03000	Integer
379	PureTone_SfHL_04000	Integer
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381	PureTone_SfHL_08000	Integer
382	PureTone_SfHL_12000	Integer
383	PureTone_SfHB_00125	Integer
384	PureTone_SfHB_00250	Integer
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386	PureTone_SfHB_00750	Integer
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388	PureTone_SfHB_01500	Integer
389	PureTone_SfHB_02000	Integer
390	PureTone_SfHB_03000	Integer
391	PureTone_SfHB_04000	Integer
392	PureTone_SfHB_06000	Integer
393	PureTone_SfHB_08000	Integer
394	PureTone_SfHB_12000	Integer
395	PureTone_SfARCIL_00125	Integer
396	PureTone_SfARCIL_00250	Integer
397	PureTone_SfARCIL_00500	Integer
398	PureTone_SfARCIL_00750	Integer
399	PureTone_SfARCIL_01000	Integer
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401	PureTone_SfARCIL_02000	Integer
402	PureTone_SfARCIL_03000	Integer
403	PureTone_SfARCIL_04000	Integer
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405	PureTone_SfARCIL_08000	Integer
406	PureTone_SfARCIL_12000	Integer
407	PureTone_SfARHL_00125	Integer
408	PureTone_SfARHL_00250	Integer
409	PureTone_SfARHL_00500	Integer
410	PureTone_SfARHL_00750	Integer
411	PureTone_SfARHL_01000	Integer
412	PureTone_SfARHL_01500	Integer
413	PureTone_SfARHL_02000	Integer
414	PureTone_SfARHL_03000	Integer
415	PureTone_SfARHL_04000	Integer
416	PureTone_SfARHL_06000	Integer
417	PureTone_SfARHL_08000	Integer
418	PureTone_SfARHL_12000	Integer
419	PureTone_SfCIRAL_00125	Integer
420	PureTone_SfCIRAL_00250	Integer
421	PureTone_SfCIRAL_00500	Integer
422	PureTone_SfCIRAL_00750	Integer
423	PureTone_SfCIRAL_01000	Integer

424	PureTone_SfCIRAL_01500	Integer	
425	PureTone_SfCIRAL_02000	Integer	
426	PureTone_SfCIRAL_03000	Integer	
427	PureTone_SfCIRAL_04000	Integer	
428	PureTone_SfCIRAL_06000	Integer	
429	PureTone_SfCIRAL_08000	Integer	
430	PureTone_SfCIRAL_12000	Integer	
431	PureTone_SfCIRHL_00125	Integer	
432	PureTone_SfCIRHL_00250	Integer	
433	PureTone_SfCIRHL_00500	Integer	
434	PureTone_SfCIRHL_00750	Integer	
435	PureTone_SfCIRHL_01000	Integer	
436	PureTone_SfCIRHL_01500	Integer	
437	PureTone_SfCIRHL_02000	Integer	
438	PureTone_SfCIRHL_03000	Integer	
439	PureTone_SfCIRHL_04000	Integer	
440	PureTone_SfCIRHL_06000	Integer	
441	PureTone_SfCIRHL_08000	Integer	
442	PureTone_SfCIRHL_12000	Integer	
443	PureTone_SfHRAL_00125	Integer	
444	PureTone_SfHRAL_00250	Integer	
445	PureTone_SfHRAL_00500	Integer	
446	PureTone_SfHRAL_00750	Integer	
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448	PureTone_SfHRAL_01500	Integer	
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461	PureTone_SfHRCIL_02000	Integer	
462	PureTone_SfHRCIL_03000	Integer	
463	PureTone_SfHRCIL_04000	Integer	
464	PureTone_SfHRCIL_06000	Integer	
465	PureTone_SfHRCIL_08000	Integer	
466	PureTone_SfHRCIL_12000	Integer	
467	PureToneAvg_Air_R_dB	Integer	
468	PureToneAvg_Bone_R_dB	Integer	
469	PureToneAvg_SFUnaided_dB	Integer	
470	PureToneAvg_Air_L_dB	Integer	
471	PureToneAvg_Bone_L_dB	Integer	
472	PureToneAvg_SFAided_dB	Integer	
473	PureToneAvg_Air_R_FreqCombo	Integer	Audio_PTAFreq
474	PureToneAvg_Bone_R_FreqCombo	Integer	Audio_PTAFreq
475	PureToneAvg_SFUnaided_FreqCombo	Integer	Audio_PTAFreq
476	PureToneAvg_Air_L_FreqCombo	Integer	Audio_PTAFreq
477	PureToneAvg_Bone_L_FreqCombo	Integer	Audio_PTAFreq
478	PureToneAvg_SFAided_FreqCombo	Integer	Audio_PTAFreq
479	PureToneAvg_SfAided_CalcType	Integer	Audio_SoundfieldAidedTypes
480	PureToneAvg_SfUnaided_CalcType	Integer	Audio_SoundfieldUnaidedTypes

481	DisplayPrefsBlob	Blob	
482	R_CommentFlagBlob	Blob	
483	R_NRFlagBlob	Blob	
484	L_CommentFlagBlob	Blob	
485	L_NRFlagBlob	Blob	
486	BoneInfoBlob	Blob	
487	MaskInfoBlob	Blob	
488	BoneInfoText	Text	
489	MaskInfoText	Text	
490	CommentInfoText	Text	
491	SpecFreq_BooleanFlag	Boolean	
492	Comment_BooleanFlag	Boolean	
493	NoResponse_BooleanFlag	Boolean	
494	UnspecifiedBone_BooleanFlag	Boolean	
495	HearingLevel_dB_Standard	Text	
496	Other_Info_Data	Text	Audio_Other_Info_Data/ Audio_Other_Info_Data_Modified
497	SpecialInfo_Blob	Blob	

SAT_SRT_WordRecognition

Field #	Field name	Field type	Associated data list/Notes
1	Subject_ID	Long Integer, indexed	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	SAT_SRT_WordRec_No	Long Integer, indexed	
6	Primary_Audiogram_No	Long Integer, indexed	
7	Completed_Record	Boolean	
8	Exam_Date	Date	
9	Exam_Time	Time	
10	Examiner	Text	Audio_Audiologist
11	Notes	Text	
12	SAT_SRT_Stimulus	Text	Audio_SpondeeType
13	SRT_Air_R	Integer	
14	SRT_SfAR	Integer	
15	SRT_SfU	Integer	
16	SRT_Bone_R	Integer	
17	SRT_UnderPhones_MCR	Integer	
18	SRT_UnderPhones_UCR	Integer	
19	SRT_Air_L	Integer	
20	SRT_SfAL	Integer	
21	SRT_SfAB	Integer	
22	SRT_Bone_L	Integer	
23	SRT_UnderPhones_MCL	Integer	
24	SRT_UnderPhones_UCL	Integer	
25	SRT_Air_R_babble	Integer	
26	SRT_SfAR_babble	Integer	
27	SRT_SfU_babble	Integer	
28	SRT_Air_L_babble	Integer	
29	SRT_SfAL_babble	Integer	
30	SRT_SfAB_babble	Integer	
31	SAT_Air_R	Integer	
32	SAT_SfAR	Integer	
33	SAT_SfU	Integer	
34	SAT_Bone_R	Integer	
35	SAT_Air_L	Integer	

36	SAT_SfAL	Integer	
37	SAT_SfAB	Integer	
38	SAT_Bone_L	Integer	
39	WordRec_Type	Text	Audio_WordRecList
40	WordRec_R_1_dB	Integer	
41	WordRec_R_2_dB	Integer	
42	WordRec_R_3_dB	Integer	
43	WordRec_R_4_dB	Integer	
44	WordRec_L_1_dB	Integer	
45	WordRec_L_2_dB	Integer	
46	WordRec_L_3_dB	Integer	
47	WordRec_L_4_dB	Integer	
48	WordRec_SfAR_1_dB	Integer	
49	WordRec_SfAR_2_dB	Integer	
50	WordRec_SfAR_3_dB	Integer	
51	WordRec_SfAR_4_dB	Integer	
52	WordRec_SfAL_1_dB	Integer	
53	WordRec_SfAL_2_dB	Integer	
54	WordRec_SfAL_3_dB	Integer	
55	WordRec_SfAL_4_dB	Integer	
56	WordRec_SfU_1_dB	Integer	
57	WordRec_SfU_2_dB	Integer	
58	WordRec_SfU_3_dB	Integer	
59	WordRec_SfU_4_dB	Integer	
60	WordRec_SfAB_1_dB	Integer	
61	WordRec_SfAB_2_dB	Integer	
62	WordRec_SfAB_3_dB	Integer	
63	WordRec_SfAB_4_dB	Integer	
64	WordRec_Binaural_R_1_dB	Integer	
65	WordRec_Binaural_R_2_dB	Integer	
66	WordRec_Binaural_R_3_dB	Integer	
67	WordRec_Binaural_R_4_dB	Integer	
68	WordRec_Binaural_L_1_dB	Integer	
69	WordRec_Binaural_L_2_dB	Integer	
70	WordRec_Binaural_L_3_dB	Integer	
71	WordRec_Binaural_L_4_dB	Integer	
72	WordRec_R_1_pct	Integer	
73	WordRec_R_2_pct	Integer	
74	WordRec_R_3_pct	Integer	
75	WordRec_R_4_pct	Integer	
76	WordRec_L_1_pct	Integer	
77	WordRec_L_2_pct	Integer	
78	WordRec_L_3_pct	Integer	
79	WordRec_L_4_pct	Integer	
80	WordRec_SfAR_1_pct	Integer	
81	WordRec_SfAR_2_pct	Integer	
82	WordRec_SfAR_3_pct	Integer	
83	WordRec_SfAR_4_pct	Integer	
84	WordRec_SfAL_1_pct	Integer	
85	WordRec_SfAL_2_pct	Integer	
86	WordRec_SfAL_3_pct	Integer	
87	WordRec_SfAL_4_pct	Integer	
88	WordRec_SfU_1_pct	Integer	
89	WordRec_SfU_2_pct	Integer	
90	WordRec_SfU_3_pct	Integer	
91	WordRec_SfU_4_pct	Integer	
92	WordRec_SfAB_1_pct	Integer	

93	WordRec_SfAB_2_pct	Integer
94	WordRec_SfAB_3_pct	Integer
95	WordRec_SfAB_4_pct	Integer
96	WordRec_Binaural_1_pct	Integer
97	WordRec_Binaural_2_pct	Integer
98	WordRec_Binaural_3_pct	Integer
99	WordRec_Binaural_4_pct	Integer
100	WordRec_R_1_dB_babble	Integer
101	WordRec_R_2_dB_babble	Integer
102	WordRec_R_3_dB_babble	Integer
103	WordRec_R_4_dB_babble	Integer
104	WordRec_L_1_dB_babble	Integer
105	WordRec_L_2_dB_babble	Integer
106	WordRec_L_3_dB_babble	Integer
107	WordRec_L_4_dB_babble	Integer
108	WordRec_SfAR_1_dB_babble	Integer
109	WordRec_SfAR_2_dB_babble	Integer
110	WordRec_SfAR_3_dB_babble	Integer
111	WordRec_SfAR_4_dB_babble	Integer
112	WordRec_SfAL_1_dB_babble	Integer
113	WordRec_SfAL_2_dB_babble	Integer
114	WordRec_SfAL_3_dB_babble	Integer
115	WordRec_SfAL_4_dB_babble	Integer
116	WordRec_SfU_1_dB_babble	Integer
117	WordRec_SfU_2_dB_babble	Integer
118	WordRec_SfU_3_dB_babble	Integer
119	WordRec_SfU_4_dB_babble	Integer
120	WordRec_SfAB_1_dB_babble	Integer
121	WordRec_SfAB_2_dB_babble	Integer
122	WordRec_SfAB_3_dB_babble	Integer
123	WordRec_SfAB_4_dB_babble	Integer
124	WordRec_Binaural_R_1_dB_babble	Integer
125	WordRec_Binaural_R_2_dB_babble	Integer
126	WordRec_Binaural_R_3_dB_babble	Integer
127	WordRec_Binaural_R_4_dB_babble	Integer
128	WordRec_Binaural_L_1_dB_babble	Integer
129	WordRec_Binaural_L_2_dB_babble	Integer
130	WordRec_Binaural_L_3_dB_babble	Integer
131	WordRec_Binaural_L_4_dB_babble	Integer
132	WordRec_R_1_pct_babble	Integer
133	WordRec_R_2_pct_babble	Integer
134	WordRec_R_3_pct_babble	Integer
135	WordRec_R_4_pct_babble	Integer
136	WordRec_L_1_pct_babble	Integer
137	WordRec_L_2_pct_babble	Integer
138	WordRec_L_3_pct_babble	Integer
139	WordRec_L_4_pct_babble	Integer
140	WordRec_SfAR_1_pct_babble	Integer
141	WordRec_SfAR_2_pct_babble	Integer
142	WordRec_SfAR_3_pct_babble	Integer
143	WordRec_SfAR_4_pct_babble	Integer
144	WordRec_SfAL_1_pct_babble	Integer
145	WordRec_SfAL_2_pct_babble	Integer
146	WordRec_SfAL_3_pct_babble	Integer
147	WordRec_SfAL_4_pct_babble	Integer
148	WordRec_SfU_1_pct_babble	Integer
149	WordRec_SfU_2_pct_babble	Integer

150	WordRec_SfU_3_pct_babble	Integer
151	WordRec_SfU_4_pct_babble	Integer
152	WordRec_SfAB_1_pct_babble	Integer
153	WordRec_SfAB_2_pct_babble	Integer
154	WordRec_SfAB_3_pct_babble	Integer
155	WordRec_SfAB_4_pct_babble	Integer
156	WordRec_Binaural_1_pct_babble	Integer
157	WordRec_Binaural_2_pct_babble	Integer
158	WordRec_Binaural_3_pct_babble	Integer
159	WordRec_Binaural_4_pct_babble	Integer
160	SAT_SRT_WordRec_MaskInfoBlob	Blob
161	SAT_SRT_WordRec_MaskInfoText	Text
162	PackedDisplay_selector	Integer
163	SpecialInfo_Blob	Blob

Tympanogram

Field #	Field name	Field type	Associated data list/Notes
1	Subject_ID	Long Integer, indexed	
2	RecordCreationDate	Date	
3	RecordModificationHistory	Text	
4	RecordChecksum	Long Integer	
5	Primary_Audiogram_No	Long Integer, indexed	
6	Tympanogram_No	Long Integer, indexed	
7	Completed_Record	Boolean	
8	Tympanogram_Date	Date	
9	Tympanogram_Time	Time	
10	Examiner	Text	Audio_Audiologist
11	Notes	Text	
12	TympanogramRecordInfoBlob	Blob	
13	Tympanogram_Displays	Text	
14	Tympanogram_TypesSaved	Text	
15	ProbeToneTymp_R	Integer	
16	EarCanalVolume_R	Real	
17	PeakAdmittance_R	Real	
18	PeakPressure_R	Integer	
19	ProbeToneTymp_L	Integer	
20	EarCanalVolume_C1_L	Real	
21	PeakAdmittance_L	Real	
22	PeakPressure_L	Integer	
23	AcousReflex_Stim_R_Contra_0250	Integer	
24	AcousReflex_Stim_R_Contra_0500	Integer	
25	AcousReflex_Stim_R_Contra_1000	Integer	
26	AcousReflex_Stim_R_Contra_2000	Integer	
27	AcousReflex_Stim_R_Contra_4000	Integer	
28	AcousReflex_Stim_R_Contra_Noise	Integer	
29	AcousReflex_Stim_R_Ipsi_0250	Integer	
30	AcousReflex_Stim_R_Ipsi_0500	Integer	
31	AcousReflex_Stim_R_Ipsi_1000	Integer	
32	AcousReflex_Stim_R_Ipsi_2000	Integer	
33	AcousReflex_Stim_R_Ipsi_4000	Integer	
34	AcousReflex_Stim_R_Ipsi_Noise	Integer	
35	AcousReflex_Stim_L_Contra_0250	Integer	
36	AcousReflex_Stim_L_Contra_0500	Integer	
37	AcousReflex_Stim_L_Contra_1000	Integer	
38	AcousReflex_Stim_L_Contra_2000	Integer	
39	AcousReflex_Stim_L_Contra_4000	Integer	

40	AcousReflex_Stim_L_Contra_Noise	Integer	
41	AcousReflex_Stim_L_Ipsi_0250	Integer	
42	AcousReflex_Stim_L_Ipsi_0500	Integer	
43	AcousReflex_Stim_L_Ipsi_1000	Integer	
44	AcousReflex_Stim_L_Ipsi_2000	Integer	
45	AcousReflex_Stim_L_Ipsi_4000	Integer	
46	AcousReflex_Stim_L_Ipsi_Noise	Integer	
47	AcousReflexDecay_Stim_R_0500	Integer	Tymp_Abnormal/Normal
48	AcousReflexDecay_Stim_R_1000	Integer	Tymp_Abnormal/Normal
49	AcousReflexDecay_Stim_R_2000	Integer	Tymp_Abnormal/Normal
50	AcousReflexDecay_Stim_R_4000	Integer	Tymp_Abnormal/Normal
51	AcousReflexDecay_Stim_R_Noise	Integer	Tymp_Abnormal/Normal
52	AcousReflexDecay_Stim_L_0500	Integer	Tymp_Abnormal/Normal
53	AcousReflexDecay_Stim_L_1000	Integer	Tymp_Abnormal/Normal
54	AcousReflexDecay_Stim_L_2000	Integer	Tymp_Abnormal/Normal
55	AcousReflexDecay_Stim_L_4000	Integer	Tymp_Abnormal/Normal
56	AcousReflexDecay_Stim_L_Noise	Integer	Tymp_Abnormal/Normal
57	AcousReflexDecay_Info	Text	
58	TympanogramCurveType_R	Alpha 2	Tymp_TympCurveType
59	TympanogramCurveType_L	Alpha 2	Tymp_TympCurveType
60	SpecialInfo_Blob	Blob	

Fields listed in alphabetical order with field numbers

In this section the data fields appear in alphabetical order for cross-referencing with field numbers.

Kernel tables

ClinicalGroup

Field name	Field#
Address	6
ClinicalGroupIdentifierFormat	19
City	7
ClinicalGroup_ID	1
ClinicalGroupChecklist	21
ClinicalGroupExportSeqSearch	23
ClinicalGroupGroupedExport	22
Completed_Record	31
Country	10
CountryPhoneCode	30
EMail_Address	17
EMail_AttachmentMaxSize	24
EMail_SingleAttachmentsOnly	25
Group_Type	32
Is_A_Study	20
ListName	18
Name	5
Phone1	11
Phone1Type	12
Phone2	13
Phone2Type	14
Phone3	15
Phone3Type	16

PrivateKeyEncrypted	26
PublicKeyEncrypted	27
RecordChecksum	4
RecordCreationDate	2
RecordModificationHistory	3
State	8
Study_ImportKeysEncrypted	29
Study_ParticipantID	28
ZipCode	9

Constants

Field name	Field#
Alpha_Constant	3
Blob_Constant	5
Constant_Name	1
Date_Constant	6
LongInt_ID	2
Text_Constant	4

LargeObject

Field name	Field#
LargeObject_Blob	6
LargeObject_ComboID	1
LargeObject_Pict	8
LargeObject_SubID	5
LargeObject_Text	7
RecordChecksum	4
RecordCreationDate	2
RecordModificationHistory	3

Provider

Field name	Field#
Address	10
AllSubjectPrivileges	28
City	11
ClinicalGroupsInSubjectList_Set	27
Completed_Record	36
Country	14
CountryPhoneCode	33
E_Mailbox_Type	37
EMail_Address	22
EMail_IncomingServerName	31
EMail_IncomingUserName	32
EMail_OutgoingServerName	29
EMail_OutgoingUserName	30
FirstName	6
Gender	15
Info_Blob	35
LastName	7
ListName	24
LocalClinicalGroupList_Set	26
LocalProviderList_Set	25
LoginName	23
MiddleName	8
Occupation	34
Phone1	16
Phone1Type	17

Phone2	18
Phone2Type	19
Phone3	20
Phone3Type	21
Provider_ID	1
RecordChecksum	4
RecordCreationDate	2
RecordModificationHistory	3
Salutation	5
State	12
Title	9
ZipCode	13

ProviderGroup

Field name	Field#
ClinicalGroup_ID	2
IsGroupAdministrator	3
Provider_ID	1

Reminder

Field name	Field#
ActionDate	9
ActionTaken	10
DueDate	7
Note	11
OrigDueDate	8
Subject_ID	1
Provider_ID	5
RecordChecksum	4
RecordCreationDate	2
RecordModificationHistory	3
ReminderType	12
Study_ID	6
Study_Name	13
Subtype_Num	14

Saved Sets

Field name	Field#
File Number	2
Rec Mod	3
Records_In_set	5
Set Data	4
Set Name	1

Subject

Field name	Field#
Address	10
Birthdate	22
ClinicalGroupIdentifier_Primary	31
City	11
ClinicalGroup_ID_Primary	32
Completed_Record	37
Country	14
CountryPhoneCode	21
DeathDate	23
FirstName	6
Gender	25

Inactive	29
LastContactDate	24
LastName	7
LivingStatus	27
LivingStatus_Contact_History	28
MiddleName	8
Notes	30
Phone1	15
Phone1Type	16
Phone2	17
Phone2Type	18
Phone3	19
Phone3Type	20
Provider_ID_Primary	33
ProviderName_Primary	34
Race	26
RecordChecksum	4
RecordCreationDate	2
RecordModificationHistory	3
ReferralProviderIDs	36
Salutation	5
State	12
Subject_ID	1
Title	9
Universal_ID	35
ZipCode	13

SubjectClinicalGroup

Field name	Field#
ClinicalGroupIdentifier	3
ClinicalGroup_ID	2
Subject_ID	1

SubjectProvider

Field name	Field#
Subject_ID	1
Provider_ID	2
Tumor_Stage	68

Audiogram / Tympanogram / SAT_SRT_WordRecognition Tables

Audiogram

Field name	Field#
Audiogram_Date	9
Audiogram_No	5
Audiogram_SpecFrequencyType	21
Audiogram_Time	10
Audiometer_Type	13
BoneInfoBlob	486
BoneInfoText	488
Comment_BooleanFlag	492
CommentInfoText	490
Completed_Record	6
DisplayPrefsBlob	481
Examiner	11
HearingLevel_dB_Standard	495

L_CommentFlagBlob	484
L_NRFlagBlob	485
MaskInfoBlob	487
MaskInfoText	489
NoResponse_BooleanFlag	493
Notes	12
Other_Info_Data	496
PackedDisplay_selector	20
PureTone_AML_00125	131
PureTone_AML_00250	132
PureTone_AML_00500	133
PureTone_AML_00750	134
PureTone_AML_01000	135
PureTone_AML_01500	136
PureTone_AML_02000	137
PureTone_AML_03000	138
PureTone_AML_04000	139
PureTone_AML_06000	140
PureTone_AML_08000	141
PureTone_AML_12000	142
PureTone_AML_SpF01	203
PureTone_AML_SpF02	204
PureTone_AML_SpF03	205
PureTone_AML_SpF04	206
PureTone_AML_SpF05	207
PureTone_AML_SpF06	208
PureTone_AML_SpF07	209
PureTone_AML_SpF08	210
PureTone_AML_SpF09	211
PureTone_AML_SpF10	212
PureTone_AML_SpF11	213
PureTone_AML_SpF12	214
PureTone_AMR_00125	35
PureTone_AMR_00250	36
PureTone_AMR_00500	37
PureTone_AMR_00750	38
PureTone_AMR_01000	39
PureTone_AMR_01500	40
PureTone_AMR_02000	41
PureTone_AMR_03000	42
PureTone_AMR_04000	43
PureTone_AMR_06000	44
PureTone_AMR_08000	45
PureTone_AMR_12000	46
PureTone_AMR_SpF01	107
PureTone_AMR_SpF02	108
PureTone_AMR_SpF03	109
PureTone_AMR_SpF04	110
PureTone_AMR_SpF05	111
PureTone_AMR_SpF06	112
PureTone_AMR_SpF07	113
PureTone_AMR_SpF08	114
PureTone_AMR_SpF09	115
PureTone_AMR_SpF10	116
PureTone_AMR_SpF11	117
PureTone_AMR_SpF12	118
PureTone_AUL_00125	119

PureTone_AUL_00250	120
PureTone_AUL_00500	121
PureTone_AUL_00750	122
PureTone_AUL_01000	123
PureTone_AUL_01500	124
PureTone_AUL_02000	125
PureTone_AUL_03000	126
PureTone_AUL_04000	127
PureTone_AUL_06000	128
PureTone_AUL_08000	129
PureTone_AUL_12000	130
PureTone_AUL_SpF01	191
PureTone_AUL_SpF02	192
PureTone_AUL_SpF03	193
PureTone_AUL_SpF04	194
PureTone_AUL_SpF05	195
PureTone_AUL_SpF06	196
PureTone_AUL_SpF07	197
PureTone_AUL_SpF08	198
PureTone_AUL_SpF09	199
PureTone_AUL_SpF10	200
PureTone_AUL_SpF11	201
PureTone_AUL_SpF12	202
PureTone_AUR_00125	23
PureTone_AUR_00250	24
PureTone_AUR_00500	25
PureTone_AUR_00750	26
PureTone_AUR_01000	27
PureTone_AUR_01500	28
PureTone_AUR_02000	29
PureTone_AUR_03000	30
PureTone_AUR_04000	31
PureTone_AUR_06000	32
PureTone_AUR_08000	33
PureTone_AUR_12000	34
PureTone_AUR_SpF01	95
PureTone_AUR_SpF02	96
PureTone_AUR_SpF03	97
PureTone_AUR_SpF04	98
PureTone_AUR_SpF05	99
PureTone_AUR_SpF06	100
PureTone_AUR_SpF07	101
PureTone_AUR_SpF08	102
PureTone_AUR_SpF09	103
PureTone_AUR_SpF10	104
PureTone_AUR_SpF11	105
PureTone_AUR_SpF12	106
PureTone_BML_00125	155
PureTone_BML_00250	156
PureTone_BML_00500	157
PureTone_BML_00750	158
PureTone_BML_01000	159
PureTone_BML_01500	160
PureTone_BML_02000	161
PureTone_BML_03000	162
PureTone_BML_04000	163
PureTone_BML_06000	164

PureTone_BML_08000	165
PureTone_BML_12000	166
PureTone_BMR_00125	59
PureTone_BMR_00250	60
PureTone_BMR_00500	61
PureTone_BMR_00750	62
PureTone_BMR_01000	63
PureTone_BMR_01500	64
PureTone_BMR_02000	65
PureTone_BMR_03000	66
PureTone_BMR_04000	67
PureTone_BMR_06000	68
PureTone_BMR_08000	69
PureTone_BMR_12000	70
PureTone_BUL_00125	143
PureTone_BUL_00250	144
PureTone_BUL_00500	145
PureTone_BUL_00750	146
PureTone_BUL_01000	147
PureTone_BUL_01500	148
PureTone_BUL_02000	149
PureTone_BUL_03000	150
PureTone_BUL_04000	151
PureTone_BUL_06000	152
PureTone_BUL_08000	153
PureTone_BUL_12000	154
PureTone_BUR_00125	47
PureTone_BUR_00250	48
PureTone_BUR_00500	49
PureTone_BUR_00750	50
PureTone_BUR_01000	51
PureTone_BUR_01500	52
PureTone_BUR_02000	53
PureTone_BUR_03000	54
PureTone_BUR_04000	55
PureTone_BUR_06000	56
PureTone_BUR_08000	57
PureTone_BUR_12000	58
PureTone_MCL_00125	167
PureTone_MCL_00250	168
PureTone_MCL_00500	169
PureTone_MCL_00750	170
PureTone_MCL_01000	171
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PureTone_MCR_06000	80
PureTone_MCR_08000	81
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PureTone_SfAB_00500	313
PureTone_SfAB_00750	314
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PureTone_SfAB_01500	316
PureTone_SfAB_02000	317
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PureTone_SfAB_04000	319
PureTone_SfAB_06000	320
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PureTone_SfAB_12000	322
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PureTone_SfAL_00500	301
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PureTone_SfAL_01500	304
PureTone_SfAL_02000	305
PureTone_SfAL_03000	306
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PureTone_SfAR_01500	292
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PureTone_SfARCIL_00500	397
PureTone_SfARCIL_00750	398
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PureTone_SfARCIL_04000	403
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PureTone_SfARCIL_08000	405
PureTone_SfARCIL_12000	406
PureTone_SfARHL_00125	407
PureTone_SfARHL_00250	408
PureTone_SfARHL_00500	409
PureTone_SfARHL_00750	410

PureTone_SfARHL_01000	411
PureTone_SfARHL_01500	412
PureTone_SfARHL_02000	413
PureTone_SfARHL_03000	414
PureTone_SfARHL_04000	415
PureTone_SfARHL_06000	416
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PureTone_SfCIL_02000	329
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PureTone_SfCIR_00125	335
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PureTone_SfCIR_00500	337
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PureTone_SfCIR_04000	343
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PureTone_SfCIR_12000	346
PureTone_SfCIRAL_00125	419
PureTone_SfCIRAL_00250	420
PureTone_SfCIRAL_00500	421
PureTone_SfCIRAL_00750	422
PureTone_SfCIRAL_01000	423
PureTone_SfCIRAL_01500	424
PureTone_SfCIRAL_02000	425
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PureTone_SfCIRAL_04000	427
PureTone_SfCIRAL_06000	428
PureTone_SfCIRAL_08000	429
PureTone_SfCIRAL_12000	430
PureTone_SfCIRHL_00125	431

PureTone_SfCIRHL_00250	432
PureTone_SfCIRHL_00500	433
PureTone_SfCIRHL_00750	434
PureTone_SfCIRHL_01000	435
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PureTone_SfCIRHL_03000	438
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PureTone_SfCIRHL_12000	442
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PureTone_SfHRAL_01500	448
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PureTone_SfHRAL_03000	450
PureTone_SfHRAL_04000	451
PureTone_SfHRAL_06000	452

PureTone_SfHRAL_08000	453
PureTone_SfHRAL_12000	454
PureTone_SfHRCIL_00125	455
PureTone_SfHRCIL_00250	456
PureTone_SfHRCIL_00500	457
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PureTone_SfL_12000	250
PureTone_SfL_SpF01	275
PureTone_SfL_SpF02	276
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PureTone_UCL_00750	182
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PureTone_UCL_02000	185
PureTone_UCL_03000	186
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PureTone_UCL_06000	188
PureTone_UCL_08000	189
PureTone_UCL_12000	190
PureTone_UCR_00125	83
PureTone_UCR_00250	84
PureTone_UCR_00500	85
PureTone_UCR_00750	86
PureTone_UCR_01000	87
PureTone_UCR_01500	88
PureTone_UCR_02000	89
PureTone_UCR_03000	90
PureTone_UCR_04000	91
PureTone_UCR_06000	92
PureTone_UCR_08000	93
PureTone_UCR_12000	94
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PureToneAvg_Air_L_FreqCombo	476
PureToneAvg_Air_R_dB	467
PureToneAvg_Air_R_FreqCombo	473

PureToneAvg_Bone_L_dB	471
PureToneAvg_Bone_L_FreqCombo	477
PureToneAvg_Bone_R_dB	468
PureToneAvg_Bone_R_FreqCombo	474
PureToneAvg_SfAided_CalcType	479
PureToneAvg_SFAided_dB	472
PureToneAvg_SFAided_FreqCombo	478
PureToneAvg_SfUnaided_CalcType	480
PureToneAvg_SFUnaided_dB	469
PureToneAvg_SFUnaided_FreqCombo	475
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RecordModificationHistory	3
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Related_Tympanogram_No	7
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SpecFrequencyAudiogram_FieldHz	22
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RecordCreationDate	2
RecordModificationHistory	3
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SAT_Air_R	31
SAT_Bone_L	38
SAT_Bone_R	34
SAT_SfAB	37
SAT_SfAL	36
SAT_SfAR	32
SAT_SfU	33
SAT_SRT_Stimulus	12
SAT_SRT_WordRec_MaskInfoBlob	160
SAT_SRT_WordRec_MaskInfoText	161
SAT_SRT_WordRec_No	5
SpecialInfo_Blob	163
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SRT_Air_L_babble	28

SRT_Air_R	13
SRT_Air_R_babble	25
SRT_Bone_L	22
SRT_Bone_R	16
SRT_SfAB	21
SRT_SfAB_babble	30
SRT_SfAL	20
SRT_SfAL_babble	29
SRT_SfAR	14
SRT_SfAR_babble	26
SRT_SfU	15
SRT_SfU_babble	27
SRT_UnderPhones_MCL	23
SRT_UnderPhones_MCR	17
SRT_UnderPhones_UCL	24
SRT_UnderPhones_UCR	18
Subject_ID	1
WordRec_Binaural_1_pct	96
WordRec_Binaural_1_pct_babble	156
WordRec_Binaural_2_pct	97
WordRec_Binaural_2_pct_babble	157
WordRec_Binaural_3_pct	98
WordRec_Binaural_3_pct_babble	158
WordRec_Binaural_4_pct	99
WordRec_Binaural_4_pct_babble	159
WordRec_Binaural_L_1_dB	68
WordRec_Binaural_L_1_dB_babble	128
WordRec_Binaural_L_2_dB	69
WordRec_Binaural_L_2_dB_babble	129
WordRec_Binaural_L_3_dB	70
WordRec_Binaural_L_3_dB_babble	130
WordRec_Binaural_L_4_dB	71
WordRec_Binaural_L_4_dB_babble	131
WordRec_Binaural_R_1_dB	64
WordRec_Binaural_R_1_dB_babble	124
WordRec_Binaural_R_2_dB	65
WordRec_Binaural_R_2_dB_babble	125
WordRec_Binaural_R_3_dB	66
WordRec_Binaural_R_3_dB_babble	126
WordRec_Binaural_R_4_dB	67
WordRec_Binaural_R_4_dB_babble	127
WordRec_L_1_dB	44
WordRec_L_1_dB_babble	104
WordRec_L_1_pct	76
WordRec_L_1_pct_babble	136
WordRec_L_2_dB	45
WordRec_L_2_dB_babble	105
WordRec_L_2_pct	77
WordRec_L_2_pct_babble	137
WordRec_L_3_dB	46
WordRec_L_3_dB_babble	106
WordRec_L_3_pct	78
WordRec_L_3_pct_babble	138
WordRec_L_4_dB	47
WordRec_L_4_dB_babble	107
WordRec_L_4_pct	79
WordRec_L_4_pct_babble	139

WordRec_R_1_dB	40
WordRec_R_1_dB_babble	100
WordRec_R_1_pct	72
WordRec_R_1_pct_babble	132
WordRec_R_2_dB	41
WordRec_R_2_dB_babble	101
WordRec_R_2_pct	73
WordRec_R_2_pct_babble	133
WordRec_R_3_dB	42
WordRec_R_3_dB_babble	102
WordRec_R_3_pct	74
WordRec_R_3_pct_babble	134
WordRec_R_4_dB	43
WordRec_R_4_dB_babble	103
WordRec_R_4_pct	75
WordRec_R_4_pct_babble	135
WordRec_SfAB_1_dB	60
WordRec_SfAB_1_dB_babble	120
WordRec_SfAB_1_pct	92
WordRec_SfAB_1_pct_babble	152
WordRec_SfAB_2_dB	61
WordRec_SfAB_2_dB_babble	121
WordRec_SfAB_2_pct	93
WordRec_SfAB_2_pct_babble	153
WordRec_SfAB_3_dB	62
WordRec_SfAB_3_dB_babble	122
WordRec_SfAB_3_pct	94
WordRec_SfAB_3_pct_babble	154
WordRec_SfAB_4_dB	63
WordRec_SfAB_4_dB_babble	123
WordRec_SfAB_4_pct	95
WordRec_SfAB_4_pct_babble	155
WordRec_SfAL_1_dB	52
WordRec_SfAL_1_dB_babble	112
WordRec_SfAL_1_pct	84
WordRec_SfAL_1_pct_babble	144
WordRec_SfAL_2_dB	53
WordRec_SfAL_2_dB_babble	113
WordRec_SfAL_2_pct	85
WordRec_SfAL_2_pct_babble	145
WordRec_SfAL_3_dB	54
WordRec_SfAL_3_dB_babble	114
WordRec_SfAL_3_pct	86
WordRec_SfAL_3_pct_babble	146
WordRec_SfAL_4_dB	55
WordRec_SfAL_4_dB_babble	115
WordRec_SfAL_4_pct	87
WordRec_SfAL_4_pct_babble	147
WordRec_SfAR_1_dB	48
WordRec_SfAR_1_dB_babble	108
WordRec_SfAR_1_pct	80
WordRec_SfAR_1_pct_babble	140
WordRec_SfAR_2_dB	49
WordRec_SfAR_2_dB_babble	109
WordRec_SfAR_2_pct	81
WordRec_SfAR_2_pct_babble	141
WordRec_SfAR_3_dB	50

WordRec_SfAR_3_dB_babble	110
WordRec_SfAR_3_pct	82
WordRec_SfAR_3_pct_babble	142
WordRec_SfAR_4_dB	51
WordRec_SfAR_4_dB_babble	111
WordRec_SfAR_4_pct	83
WordRec_SfAR_4_pct_babble	143
WordRec_SfU_1_dB	56
WordRec_SfU_1_dB_babble	116
WordRec_SfU_1_pct	88
WordRec_SfU_1_pct_babble	148
WordRec_SfU_2_dB	57
WordRec_SfU_2_dB_babble	117
WordRec_SfU_2_pct	89
WordRec_SfU_2_pct_babble	149
WordRec_SfU_3_dB	58
WordRec_SfU_3_dB_babble	118
WordRec_SfU_3_pct	90
WordRec_SfU_3_pct_babble	150
WordRec_SfU_4_dB	59
WordRec_SfU_4_dB_babble	119
WordRec_SfU_4_pct	91
WordRec_SfU_4_pct_babble	151
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Tympanogram

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AcousReflex_Stim_L_Contra_0500	36
AcousReflex_Stim_L_Contra_1000	37
AcousReflex_Stim_L_Contra_2000	38
AcousReflex_Stim_L_Contra_4000	39
AcousReflex_Stim_L_Contra_Noise	40
AcousReflex_Stim_L_Ipsi_0250	41
AcousReflex_Stim_L_Ipsi_0500	42
AcousReflex_Stim_L_Ipsi_1000	43
AcousReflex_Stim_L_Ipsi_2000	44
AcousReflex_Stim_L_Ipsi_4000	45
AcousReflex_Stim_L_Ipsi_Noise	46
AcousReflex_Stim_R_Contra_0250	23
AcousReflex_Stim_R_Contra_0500	24
AcousReflex_Stim_R_Contra_1000	25
AcousReflex_Stim_R_Contra_2000	26
AcousReflex_Stim_R_Contra_4000	27
AcousReflex_Stim_R_Contra_Noise	28
AcousReflex_Stim_R_Ipsi_0250	29
AcousReflex_Stim_R_Ipsi_0500	30
AcousReflex_Stim_R_Ipsi_1000	31
AcousReflex_Stim_R_Ipsi_2000	32
AcousReflex_Stim_R_Ipsi_4000	33
AcousReflex_Stim_R_Ipsi_Noise	34
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AcousReflexDecay_Stim_L_1000	53
AcousReflexDecay_Stim_L_2000	54
AcousReflexDecay_Stim_L_4000	55

AcousReflexDecay_Stim_L_Noise	56
AcousReflexDecay_Stim_R_0500	47
AcousReflexDecay_Stim_R_1000	48
AcousReflexDecay_Stim_R_2000	49
AcousReflexDecay_Stim_R_4000	50
AcousReflexDecay_Stim_R_Noise	51
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PeakAdmittance_R	17
PeakPressure_L	22
PeakPressure_R	18
Primary_Audiogram_No	5
ProbeToneTymp_L	19
ProbeToneTymp_R	15
RecordChecksum	4
RecordCreationDate	2
RecordModificationHistory	3
SpecialInfo_Blob	60
Subject_ID	1
Tympanogram_Date	8
Tympanogram_Displays	13
Tympanogram_No	6
Tympanogram_Time	9
Tympanogram_TypesSaved	14
TympanogramCurveType_L	59
TympanogramCurveType_R	58
TympanogramRecordInfoBlob	12

Appendix C: Data lists and their data field values

AudBase uses data lists in pop-up and hierarchical lists to present standardized form selections. The actual data value, which is stored in the data field when a selection is made, depends on the type of data field associated with the list (see: “Appendix B: Tables and Fields” on page 196). Data lists associated with alphanumeric (string and text) data fields place their text values in the data field. Data lists associated with integer fields place the list position of their text values in the data field. The list positions are in ascending order from top to bottom with the exception of the “Not Done/N.D.” value which is always at the bottom of a list. “Not Done/N.D.” values are stored as a <blank> alphanumeric value or the number “0” in a numeric field unless otherwise noted in Appendix B.

Note: Some data lists only contain numbers. These lists are associated with numeric data fields and the actual value is the same as the displayed value.

Administrators and subadministrators can modify certain lists. Depending on how the data is stored, the list order is crucial. For more information, see “Modifiable Lists” on page 181.

When you add list items to data lists that are associated with alphanumeric fields, there are no restrictions on list item order since the list item value is simply stored in the data field. When dealing with an associated numeric value field, it is imperative to preserve the list order. Any change in the old list order would change the presumed meaning of the previously stored values. Therefore, list additions to integer field-associated lists can only be made at the end of the list. This is enforced by the list modification dialog. Since you a user can add list items to the modifiable lists, he or she can print out or create a text file copy of the most current version of these lists. To do so, from the Home Window choose Reports > Modifiable Lists. For more information, see “Modifiable Lists” on page 181.

The data lists are cross-referenced with their corresponding data fields. For more information on these data fields, see “Appendix B: Tables and Fields” on page 196. Using these two appendices you can search for any data in the database. For example, the [Subject]Gender field uses the Gender list. The data field values corresponding with the Gender list selections are: 1 = “Female”, 2 = “Male” and 0 = “N.D.”. A search for female subjects would include the query line: “[Subject]Gender” = 1.

Within each section the lists are divided into kernal lists, included with all versions of AudBase, followed by any custom lists specific to this version.

Kernel Lists

C_Location

List Item	Stored Field Value	Notes
No	No	
C	*C*	

N.D	<blank>

ClinicalGroup_Type

List Item	Stored Field Value	Notes
Hospital	Hospital	
Institution	Institution	
School	School	
N.D.	<blank>	

Gender

List Item	Stored Field Value	Notes
Female	1	
Male	2	
N.D.	0	

Location

List Item	Stored Field Value	Notes
R	R	
C	C	
L	L	
N.D.	<blank>	

L_Location

List Item	Stored Field Value	Notes
No	No	
**L	**L	
N.D.	<blank>	

Provider_Occupation [Modifiable]

List Item	Stored Field Value	Notes
Physician	Physician	
N.D.	<blank>	

Race [Modifiable]

List Item	Stored Field Value	Notes
Asian	1	
Black	2	
Caucasian	3	
Hispanic	4	
N.D.	0	

RCL_Location

List Item	Stored Field Value	Notes
No	No	
R**	R**	
RC*	RC*	
RCL	RCL	
R*L	R*L	
C	*C*	
*CL	*CL	
**L	**L	
N.D.	<blank>	

Reminder_Type [Modifiable]

List Item	Stored Field Value	Notes
Triggers	Triggers	

Chart is out to:	Chart is out to:
Undefined	Undefined
N.D.	<blank>

RL_Location

List Item	Stored Field Value	Notes
No	No	
R**	R**	
R*L	R*L	
**L	**L	
N.D.	<blank>	

R_Location

List Item	Stored Field Value	Notes
No	No	
R**	R**	
N.D.	<blank>	

Salutation [Modifiable]

List Item	Stored Field Value	Notes
Mr.	Mr.	
Ms.	Ms.	
Mrs.	Mrs.	
Dr.	Dr.	
---	<blank>	

Subject_ContactType

List Item	Stored Field Value	Notes
Clinic visit\Hospital admission	1	
Chart review	2	
Dept. of vital stats	3	
Internet	4	
Phone, care provider	5	
Phone, subject	6	
Phone, relative	7	
Other	8	
Unknown	9	
N.D.	0	

Subject_LivingStatus

List Item	Stored Field Value	Notes
Living	1	
Death from disease	2	
Death with disease	3	
Death no disease	4	
Death unknown status	5	
N.D.	0	

Telephone_Type [Modifiable]

List Item	Stored Field Value	Notes
Home	1	
Work	2	
Fax	3	
Cell	4	
N.D.	0	

Yes/No

List Item	Stored Field Value	Notes
No	1	
Yes	2	
N.D.	0	

Yes/No/Indeterminant

List Item	Stored Field Value	Notes
No	1	
Yes	2	
Indeterminant	3	
N.D.	0	

Audiologram/Tympanogram/SAT_SRT_WordRecognition Lists

Audio_Audiologist [Modifiable]

List Item	Stored Field Value	Notes
Select Audiologist	<blank>	

Audio_AudiometerType [Modifiable]

List Item	Stored Field Value	Notes
Decibel	Decibel	
GSI 10	GSI 10	
GSI 16	GSI 16	
GSI 61	GSI 61	
Other	Other	
N.D.	<blank>	

Audio_CommentsExtended [Modifiable]

This is a special hierarchical list with attached extended comments up to 32,000 characters

Audio_CommentsShort [Modifiable]

List Item	Stored Field Value	Notes
Dizziness/Vertigo	Dizziness/Vertigo	
Family hx of hearing loss	Family hx of hearing loss	
Head trauma	Head trauma	
Hearing complaints	Hearing complaints	
Hx of middle ear pathology	Hx of middle ear pathology	
Noise exposure	Noise exposure	
Tinnitus	Tinnitus	
Select Complaint	<blank>	

Audio_Other_Info_Data

List Item	Stored Field Value	Notes
Hearing Loss Profile	N/A;H1;H2;H3;H4;Defer;	Special parsed text field consisting of List item:pop-up selection;

Audio_Other_Info_Data_Modified[Modifiable]

List Item	Stored Field Value	Notes
MODIFIABLE ELEMENTS ADDED BY USER		As for Audio_Other_Info_Data

Audio_PTAFreq

List Item	Stored Field Value	Notes
2a freq - 500/1000	1	
2b freq - 500/2000	2	
2c freq - 1000/2000	3	
3a freq - 500/1000/2000	0	
3b freq - 500/1000/2000	6	
4a freq - 500/1000/2000	4	
4b freq - 500/1000/2000	5	

Audio_Reliability

List Item	Stored Field Value	Notes
Good	Good	
Fair	Fair	
Poor	Poor	
N.D.	<blank>	

Audio_SoundfieldAidedTypes

List Item	Stored Field Value	Notes
AR	1	
AL	2	
AB	3	
CR	4	
CL	5	
CB	6	
HR	7	
HL	8	
HB	9	
ARCL	10	
ARHL	11	
CRAL	12	
CRHL	13	
HRAL	14	
HRCL	15	

Audio_SoundfieldUnaidedTypes

List Item	Stored Field Value	Notes
S (=SfU)	1	
SR	2	
SL	3	

Audio_SpondeeType [Modifiable]

List Item	Stored Field Value	Notes
Spondees/LV	Spondees/LV	
Spondess/REC	Spondess/REC	
Trium	Trium	
Other/LV	Other/LV	
Other/REC	Other/REC	
Other	(see notes)	
N.D.	<blank>	

Audio_TestingLocation [Modifiable]

List Item	Stored Field Value	Notes
Select Location	<blank>	

Audio_TestingMethod **[Modifiable]**

List Item	Stored Field Value	Notes
CA	CA	
CPA	CPA	
VROCA	VROCA	
VRA	VRA	
Select Test Method	<blank>	

Audio_TestingSublocation **[Modifiable]**

List Item	Stored Field Value	Notes
Select Sublocation	<blank>	

Audio_Transducer **[Modifiable]**

List Item	Stored Field Value	Notes
ER-3-A	ER-3-A	
Other	Other	
TDH-49	TDH-49	
N.D.	<blank>	

Audio_WordRecList **[Modifiable]**

List Item	Stored Field Value	Notes
W-22 / LV	W-22 / LV	
W-22 / REC	W-22 / REC	
NU-6 / LV	NU-6 / LV	
NU-6 / REC	NU-6 / REC	
Other	(see notes)	
N.D.	<blank>	

Tymp_Abnormal/Normal

List Item	Stored Field Value	Notes
Abnormal	1	
Normal	2	
N.D.	0	

Tymp_TympCurveType

List Item	Stored Field Value	Notes
A	A	
Ad	Ad	
As	As	
B	B	
C	C	
N.D.	<blank>	

Appendix D: Menu Bar Index

This appendix defines all the menu bars in AudBase. The audiology-specific menu bars are listed at the end of this section.

Administrator Menu Bar

Menu	Menu Item	Section Reference
File	Home Window Menu Bar	“Home Window” on page 10
	Exit	
Edit	Undo	
	-	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	-	
	Show Clipboard	
Import\Export	AdminOnly Search	“Performing administrator-only searches” on page 141
	AdminOnly Export	“Performing administrator-only exports” on page 143
	-	
	Import Raw Data	“Import Raw Data menu item” on page 143
	Import TRANSFER Doc	“Importing TRANSFER documents” on page 144
	-	
	Export a Grouped Export	“Exporting a Grouped Export” on page 146
	Import a Grouped Export	“Importing a Grouped Export” on page 147
	-	
	Encrypt TRANSFER Doc	“Encrypting a TRANSFER document” on page 147
	Decrypt TRANSFER Doc	“Decrypting a TRANSFER document” on page 148
	Decrypt a Grouped Export	“Decrypting Grouped Exports” on page 148
	-	
	Export Lists	“Export Lists menu item” on page 149
	Import Lists	“Importing lists” on page 149
	-	
	User Privileges Report	“Creating a User Privileges Report” on page 151
	-	
	Database Structure	“Database Structure Menu item” on page 152
Clean Ups	Delete [LargeObject] Recs	“Deleting LargeObject records” on page 152
	-	
	Update Subject Sets	“Updating subject sets” on page 152
	Update Searches\Exports	“Updating searches and exports” on page 152
	Clear Unconnected Recs	“Clearing unconnected records” on page 153
	Execute All Clean Ups	“Execute All Clean Ups menu item” on page 153
	-	
	Export for Upgrade	“Exporting items before upgrading versions” on page 154
	Import for New Version	“Importing items for a new version” on page 154
Windows		Window Menu
Help	About AudBase	

Clinical Group Menu Bar

Menu	Menu Item	Section Reference
File	Internal Mail	“Internal Mail” on page 14
	-	
	Page Setup...	
	-	
	Exit	
Clinical Group	Add Subjetcs to Group	“Adding and removing a group of subjects,” on page 27
	Remove Subjects from Group	
	-	
	Data Checklist	“Creating Checklists” on page 131
	-	
	Export Study Tools	“Exporting study tools” on page 32
	Import Study Tools	“Importing study tools” on page 32
	Erase Grouped Export Set	“Exporting a Grouped Export” on page 146
Windows		Window Menu
Help	About AudBase	

Edit Saved Search / Sequential Search / Saved Export / Grouped Export

Menu	Menu Item	Section Reference
File	Load from Disk	“Preferences” on page 108
	-	
	Save to Disk	“Preferences” on page 108
	-	
	Exit	
Edit	Undo	
	-	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	-	
	Show Clipboard	
Help	About AudBase	

Home Window Menu Bar

Menu	Menu Item	Section Reference
File	Provider Info	“Entering Provider data” on page 18
	Clinical Group Info	“Viewing Clinical Group records” on page 28
	-	
	Internal Mail	“Internal Mail” on page 14
	-	
	Edit Documents	“Editing documents” on page 97
	Page Setup...	
	Preferences	“Preferences” on page 108
	-	
	Exit	
Edit	Undo	
	-	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	-	
	Show Clipboard	
Subjects	Subject List	“Subject List” on page 11
	New Subject	“Entering subject records” on page 41
	-	
	Limited Field Search	“Limited Field Search” on page 13
	Search	“Searching” on page 70
	-	
	Review Reminders	“Reviewing reminders” on page 48
	-	
	Subject List Criteria	“Setting Subject List criteria” on page 11
Reports	Print Reminder Document	“Printing reminders and related forms” on page 100

	Print Referral Document	“Printing referrals” on page 102
	Print Any Document	“Printing documents” on page 99
	-	
	Modifiable Lists	“Modifiable Lists” on page 181
	-	
	Export Data	“Exporting and Reporting” on page 88
	Graph Data	“Graphing data” on page 96
	Report Data	“Creating reports” on page 96
Data Manager	Check Missing Data	“Checking for missing data” on page 103
	-	
	Human Subjects Info	AudBase
	Tumor Statistics	AudBase
		-
	Administrator Menu Bar	
Windows		
Help	About AudBase	

Provider Menu Bar

File Edit Provider Windows Help

Menu	Menu Item	Section Reference
File	Internal Mail	“Internal Mail” on page 14
	-	
	Page Setup...	
	-	
	Exit	
Edit	Undo	
	-	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	-	
	Show Clipboard	
Provider	Add Subjects to Provider	“Adding and removing a group of subjects” on page 27
	-	
	Data Checklist	“Creating Checklists” on page 131
	-	
	Administrator Checklist	“Assigning an Administrator Checklist” on page 19
	Administrator E-mail	“Setting up administrator e-mail” on page 20
	Administrator Password	“Changing administrator password” on page 20
Windows		
Help	About AudBase	

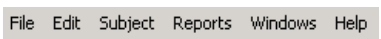
Subject List Menu Bar

File Edit Subjects Reports Windows Help

Menu	Menu Item	Section Reference
File	Provider Info	“Entering Provider data” on page 18
	Clinical Group Info	“Viewing Clinical Group records” on page 28

	-	
	Internal Mail	“Internal Mail” on page 14
	-	
	Edit Documents	“Editing documents” on page 97
	Page Setup...	
	Preferences	“Preferences” on page 108
	-	
	Exit	
Edit	Undo	
	-	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	-	
	Show Clipboard	
Subjects	New Subject	“Entering subject records” on page 41
	Delete Subjects	“Deleting records” on page 155
		-
	Review Reminders	“Reviewing reminders” on page 48
	Add Reminder	“Adding reminders” on page 46
	-	
	Limited Field Search	“Limited Field Search” on page 13
	Search	“Searching” on page 70
	-	
	Limit Subject List	“Limit Subject List/Full Subject List” on page 13
	Full Subject List	
	Subject List Criteria	“Setting Subject List criteria” on page 11
	-	
	Home Window	“Home Window” on page 10
Reports	Subject Information	“Entering subject records” on page 41
	-	
	Print Reminder Document	“Printing Reminders” on page 100
	Print Referral Document	“Printing Referrals” on page 100
	Print Any Document	
	-	
	Export Data	“Exporting and Reporting” on page 88
	Graph Data	“Graphing data” on page 96
	Report Data	“Creating reports” on page 96
Windows		
Help	About AudBase	

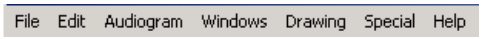
Subject Studies Menu Bar



Menu	Menu Item	Section Reference
File	Internal Mail	“Internal Mail” on page 14
	-	
	Page Setup...	
	-	
	Exit	
Edit	Undo	
	-	

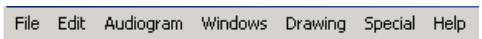
Audiologram / Tympanogram / SAT_SRT_WordRecognition Menu Bars

Audiogram Menu Bar



Menu	Menu Item	Section Reference
File	Internal Mail	“Internal Mail” on page 14
	Serial Port Settings	“Serial Port Settings” on page 135
	Print Audiogram	“Printing audiograms” on page 66
	Print Preview	
	Page Setup	“Printing audiograms” on page 66
	Audiogram Print Forms	“Printing audiograms” on page 66
	Exit	
Edit	Undo	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	Show Clipboard	
Audiogram	Open Serial Port	“Working with an audiometer or tympanometer” on page 64
	Display Serial Port Info	“Display Comparison Audiogram” on page 66
	Display Comparison Audiogram	“Display Comparison Audiogram” on page 66
	Display Word List	“Display Word Lists” on page 66
	Reset Audiogram	“Resetting audiograms” on page 65
	Change Hearing Level Std	“Change Hearing Level Standard” on page 66
	Data Checklist	
	Delete Audiogram	“Deleting audiograms” on page 66
Windows	Subject List	
Drawing	Line Drawing	“Display options” on page 56
	Masking Drawing	“Display options” on page 56
	Side	“Display options” on page 56
	Type	“Display options” on page 56
	Soundfield subtypes	“Display options” on page 56
	Modifiers	“Display options” on page 56
	Icon Style	“Display options” on page 56
	HTLA background	“Display options” on page 56
Special	Calculations	“AMA Handicap” on page 64
	Serial Port Device	“Working with an audiometer or tympanometer” on page 64
	Audiometer Options	“Working with an audiometer or tympanometer” on page 64
Help	About AudBase	

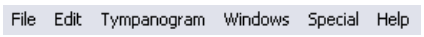
SAT\SRT\WordRec Menu Bar



Menu	Menu Item	Section Reference
File	Internal Mail	“Internal Mail” on page 14
	Serial Port Settings	“Serial Port Settings” on page 135
	Print SAT\SRT\WordRec	“Printing audiograms” on page 66
	Print Preview	
	Page Setup	“Printing audiograms” on page 66
	Audiogram Print Forms	“Printing audiograms” on page 66
	Exit	

Edit	Undo	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	Show Clipboard	
SAT\SRT\WordRec	Open Serial Port	“Working with an audiometer or tympanometer” on page 64
	Display Serial Port Info	“Working with an audiometer or tympanometer” on page 64
	Display Word List	“Display Word Lists” on page 66
	Reset SAT\SRT\WordRec Data Checklist	
	Delete SAT\SRT\WordRec	“Deleting audiograms” on page 66
Windows	Subject List	
Special	Calculations	
	Serial Port Device	“Working with an audiometer or tympanometer” on page 64
	Audiometer Options	
Help	About AudBase	

Tympanogram Menu Bar



Menu	Menu Item	Section Reference
File	Internal Mail	“Internal Mail” on page 14
	Serial Port Settings	“Audiology (3)” on page 111
	Print Tympanogram	“Printing audiograms” on page 66
	Print Preview	
	Page Setup	“Printing audiograms” on page 66
	Audiogram Print Forms	“Printing audiograms” on page 66
	Exit	
Edit	Undo	
	Cut	
	Copy	
	Paste	
	Clear	
	Select All	
	Show Clipboard	
Tympanogram	Open Serial Port	“Working with an audiometer or tympanometer” on page 64
	Display Serial Port Info	“Working with an audiometer or tympanometer” on page 64
	Reset Tympanogram Data Checklist	
	Delete Tympanogram	“Deleting audiograms” on page 66
Windows	Subject List	
Special	Calculations	
	Serial Port Device	“Working with an audiometer or tympanometer” on page 64
	Audiometer Options	
Help	About AudBase	

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The Colophon

This book is a revision and expansion of Dr. Marc D. Coltrera's AudBase User Manual. Written by Dell Burner and Emma Rose, the book was edited by Dr. Marc D. Coltrera and Matt Carthum.

This book was produced using Adobe FrameMaker 7.0. All of the body text was set in the Garamond font family, and all headings were set in Verdana. Arial was used for sidebar text.

The cover was designed by Dr. Geoffrey Sauer using Poser 4. The pages use a 60# offset stock with a 10 point C1s cover, with a trim size of 7.5" x 9.5".

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