tkDerm 1.5.0 Documentation

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Contents

Chapter 1

Installing tkDerm and associated softwares

tkDerm works on Windows, Macintosh (OS X 10.4 or later on PowerPC or Intel architecture) and Linux operating systems. In general, a modern Unix-compatible platform should be able to run tkDerm.

Windows The Windows versions that had received specific testing at the time of release include Windows XP Home Edition and Windows Vista Home Premium. If Tcl/Tk and PostgreSQL are running, it is probable that tkDerm works on other Windows versions such as Windows 2000 or later. For PostgreSQL to work properly, it is advisable to use NTFS as file system. tkDerm will not work on Windows 95/98/Me because PostgreSQL will not run on these older Windows versions.

Macintosh The Macintosh opertiong systems that were tested as installation platform include Mac OS 10.4 Tiger(powerpc) and 10.5 Leopard(intel). tkDerm will work on other Macintosh versions if Tcl/Tk and PostgreSQL are installed. It will not work on Macintosh OS 9 or earlier because of PostgreSQL incompatibility.

Linux It is confirmed that tkDerm works on Vine Linux 4.1. Any Linux distribution should be able to run tkDerm.

In this chapter, some software packages that are required to run tkDerm are introduced and the way of installing these software is explained. Windows is used as an example, and platform-specific issues are referred when necessary.

1.1 Required software packages to run tkDerm

The following software packages are required for running tkDerm.

1.1.1 Tcl/Tk

tkDerm is written by a programming language called Tcl/Tk.

Tcl stands for Tool Command Language. It was designed and developed in 1980's by Professor John Ousterhout of the University of California, Berkley.

Tk is a graphical user-interface toolkit associated with Tcl, which is developed for programmers to craft buttons, windows or other widgets with minimum effort.

As a whole, Tcl and Tk are often referred as Tcl/Tk.

For Windows and Macintosh, tkDerm is also provided as the starpack version, which doesn't require the Tcl/Tk runtime environment, in addition to the usual script version. Linux users can get only the script version of tkDerm.

Caution : The starpack version of tkDerm, whose name contains the platform name such as win or mac, doesn't require installation of Tcl/Tk, whereas the script version can't work without the Tcl/Tk runtime.

1.1.2 PostgreSQL

PostgreSQL is an object-relational database management system (ORDBMS) based on POSTGRES, Version 4.2, developed at the University of California at Berkeley Computer Science Department. PostgreSQL is an open-source descendant of this original Berkeley code and now developed by many programmers all over the world connected via the Internet.

PostgreSQL execute various tasks via cooperation of two independant processes,i.e.,server and client.

server A server is an application program that accepts connections from a client in order to service requests by sending back responses.

client A client is an application that accesses a remote service on another computer system, known as a server, by way of a network. tkDerm as a client translates users' request to SQL language, which is sent to and

processed by a PostgreSQL server. The processed result is sent back to tkDerm, which displays the response in such a way that is understood easily by users.

1.1.3 Other associated softwares

In some operating systems, some other softwares need to be installed before Tcl/Tk and PostgreSQL.

Windows

diruse.exe Standard installation of Windows XP has no software to measure disk usage. It would be better for you to install a program that measures disk usage separately. It is called diruse.exe and contained in the Windows XP Service Pack 2 support tool (WindowsXP-KB838079-SupportTools-ENU.exe) that can be obtained from the Microsoft's download center.

Without diruse.exe, tkDerm works perfectly except for the volume usage progress bar. As for volume, please refer to Chapter 7 (77 page).

Disabling UAC on Windows Vista When UAC(User Account Control) is on, you cannot install ActiveTcl that can be used by all users as well as PostgreSQL. Therefore you should disable UAC before installing these softwares. In order to turn UAC off, follow the instruction as below.

1. Open Control Panel.
2. Under User Account and Family settings click on the "Add or remove user account".
3. Click on one of the user accounts, for example you can use the Guest account.
4. Under the user account click on the "Go to the main User Account page" link.
5. Under "Make changes to your user account" click on the "Change security settings" link.

6. In the "Turn on User Account Control (UAC) to make your computer more secure" click to unselect the "Use User Account Control (UAC) to help protect your computer". Click on the Ok button.
7. You will be prompted to reboot your computer. Do so when ready.
8. In order to re-enable UAC just select the above checkbox and reboot.

Macintosh

X11 for Mac OS X Tcl/Tk requires X Window System. The X11 for Mac OS is a complete X Window System and distributed as an open source software. It can be installed at the time of Mac OS X installation. If it is not installed, you should install it using Mac OS X Install disk.

Xcode Tools A software development environment called "Xcode Tools" is required when you choose compiling from the source code as installation method of PostgreSQL. It can be installed from Mac OS X Install disk. It is not necessary if you use the precompiled binary of PostgreSQL. For installation of PostgreSQL, please refer to Section 1.4.2 (19).

1.2 Installing Tcl/Tk

The installer of Tcl/Tk for each platform can be obtained from the Activestate web site (www.activestate.com).

Though versions of 8.4, 8.5 and 8.6 are provided at the time of preparation of this document,*it is preferable to use the version 8.4 or 8.5 because tkDerm isn't tested on Tcl/Tk 8.6.*

1.2.1 Windows

1. Download the installer for Windows from www.activestate.com.
2. Double-click ActiveTcl*version*-win32-ix86-threaded.
3. Click the "NEXT" button.
4. Check the radio button of "I accept the terms in the License Agreement" and click the "NEXT" button.

5. Choose the "Install for all users" button and click the "NEXT" button.
6. Click the "NEXT" button on the "Please specify the demos directory" window.
7. Click the "NEXT" button on the "Press 'Next' to begin installation" window.
8. Click the "Finish" button on the last window.

1.2.2 Macintosh

A Tcl/Tk distribution is shipped with Macintosh OS X and you can use it for executing tkDerm. This option may bring some problems because tkDerm requires some non-standard packages of Tcl/Tk that may not be included in usual Tcl/Tk installations.

If you use Tcl/Tk shipped with Macintosh OS X, you should know whether the required packages are included in the distribution by the following method.

Excute tclsh in the terminal, and type as follows.

```
$ tclsh
% package require Img
% 1.3
% package require Tktable
% 2.9
% package require Expect
% 5.43.0
% package require msgcat
% 1.4.2
% package require csv
% 0.7.1
```

If version numbers are returned as in this example, the packages are installed.

If the message "can't find package 'package-name'" is returned instead of the version number, the package is not installed. You should get the package and install it.

ActiveTcl contains all the required packages for executing tkDerm. In this section, the installation method of ActiveTcl will be explained.

Download the installer for Macintosh from www.activestate.com.

Double-click the installer and follow the instruction.

The installation method is essentially the same as the Windows version described above.

The excutables of ActiveTcl are located under /usr/local/bin. If the environment variable "PATH" does not contain this directory, add

```
PATH=/usr/local/bin:$PATH
export PATH
```

to .profile or .bash_profile in your home directory if your login shell is bash.

This setting will be effective at the next login. If you want to get this setting effective right now, type

```
$ source .profile
or
$ source .bash_profile
```

in the terminal.

Caution: The wish program shipped with Snow Leopard is the 64 bit version and incompatible with tkDerm. Snow Leopard users should use the ActiveTcl's wish or the starpack version of tkDerm available free on the Mac App Store.

1.2.3 Linux

Almost all the distributions of Linux contain Tcl/Tk, but tkDerm requires some non-standard packages of Tcl/Tk that may not be included in usual distributions. If you use Tcl/Tk shipped with your Linux distribution, you should know whether the required packages are included in the distribution by the following method.

Excute tclsh in the terminal, and type as follows.

```
$ tclsh
% package require Img
% 1.3
% package require Tktable
% 2.9
```

```
% package require Expect
% 5.43.0
% package require msgcat
% 1.4.2
% package require csv
% 0.7.1
```

If version numbers are returned as in this example, the packages are installed.

If the message "can't find package 'package-name'" is returned instead of the version number, the package is not installed. You should get the package and install it.

ActiveTcl contains all the required packages for executing tkDerm. In this section, the installation method of ActiveTcl will be explained.

1. Get the installer for Linux version from www.activestate.com.
2. Unpack the archive file and change the current working directory to the resultant directory.

   ```
   $ tar xzvf ActiveTcl8.4.15.0.280619-linux-ix86.tar.gz
   $ cd ActiveTcl8.4.15.0.280619-linux-ix86
   ```

3. After becoming the superuser, execute install.sh as described in README-8.4.txt.

   ```
   $ su
   # ./install.sh
   ```

4. When the installer is started up, press the "NEXT" button.
5. Check the "I accept the terms in the License Agreement" checkbox and press the "NEXT" button.
6. If you accept the default directory as the installation directory, just press the "NEXT" button.

   If you select another directory, type the directory path in the entry and press the "NEXT" button.

7. If you press the "NEXT" button on the next window, the installation will begin.

8. On the last window, you will be instructed to extend your PATH and MANPATH variables to get access to the applications and manpages distributed with ActiveTcl.

   For example, if your login shell is bash, add

   ```
   PATH="/opt/ActiveTcl-8.4/bin:$PATH"
   MANPATH="/opt/ActiveTcl-8.4/man:$MANPATH"
   export PATH MANPATH
   ```

   to .profile or .bash_profile in your home directory.

   This setting will be effective at the next login. If you want to get this setting effective right now, type

   ```
   $ source .profile
   or
   $ source .bash_profile
   ```

   in the terminal.

9. The installer will end by pressing the "Finish" button.

1.3 Creating a "postgres" user account

It is advisable to run the PostgreSQL server as a non-administrative service account called "postgres" to minimize the possible damage that a cracker could do should they find and utilize a bug in PostgreSQL to crack the system.

In this section, you will be explained how you can create a "postgres" user account.

Hint : Hint: It isn't necessary to create a "postgres" user account if you install PostgreSQL by the one click installer provided by EnterpriseDB as the installer will create it for you.

The installer is available via the official download site of PostgreSQL (http://www.postgresql.org/download/).

1.3.1 Windows

Windows XP

1. Log on to your computer as an administrator. Click "Start", and then click "Control Panel".

2. Under "Pick a category", click "User Accounts".

3. Under "Pick a task", click "Create a new account".

4. In the User Accounts wizard, on the "Name the new account" page, type "postgres". Then click "Next".

5. The User Accounts wizard displays the "Pick an account type" page. Click "Limited", and then click "Create Account".

6. To create a user password, log on to your computer as an administrator.

7. Click "Start", and then click "Control Panel".

8. Under "Pick a category", click "User Accounts".

9. Under "or pick an account to change", click the account for which you are going to create a password.

10. Click "Create a password".

11. On the "Create a password" page, type the password twice. Optionally, type a password hint. Then click "Create Password".

Windows Vista

1. Open User Accounts by clicking the "Start "button, clicking "Control Panel", clicking "User Accounts and Family Safety", and then clicking "User Accounts".

2. Click "Manage another account". If you are prompted for an administrator password or confirmation, type the password or provide confirmation.

3. Click "Create a new account".

4. Type the name you want to give the user account (in this case, postgres), click an account type (in this case, standard user account), and then click Create Account.

1.3.2 Macintosh

1. In the Dock, click on "System Preferences".
2. Now click on the "Accounts" icon.
3. The Accounts area is locked by default. To unlock the accounts and make changes, click on the Lock.
4. If your main account requires a password, you will have to enter it now. Click OK when done.
5. Click the + icon under the Login Options.
6. Enter the name (in this case, postgres), password and password hint for the new account.
7. Do not turn on the "Allow User To Administer This Computer" option .
8. Enter all of the required information and click "Create Account" when you are finished.

1.3.3 Linux

In order to create a new account named postgres, follow the instruction as below.

1. Become root by using su command
2. Create a group named postgres
3. Create a user named postgres
4. Set password for postgres

Here is how this might be done:

```
$ su -
# addgroup postgres
# adduser -g postgres
# passwd postgres
```

1.4 Installing PostgreSQL

You can get PostgreSQL from the official download site (http://www.postgresql.org/download/). The easiest way to install PostgreSQL is to use the one click installer provided by EnterpriseDB, which you can get via the above mentioned site.

1.4.1 Windows

When you install PostgreSQL on Windows Vista, you should disable UAC(User Account Control) before installation. Please refer to Section 1.1.3 (11 page) on how you can turn UAC off.

The simplest way for installing PostgreSQL is to use the PostgreSQL installer for Windows. The installer can be found in the win32 subdirectory on PostgreSQL download sites. You can find quick walkthrough of the installer steps on the PostgreSQL installer site(http://pginstaller.projects.postgresql.org/).

Hint : If you leave the "Crypto.Function" option off in the "Enable contrib modules" dialog, you will be prompted for the postgres password by tkDerm when encryption functions are required. If this bothers you, please turn the option on at the installation step of PostgreSQL.

1.4.2 Macintosh and Linux

Installation procedures of PostgreSQL for Macintosh and Linux are essentially the same because Macintosh is now based on a kind of unix.

Utilizing pre-compiled binary packages

The PostgreSQL official download site(http://www.postgresql.org/download/) offers pre-build binary packages for Macintosh and Linux. The easiest way of installing PostgreSQL on Macintosh or Linux is to use these packages.

Compiling from source

Alternatively, you can build PostgreSQL executables from the source code by yourself. You can download the source code from http://www.postgresql.org/ftp/source/. As for detailed explanation for installation, please refer the "INSTALL" file found in the source code package.

Installing pgcrypto

tkDerm version 1.3.2 or later can encrypt patient's data by using a PostgreSQL contribution module "pgcrypto". If you build PostgreSQL from the source, you should build the pgcrypto module from the source tree as explained below.

1. Go to the contrib/pgcrypto subdirectory in the source tree.

2. Compile the module by make.

3. After becoming the superuser by su or sudo command, install the module by make install.

Here is how this might be done:

```
$ cd postgresql-8.x.x/contrib/pgcrypto
$ make
on Macintosh
$ sudo make install
on Linux
$ su
# make install
```

By the above steps, these files will be copied.

```
/usr/local/pgsql/share/contrib/pgcrypto.sql
/usr/local/pgsql/share/contrib/uninstall_pgcrypto.sql
/usr/local/pgsql/lib/pgcrypto.so
```

Setting the postgres password

Just after installation, you can access the database "postgres" without authentication as the user postgres by running the PostgreSQL interactive terminal program, called psql.

```
$ /usr/local/pgsql/bin/psql
```

When you are prompted, type as follows.

```
postgres=# alter role postgres with password 'your_password';
```

(your_password should be read as a new password you want to set.)

Setting pg_hba.conf

Client authentication is controlled by a configuration file, which traditionally is named pg_hba.conf and is stored in the database cluster's data directory(default is /usr/local/pgsql/data). If you are on Macintosh or Linux, default pg_hba.conf setting allows the server to accept any connections from the local machine without client authentication.

In order to make password authentication effective, edit the following portion of the pg_hba.conf file from

```
# "local" is for Unix domain socket connections only
local all all trust
# IPv4 local connections:
host all all 127.0.0.1/32 trust
# IPv6 local connections:
host all all ::1/128 trust
```

to

```
# "local" is for Unix domain socket connections only
local all all md5
# IPv4 local connections:
host all all 127.0.0.1/32 md5
# IPv6 local connections:
host all all ::1/128 md5
```

After editing the file, type in the terminal as follows to make the new setting effective.

```
/usr/local/pgsql/bin/pg_ctl -D /usr/local/pgsql/data reload
```

1.5 Installing tkDerm

What you should do to install tkDerm is simply getting and unpacking the archive file. The only thing you should think of is where to install it. If you are the only user of it, your home directory is a reasonable choice. If you are going to share it with others, it must be installed in the directory that all the possible users can access such as the Applications folder on Macintosh.

1.5.1 Windows

1. Download the tkDerm archive file from http://sourceforge.net/projects/tkderm/.
2. Extract the zip archive of tkDerm by clicking on " Extract All " or " Extract Files " in right click contextual menu.

1.5.2 Macintosh

1. Download the tkDerm archive file from http://sourceforge.net/projects/tkderm/.
2. The archive file will be self-extracted. If not, extract it by double-clicking it.

1.5.3 Linux

1. Download the tkDerm archive file from http://sourceforge.net/projects/tkderm/.
2. Extract the zip archive of tkDerm by typing as follows.

```
$ unzip tkderm-*.*.*.zip
```

1.6 Starting up tkDerm

1.6.1 Script version

For tkDerm to start, double-click tkderm.tcl in the tkDerm installation directory if you are on Windows.

If you are on Macintosh or Linux, go to the tkDerm installation directory and execute the following command.

```
$ wish tkderm.tcl
```

1.6.2 Starpack version

For the starpack version of tkDerm to start, just double-click the tkDerm icon.

1. You will be prompted for the password.
2. If you give it and click "OK", the tkDerm main window will appear.

Caution : The password required at the startup of tkDerm is not the one for the operating system user, but the one for the PostgreSQL user account. If you are going to log in as the tkDerm superuser, the password should have been set when initializing tkDerm. If you are going to log in as an account other than the tkDerm superuser, the password should have been set when the tkDerm superuser created the account. For initializing tkDerm, see Section 1.7 (23 page). For creating tkDerm user accounts, see 10.3 (91 page).

1.7 Setting up tkDerm

When you execute tkDerm for the first time, the tkDerm Setup Wizard will start up with the following message.

You should confirm that the PostgreSQL server is running before you proceed to the next step because this program will exert the setup procedures by connecting to the server.

If you haven't installed PostgreSQL yet, you should download it and set it up now.

If you are going to use a digital camera with tkDerm, a image file created by the camera should be copied to this computer. This program will read the information on the camera from the file when registering the camera data.

1.7.1 Registering doctor data

Click the Next button or the Doctor tab to visit the Doctor page.

You should fill the fields on the doctor page of the setup wizard to register yourself as a tkDerm user.

Brief descriptions for the fields are:

Doctor: The doctor name that will appear in the Doctor field of the New Data window when you are going to insert data.

Full_Name: Your full name.

Password: The password of your PostgreSQL user account. This can be different from that of your operating system account. You will be prompted for this password at the startup of tkDerm.

If the PostgreSQL user account whose name is the same as that of your operating system account doesn't exist, it will be created with this password.

If it already exists, you should enter its password. If not so, you will fail to connect to the admin database at the setup process.

Verify: You should enter the same string as the one in the Password field for confirmation.

1.7.2 Registering camera data

Click the Next button or the Camera tab to visit the Camera page.

Registering the camera data will free from typing the camera name by yourself whenever you insert data.

If you are using a digital camera, click the "Select Image File" button at first. The Image File Selection dialog will pop up. Choose the image file created by the camera you are going to register, and click the "Open" button. All the fields except for the Camera and Is_Macro items will be filled or selected automatically by retrieving the information on the fields from the selected file. Type the camera name in the "Camera" entry and choose an item from the "Is_Macro" radio buttons.

If you are using a film camera, you cannot resort to the method just mentioned. You must fill and choose all the fields by yourself.

Brief descriptions for the fields are:

Camera: The name of the camera that you are going to register.

Is_Macro: The kind of targets. "macro" means clinical photos, whereas "micro" means microscopic photos.

Is_Exif: The file type. Usually, "exif" means files produced by digital cameras, whereas "nonexif" means ones produced by scanning photographic films.

Vendor: The manufacturer of the camera.

Model: The model name of the camera.

1.7.3 Creating your first database

Click the Next button or the Database tab to visit the Database page.

You must create a database before using tkDerm.

You should enter the information necessary to create your first database at this step.

The meanings of the fields are:

DB: The database name that you are going to create.

Description: A brief explanation for the database.

1.7.4 Setting preferences

Click the Next button or the Preferences tab to visit the Preferences page.

You must set the selected items from the preference dialog. Click the "..." button to choose directories.

The meanings of the items are:

Photo Directory: The root directory for storing image files. In addition to an absolute path, a path relative to your home directory is acceptable. The default is set to the subdirectory named "photo" in your home directory. If you are going to share tkDerm with others, it must be set to a directory that they can access.

PostgreSQL Directory: The PostgreSQL installation directory. Based on this information, tkDerm will search for PostgreSQL client applications when dumping, restoring or encrypting databases. The latter functions will not work if this setting is wrong

You can customize tkDerm by setting many items including these with the Preferences dialog even after the setup process. As for details, refer to Chapter 14 (109 page).

1.7.5 Executing setup

After completing all the fields in the previous pages, click the "Execute Setup" button on the last page of the setup wizard.

If error messages appear in the text box, please revisit the corresponding page and fix it before clicking the button again.

If the setup process is successful, a file named tkderm_init will be created in the parent directory of tkDerm and the tkDerm main window will pop up.

tkDerm looks for the tkderm_init file whenever it starts up, and if the file is not found, it will elicit the setup wizard. If you want to repeat the setup procedure from any reason after the procedure is over successfully, please delete the tkderm_init file and drop the admin database that is created during the setup.

Chapter 2

Inserting data

Essentially, tkDerm handles data on photo sessions. It doesn't process data on photos per se. The words "photo session" is meant here to be an occasion in which a doctor shoots one or more photos of a patient usually within a reasonably short time such as several minutes. Session data include information about patient's name, ID, birthday, sex, distribution of an eruption, diagnosis, time and so on.

In general, any number of photographs belong to one session. tkDerm makes this one-to-many mapping automatically by a mechanism called Automatic Image Registration (AIR), which will be described in Chapter 3 (35 page).

This chapter explains how to insert session data. As tkDerm handles only session data, the word "data" instead of "session data" is used in this chapter.

2.1 When should you insert data ?

If you use a digital camera, it is advisable to insert data just before or after shooting photographs. When registering image files, tkDerm will relate image files with corresponding data on the basis of comparison between the time when you inserted data and the time when you shot photographs. Therefore, tkDerm cannot make a correct judgement on which data correspond to which photographs if you inserted data too early or too late compared with the time when shooting.

If you use a film camera, the timing issue mentioned above doesn't matter

because AIR doesn't work in case of a film camera. Instead, you should relate images with data manually. Nonetheless, the data insertion order needs to be the same as the shooting order. For example, if you shot a patient 2 after a patient 1, you must insert data on the patient 2 after data on the patient 1. If not, the result of manual image-to-data mapping would be different from what you expected.

2.2 Inserting new data

To insert new data, do one of the following actions.

1. Select the New... command from the File menu.

2. Click the New... button on the tool bar at the left wide of the main window.

3. Press the letter i (=insert) while the Control key is already held down.

Then, the New Data dialog will appear.

The New Data dialog has 3 pages, that is, Patient, Macro and Micro in a tab notebook style.

1. To open the page you are going to visit, click the tab on the top of the page.

2. To open the next page, press the letter n (=next) while the Control key is already held down.

3. To open the previous page, press the letter p (=previous) while the Control key is already held down.

2.2.1 Required fields

Some fields must be filled before saving data. Such fields are labeled as **Required Field** in the following sections. If you click the Save button without filling any of the required fields, an error message will appear in the message field at the bottom of the main window and saving data will fail.

2.2.2 Action fields

Pressing the Tab or Return key in some fields will elicit some useful actions that help you to complete the fields. Such actions vary depending on the characteristics of data. For example, pressing the Tab or Return key in the ID field will check whether the ID just typed has been registered. If so, the other fields of the Patient page will be filled with data retrieved from the patient database automatically. This action will not only reduce the number of your key strokes, but also keep you from inserting wrong or invalid IDs. Be sure to press the Tab or Return key after completing fields that are labeled as **Action Field** in the following sections.

2.2.3 Patient

ID :Action Field

If the ID just typed has been registered, the Tab or Return key will fill the other fields of the patient page with data retrieved from the patient database.

Last_Name :Required Field

First_Name :Required Field

You can specify the ordering of the First_Name and Last_Name fields by the method described in Section 14.4 (113 page).

Birthday :Required and Action Field

2001-02-03, 20010203, 010203 are all interpreted as February 3rd, 2001. How 01/02/03 is interpreted depends on the setting of the Datestyle field in the Preferences dialog. As for details, refer Section 14.4 (112 page). Pressing the Tab or Return key will fill the Age entries in Macro and Micro pages with a patient's current age.

Sex Click a relevant radio button.

Patient_Note You can type any text in this field. How this field is used is up to you.

2.2.4 Macro

Distribution :Required Field

The distribution of an eruption can be set by the Distribution dialog that will appear by clicking the ... button just right to the Distribution entry.

How to use the Distribution dialog

1. Clicking a part of the body diagram representing the human body turns it selected.
2. Clicking the background will turn all the parts unselected.
3. It is possible to select more than one part at once by shift-clicking the second part. Another way to do that is to drag the mouse to enclose a region including two or more parts.
4. While the mouse cursor is over a part of the body diagram, you can see the name of that part in the Name entry in the upper part of the dialog. This is helpful for you to know which part of the body diagram represents which part of the human body, especially in case of such a complicated area as the face.
5. You can see the distribution table of 16-unit width and 2-unit height in the upper part of the dialog. You can also use this table to select body parts and selection state of it mirrors that of the body diagram. As for relationship between the distribution table and the body diagram, refer to Section 15.1(125 page).
6. After selecting parts of the body diagram, click Quit to quit the dialog.

Diagnosis :Action Field Actions elicited by the Tab or Return key in this field are:

1. A synonym already registered will be transformed to a diagnosis for which the synonym stands.
2. If a text typed has not been registered, the Register Diagnosis dialog will pop up. As for this dialog, refer to Section 8.2 (82 page).

Age :Required Field This field will be filled automatically if you type in the Birthday field on the Patient page correctly and press the Tab or Return key. Only a number from 0 to 129 will be accepted. A number out of the range will result in an error when you click the Save button.

Doctor If you have registered doctor data via Doctor... from the Admin menu, names of registered doctors as candidates for selection will appear in the form of the radio buttons in addition to the text entry that is filled with a default doctor name. A doctor who was selected or registered most recently is treated as default. If any doctor data have not been registered, only the empty text entry will appear.

You can choose a doctor from the radio buttons or type a doctor name in the text entry by yourself.

As for registering doctor data, refer to Chapter 10 (89 page).

Camera :Required Field

If you have registered camera data via Camera... from the Admin menu, names of registered cameras as candidates for selection will appear in the form of the radio buttons in addition to the text entry that is filled with a default camera name. The camera that was selected or registered most recently is treated as default. If any camera data have not been registered, only the empty text entry will appear.

You can choose a camera from the radio buttons or type a camera name in the text entry by yourself.

You can enter a comma or space separated list of camera names in the text entry. This will insert multiple Macro data in which only Camera values are different while the values in the other fields are the same by clicking the Save button once. This will be useful when you shoot a patient with multiple cameras in a photo session.

As for registering camera data, refer to Chapter 9 (85 page).

Time :Required Field

This field will be filled automatically when the New Data dialog pops up.

Comment You can type any text in this field. How this field is used is up to you.

2.2.5 Micro (Optional)

If you would like to register microscopic images after a surgical operation or a skin biopsy, press the Micro tab of the New Data dialog or type the letter n while the Control key is already held down when you are visiting the Macro page. Filling the fields on the Micro page is optional, and can be omitted if you don't have a plan to register microscopic images.

Location :Required Field

This field is the same as the Distribution field on the Macro page except for the field name. Refer to Section 2.2.4 (30 page).

Diagnosis :Action Field This field is the same as the Diagnosis field on the Macro page. Refer to Section **??** (**??** page).

Sample A field for a sample ID of a microscopic slide. Leave this field empty until a microscopic slide is prepared.

Operator This field is the same as the Doctor field on the Macro page except for the field name. Refer to Section 2.2.4 (31 page).

Camera This field is the same as the Camera field on the Macro page except for the field name. Refer to Section 2.2.4 (31 page).

Entry_Time :Required Field

This field will be filled automatically when the New Data dialog pops up.

Comment You can type any text in this field. How this field is used is up to you.

2.2.6 Saving image data

After completing the fields, press the Save button to register the data. You will be informed whether registration is successful or not by a message appeared in the message field at the bottom of the main window.

2.3 Procedure at shooting microscopic images

Shooting microscopic images is possible only after microscopic slides are prepared. Entering a shooting time is essential because Automatic Image Registration (AIR) is based on comparison between a shooting time and a data insertion time.

2.3.1 How to insert a shooting time of microscopic images

1. Visit the Micro page of the main window.
2. Click the Registered Status tab, check the Unregistered radio button and click the Find button. You will get all the data whose images have not been registered in the Search Result panel.
3. Select a row whose images you are shooing and click the Edit button in the Search Result panel.
4. The Edit Micro Data dialog will pop up.
5. Fill the Sample entry with the ID of the microscopic slide
6. If you use a digital camera, click the " ! " button just right to the Time entry just before or after shooting photographs, resulting in appearance of the current time in the Time entry.
7. If you use a film camera, although the time stamp in the Time field can be apart from the real time when you shoot, the Time field order needs to be the same as the shooting order as is the case of Macro data. As for this point, refer to Section 2.1 (27 page).
8. Click the Update button to register the change.

Chapter 3

Registering photos

Unique features of tkDerm include a function to map automatically a set of images to session data stored in the database based on time stamps recorded in image files when created by a digital camera.

This function, which is called **Automatic Image Registration (AIR)**, will free you from boring work of relating photographs with data by yourself. This chapter presents a brief explanation for mechanism of AIR, followed by a step by step instruction for registering image files.

3.1 Mechanism of AIR

Suppose you inserted data of patient 1 at 10:00:00 just before shooting a photo of the patient at 10:00:30 (photo 1). Also suppose you shot a photo of patient 2 at 10:30:00 and then inserted her data at 10:31:00 (photo 2). You can know which photo belongs to which patient by the procedure as follows.

1. Subtract the time stamp of photo 1 (10:00:30) from every data insertion time (10:00:00 of patient 1 and 10:30:00 of patient 2), resulting in −00:00:30 of patient 1 and 00:29:30 of patient 2.

2. Photo 1 is supposed to belong to patient 1 because the absolute value of the difference of patient 1 (=00:00:30) is less than that of patient 2 (=00:29:30).

3. In the same way, subtract the time stamp of photo 2 (10:31:00) from every data insertion time (10:00:00 of patient 1 and 10:30:00 of patient 2), resulting in −00:31:00 of patient 1 and −00:01:00 of patient 2.

4. Photo 2 is supposed to belong to patient 2 because the absolute value of the difference of patient 2 (=00:01:00) is less than that of patient 2 (=00:31:00).

3.2 Three steps in image registration

Procedure of image registration consists of 3 steps.

1. Import image files from a memory card to your computer.
2. Relate image files with session data stored in the database.
3. Copy image files to the directory that stores photos.

The rest of this chapter describes each step in detail.

3.3 Importing image files

In preparation for image registration, image files to be registered must be copied to the directory set in the Import Directory field on the Preferences dialog.

3.3.1 Film Cameras

Scanned image files must be copied to the Import Directory.

3.3.2 Digital Cameras

At least 3 methods can be used to copy image files in a memory card in a digital camera to the Import Directory.

1. Most digital camera are shipped with a software that has a function to import photos from the camera to your computer.
2. Operation systems usually offer a function to copy files in a memory card mounted to any directory in their file system.
3. tkDerm offers this function. Select Import Exif Files... from the Register menu or click the Import Exif Files... button on the tool bar at the left side of the main window.

3.4 Registering Image files

To start image registration, select Register... from the Register menu or click the Register... button on the tool bar.

If you have not set the Import Directory field on the Preferences dialog, the Choose Import Directory dialog will pop up. If you feel annoyed to select a directory for import every time, it is preferable to set the Import Directory field on the Preferences dialog. On how to set this, refer to Section 14.4 (115 page).

3.4.1 Specifying a camera and subsequent events

1. As the first step of image registration, the Select dialog will pop up for specifying the camera that was used to shoot the photos.

2. Select the camera from the radio buttons or type the camera name in the entry and click OK.

3. A small window will appear displaying a progress bar by which the process status of making thumbnail images will be shown.

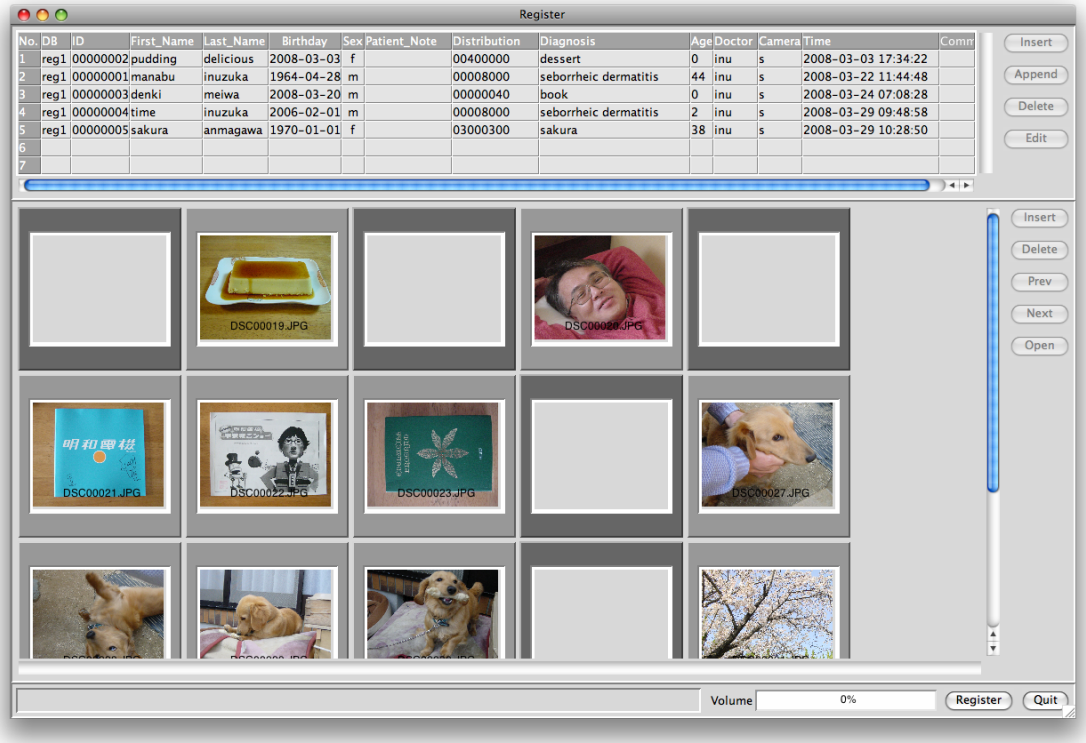
4. In case of a digital camera, AIR will relate image files with data stored in the database.

5. The Register window will appear showing session data retrieved from the database in the upper part and thumbnail images just created in the lower part.

3.4.2 Relating image files with session data by boundary slides

Digital Cameras

tkDerm locates gray-colored empty slides called boundary slides at the photo session boundaries that are determined by AIR.



Film Cameras

In case of a camera whose Is_Exif attribute is set to nonexif in the camera database, tkDerm will not place boundary slides automatically. Therefore, the photo-to-data mapping is up to you. The next section explains how to relate photos with data by hands.

3.4.3 Relating image files with session data by placing boundary slides with your hands

While the mouse cursor is over a slide, the color of the slide as well as a row of the corresponding data shown in the data panel is turned light blue. In reverse, while the mouse cursor is over a row of data, the row as well as the corresponding slide(s) is highlighted. By this way, you can confirm the photo-to-data mapping with your eyes.

You can modify the photo-to-data mapping by moving boundary slides to positions where you want to make boundaries.

To move boundary slides,

1. Click the boundary slide you are going to move.
2. Click the Next button to move the boundary slide to the next position.
3. On the contrary, click the Previous button to move the boundary slide to the previous position.

The number of the boundary slides must be the same as that of the rows in the data panel. If not, the Save button will be disabled and you cannot register the images.

You can add or delete boundary slides.

To add a boundary slide,

1. Select a image slide by clicking it.
2. Click the Insert button in the right side of the thumbnail panel.
3. A boundary slide will be inserted in the next position of the image slide selected.

To delete a boundary slide,

1. Select the boundary slide you are going to delete.
2. Click the Delete button in the right side of the thumbnail panel.

3.4.4 Using dummy data

When you forgot to insert session data at photo sessions, you can insert dummy data instead of authentic session data in the data panel of the Register window. Dummy data enable you to make the correct image-to-data mapping even if some of the session data are lacking.

To insert dummy data,

1. Select a row in the data panel by clicking it.
2. Click the Insert or Append button in the right side of the data panel.

If you have any information on the missing data at the time of image registration, you can edit the dummy data with the information by clicking the Edit button in the right side of the data panel.

The Edit button can be used to update authentic session data as well.

You can edit dummy data and authentic session data after image registration, which will be described in Section 4.2.6(53 page).

Dummy data can be deleted with the Delete button in the right side of the data panel. You cannot delete authentic session data from the Register window. On how to delete session data, refer to Section 4.2.6(53 page).

3.4.5 Inserting dummy data automatically

AIR inserts dummy data automatically when the shooting time is apart from the data insertion time by more than the time that is set in the Max Interval(min) field on the Preferences dialog. By this action, AIR makes a probable image-to-data mapping even if you forgot to insert some session data when you shot the photos. If you leave the Max Interval(min) field empty, AIR will not elicit this action. As for the Max Interval(min) setting, refer to Section 14.4 (113 page).

3.4.6 Copying image files to the Photo Directory

If you have confirmed the correctness of the image-to-data relationship on the Register window, click the Save button to copy the image files to the photo-storing directory that is set in the Photo Directory field on the Preferences dialog. As for this setting, refer to Section 14.4 (116 page).

3.4.7 Monitoring volume usage

When image registration is completed, the volume gauge in the bottom of the Register window will be updated. If the volume gauge is not updated, it is probable that an application that checks the volume usage is not installed. For installation of this application, refer to Section 1.1.3(11 page). When the volume gauge will have reached 100 percent, a new volume will be created automatically. As for the volume, refer to Chapter 7 (77 page).

3.4.8 Automatic backup of image files

When the Backup Photo field on the Preferences dialog is set to ON and the Backup Photo Directory field is set properly, image files will be copied to the Backup Photo Directory just after image registration is completed, resulting in a mirroring of image files. On how to set these, refer to Section 14.4 (116 page) and Section 14.4 (116 page).

Caution : The backup made by this way is only a snapshot at the time of image registration. If you will rotate or delete image files after image registration, the backup will not mirror the updating.

3.4.9 Automatic backup of session data

When the Backup Data field on the Preferences dialog is set to ON and the Backup Data Server field is set properly, the session data in the data panel in the Register window will be inserted to a database that is on the Backup Data Server and has the same name as the original database just after image registration is completed. For this action to work properly, there must be a database whose name is the same as that of the original database on the Backup Data Server. On how to set these, refer to Section 14.4 (117 page) and Section 14.4 (117 page).

Caution : The backup made by this way is only a snapshot at the time of image registration. If you will update the session data after image registration, the backup will not mirror the updating.

Chapter 4

Searching and updating data

This chapter explains how to search session data stored in the database. It will also present an instruction on how to delete, update and duplicate the data. At the end of the chapter, a brief explanation on how to export or import the data will be described.

You can search data from the main window. You must visit the Patient, Macro or Micro page of the main window depending on the kind of the data you are going to search.

1. To open the page you are going to visit, click the tab at the top of the page.

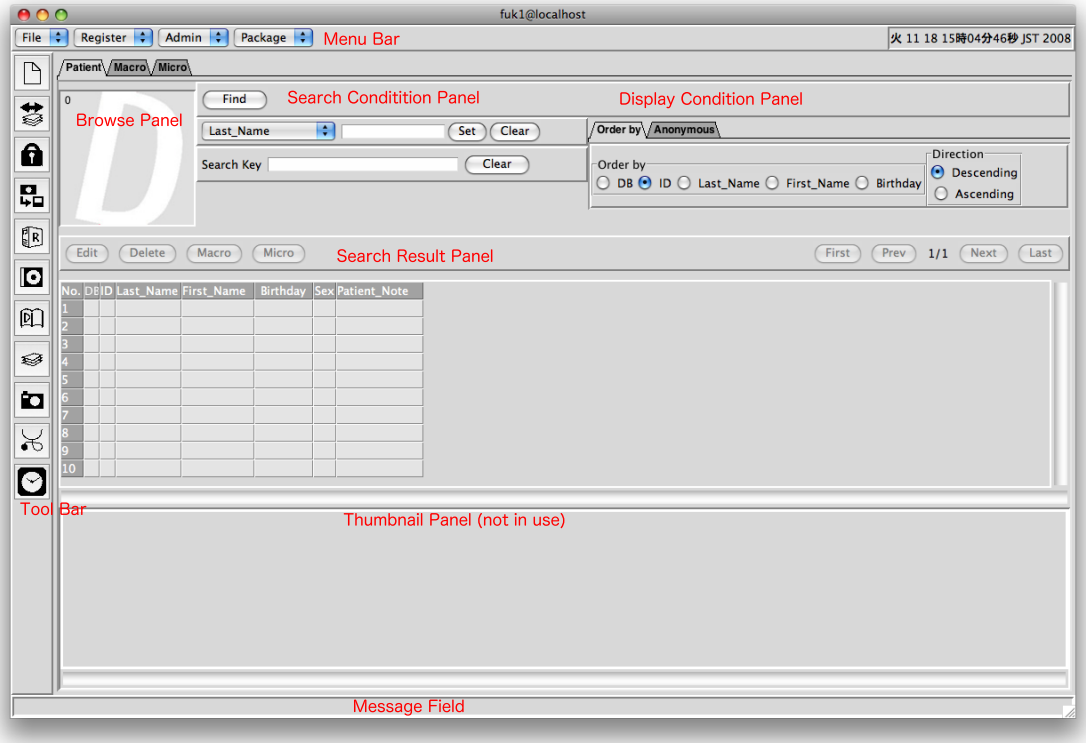
2. To open the next page, press the letter n (=next) while the Control key is already held down.

3. To open the previous page, press the letter p (=previous) while the Control key is already held down.

You can change the page order of the main window by setting the Notebook Order field on the Preferences dialog. As for this setting, refer to Section 14.4 (112 page).

4.1 Searching patient data

The Patient page of the main window looks like the following figure.



4.1.1 Search Condition panel

Search condition can be set in the Search Condition panel.

You can see the Find button on the top of the panel. Below the button, you can find the Patient Column menu (Last_Name as default), the Patient Value entry, the Set button and the Clear button. Below these widgets, you can see the Search Key entry and the Clear button.

To search patient data,

1. Click the Patient Column menu, which will display a drop down menu.

2. Select an item from the menu.

3. Type a key word for the search in the Patient Value entry.

4. Click the Set button or press the Return key.

5. A pair of the column name with the key word will appear in the Search Key entry.

6. For an AND search, repeat from 1 to 5 with another pair of a column name with a key word.

7. Click the Find button to execute the search.

If you want the data of women whose birthday is February first,1970 or later,

1. Select the Sex from the Patient Column menu.

2. Type the letter f (=female) in the Patient Value entry.

3. Select the Birthday> from the Patient Column menu.

4. Type 1970/02/01 (70/02/01 or 19700201 is also acceptable) in the Patient Value entry.

5. Click the Set button or press the Return key.

6. Click the Find button to get the result.

Caution : The Patient Value entry itself has no effect on the search. It is used only for setting a pair of a column name with a key word in the Search Key entry. Be sure that tkDerm uses the value in the Search Key entry as the search key.

Caution : You cannot do an AND search with two or more different values of the same column. Even if you set two or more pairs of different values and the same column in the Search Key entry, only the last pair will be used as the search key.

Hint : You will get all the data stored if you click the Find button while the Search Key is empty.

Here are descriptions for each item of the Patient Column menu and its acceptable value.

ID The patient's ID. Any text is acceptable.

Last_Name The patient's last name. Any text is acceptable.

First_Name The patient's first name. Any text is acceptable.

As for these 3 columns, if the data are encrypted, search with complete matching will be done, else search with partial matching will be done.

Birthday> The oldest limit of the patient's birthday. If you are searching for patients whose birthday is January first,1970 or later, type 1969/12/31. 19691231 is also acceptable. Be sure that 69/12/31 is interpreted as December 31,2069 if the Datestyle setting on the Preferences dialog is YMD. As for the setting, refer to Section 14.4 (112 page).

Birthday< The newest limit of the patient's birthday.

Sex Only m(=male) or f(=female) is accepted.

4.1.2 Display Condition panel

Just right to the Search Condition panel, you can see the Display Condition panel. You can visit a new page by clicking a tab on the top of the panel.

Order by

By choosing a combination of the "Order by" and the Direction radio buttons, you can set the display order of the search result. If you choose a combination of the ID and the Descending, the value of the ID field will be descending from the top row to the bottom one.

If the database to which you are connecting is encrypted, ID, First_Name and Last_name columns can't be used by ordering keys. Therefore, they aren't presented with radio buttons in such a case.

Anonymous

This setting makes the checked rows anonymous. It concerns only data display. It will not change data stored in the database.

4.1.3 Updating patient data

To update patient data,

1. Select the row of the patient of which you are going to update the data.

2. Click the Edit button.

3. The Edit Patient Data dialog will pop up.

4. Edit the values in the fields.

5. Click the Save button.

4.1.4 Deleting patient data

To delete patient data,

1. Select the row of the patient of which you are going to delete the data.

2. If there is a Macro or Micro data concerning the patient, you must discard it before deleting the patient data.

3. Click the Delete button.

4.1.5 Displaying the corresponding Macro or Micro data

When you click a row on the Search Result panel of the Patient page, the Macro or Micro button on the top of the panel will be enabled if the Macro or Micro data concerning the patient are stored in the database, respectively.

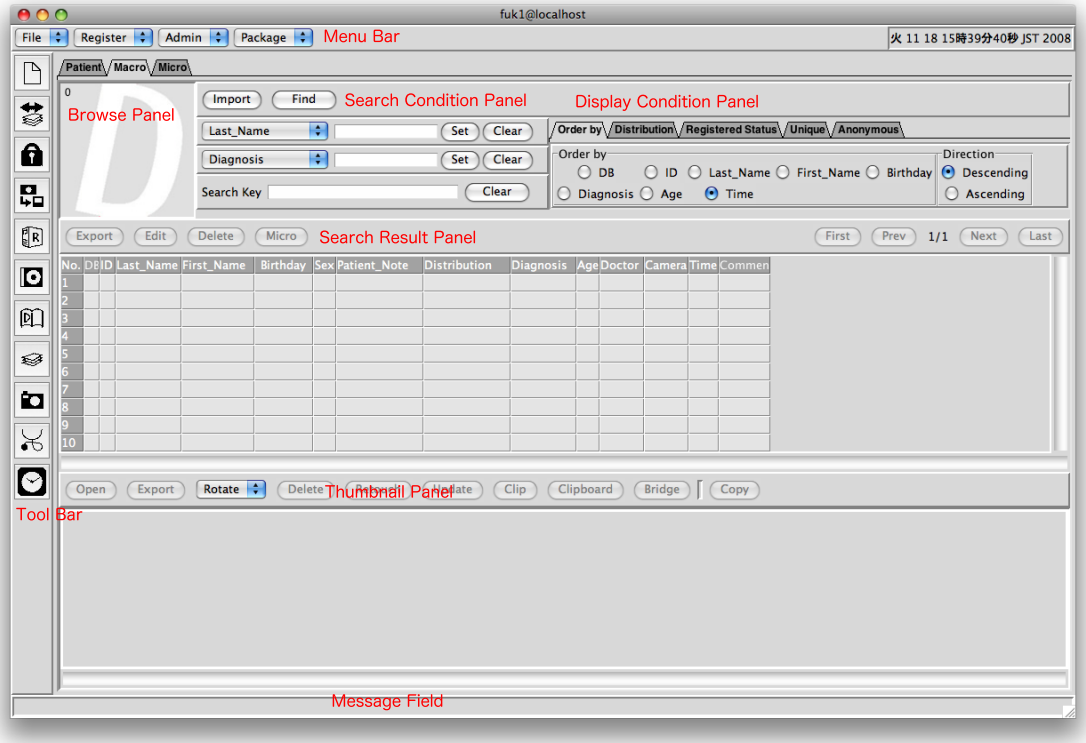
To display the Macro or Micro data concerning the patient,

1. Select the row of the patient of which you are going to display the Macro or Micro data.

2. Click the Macro or Micro button.

4.2 Searching macro data

The Macro page of the main window looks like the following figure.



4.2.1 Search Condition panel

Search condition can be set in the Search Condition panel.

As compared with the Patient page, the Search Condition panel on the Macro page has the Macro Column menu in addition to the Patient Column menu. It has also the Macro Value entry.

With this panel, you can search with combined keys of the Macro and Patient column.

To find the data in which the Last_Name of the Patient column is "inuzuka" and the Diagnosis of the Macro column is "verruca vulgaris",

1. Select the Last_Name from the Patient Column menu.
2. Type *inuzuka* in the Patient Value entry.
3. Click the Set button next to the Patient Value entry or press the Return key.

4. Select the Diagnosis from the Macro Column menu.

5. Type *verruca vulgaris* in the Macro Value entry.

6. Click the Set button next to the Macro Value entry or press the Return key.

7. Click the Find button to get the result.

Caution : The Patient and Macro Value entry itself has no effect on the search. It is used only for setting a pair of a column name with a key word in the Search Key entry. Be sure that tkDerm uses the value in the Search Key entry as the search key.

Caution : You cannot do an AND search with two or more different values of the same column. Even if you set two or more pairs of different values and the same column in the Search Key entry, only the last pair will be used as the search key.

Hint : You will get all the data stored if you click the Find button while the Search Key is empty.

Here are descriptions for each item of the Macro Column menu and its acceptable value. As for the Patient Column, refer to Section 4.1.1 (45 page).

Diagnosis A text string for diagnosis. Any text is acceptable. Searching is done with a partial match.

Age> An upper limit of the Age.

Age< A lower limit of the Age.

Doctor A doctor name.

Camera A camera name.

Time> An oldest limit of the Time. If you are searching for the data whose time stamp is January first, 2007 or later, type 2006/12/31 23:59:59. 20061231 23:59:59 is also acceptable. 06/12/31 23:59:59 is interpreted as December 31,2006 23:59:59 if the Datestyle setting on the Preferences dialog is YMD. As for the setting, refer to Section 14.4 (112 page).

Time< A newest limit of the Time.

Recent An interval from now. Acceptable units are second, minute, hour, day, month, year, decade(=10 years), century(=100 years) and their abbreviated forms. The first character of the each unit other than month can be used as its abbreviated form. For example, 1 m means 1 minute and 1 y 2 mon means 1 year and 2 months. Spaces between digits and units can be omitted.

4.2.2 Display Condition panel

Just right to the Search Condition panel, you can see the Display Condition panel. You can visit a new page by clicking a tab on the top of the panel.

Order by

This is the same as the page with the same title of the Display Condition panel on the Patient page. Refer to Section 4.1.2(46 page).

Distribution

You can display only the data whose value of the Distribution column match the condition that is specified by this setting.

Here are descriptions for each radio button.

Include The eruption includes the distribution specified.

Be_included_in The eruption is included in the distribution specified.

Intersect The eruption intersects the distribution specified.

Exact_match The eruption exactly matches the distribution specified.

Exclude The eruption excludes the distribution specified.

You can specify a distribution with the distribution dialog that will appear by clicking the "..." button.

On usage of the Distribution dialog, refer to Section 2.2.4 (30 page).

Hint : A search whose condition is specified only by the distribution can be done by choosing an item from the Distribution radio buttons on the Display Condition panel while the Search Key entry is empty.

Registered Status

You can select the data for displaying by the registered status of the corresponding image files.

Following are descriptions for the radio buttons.

All All the data irrespective of the registered status of the corresponding image files.

Registered The data whose image files have been registered.

Unregistered The data whose image files have not been registered yet.

Unique

This option enables you to show only the rows whose combinations of the values of the checked columns are unique. If you turned the Time radio button unchecked while the other radio buttons are left checked, only one of the rows whose data are the same as the data of each other except for the value of the Time column will be shown. Which one will be shown depends on the display order. Only the top row in the display order will be shown. Therefore, the "Order by" setting determines which row will be displayed among the rows whose data partially overlaps.

Example 1 Suppose you want to know the number of patients whose diagnosis is *tinea unguium*. If you shot two or more photos per patient for following up, the number of rows you get when you search with *tinea unguium* as a key word will be more than the number of such patients. If you execute the same search with the Time radio button of the Unique option unchecked, you will get the number you want because the rows only whose values of the Time column are different will not be shown.

Example 2 Suppose you want a list of every diagnosis you have registered. If you check only the Diagnosis of the Unique option, leave the other columns unchecked and click the Find button while the Search Key entry empty, you will get what you want.

Anonymous

This option is the same as the page with the same title of the Display Condition panel on the Patient page. Refer to Section 4.1.2 (46 page).

4.2.3 Browsing thumbnails

While the mouse cursor is over a row on the Search Result panel, a thumbnail belonging to the row is shown in the Browse panel at the upper left corner of the main window. Moving the mouse cursor on the Search Result panel shows thumbnails in the Browse panel one after another. This way of browsing helps you to find easily the images you are looking for. The number at the upper left corner of the Browse panel shows the number of the image files belonging to the photo session. If you click a row on the Search Result panel, all the thumbnails belonging to the row will be shown in the Thumbnail panel at the bottom of the main window.

4.2.4 Updating macro data

To update macro data,

1. Select the macro data you are going to update.
2. Click the Edit button.
3. The Edit Macro Data dialog will pop up.
4. Edit the values in the fields.
5. Click the Save button.

4.2.5 Duplicating macro data

If you are following up a patient and taking pictures of the patient on every visit, it would be nice to be able to reuse the data you typed on the previous visit.

To duplicate macro data,

1. Select the macro data you are going to duplicate.
2. Click the Edit button.

3. The Edit Macro Data dialog will pop up.
4. Click the Duplicate button.
5. Data whose value on the Time column is updated while the values of the other columns are the same as those of the original data will be stored in the database.

4.2.6 Deleting macro data

To delete macro data,

1. Select the macro data you are going to delete.
2. Click the Delete button.
3. You will be prompted to confirm the deletion.
4. Click the OK button if you really want to delete it.

This action will delete the image files belonging to the data you are going to delete. In case you need them, be sure to back them up in advance.

4.2.7 Displaying the corresponding Micro data

When you click a row on the Search Result panel of the Macro page, the Micro button on the top of the panel will be enabled if the Micro data corresponding to the row are stored in the database.

To display the Micro data corresponding to the row,

1. Select the Macro data to which you are going to display the Micro data corresponding.
2. Click the Micro button.

4.3 Searching micro data

The Micro page of the main window looks almost the same as the Macro page, which is seen in Section 4.2 (47 page).

The differences are

1. The Micro page has the Micro Column menu instead of the Macro Column menu.

2. The Micro page has the Location tab in the Display Condition panel instead of the Distribution tab.

4.3.1 Search Condition panel

Search condition can be set in the Search Condition panel.

As compared with the Patient page, the Search Condition panel on the Micro page has the Micro Column menu in addition to the Patient Column menu. It has also the Micro Value entry.

With this panel, you can search with combined keys of the Micro and Patient column.

The way to use this panel is essentially the same as the way to use the corresponding panel on the Macro page. See Section 4.2.1 (48 page).

Here are descriptions for each item of the Micro Column menu and its acceptable value. As for the Patient Column, refer to Section 4.1.1 (45 page).

Diagnosis A text string for diagnosis. Any text is acceptable. Searching is done with a partial match.

An sample number. Any text is acceptable.

Age> An upper limit of the Age.

Age< A lower limit of the Age.

Operator A operator name.

Camera A camera name.

Entry_Time> An oldest limit of the Entry_Time. If you are searching for the data whose time stamp is January first, 2007 or later, type 2006/12/31 23:59:59. 20061231 23:59:59 is also acceptable. 06/12/31 23:59:59 is interpreted as December 31,2006 23:59:59 if the Datestyle setting on the Preferences dialog is YMD. As for the setting, refer to Section 14.4 (112 page).

Entry_Time< An newest limit of the Entry_Time.

Recent An interval from now. Acceptable units are second, minute, hour, day, month, year, decade(=10 years), century(=100 years) and their abbreviated forms. The first character of the each unit other than month can be used as its abbreviated form. For example, 1 m means 1 minute and 1 y 2 mon means 1 year and 2 months. Spaces between digits and units can be omitted.

4.3.2 Display Condition panel

Just right to the Search Condition panel, you can see the Display Condition panel. You can visit a new page by clicking a tab on the top of the panel.

Order by

This is the same as the page with the same title of the Display Condition panel on the Patient page. Refer to Section 4.1.2(46 page).

Location

This is the same as the Distribution page of the Display Condition panel on the Macro page. Refer to Section 4.2.2 (50 page).

Registered Status

This is the same as the page with the same title of the Display Condition panel on the Macro page. Refer to Section 4.2.2 (51 page).

Unique

This is the same as the page with the same title of the Display Condition panel on the Macro page. Refer to Section 4.2.2 (51 page).

Anonymous

This is the same as the page with the same title of the Display Condition panel on the Patient page. Refer to Section 4.1.2(46 page).

4.3.3 Updating micro data

To update micro data,

1. Select the micro data you are going to update.
2. Click the Edit button.
3. The Edit Micro Data dialog will pop up.
4. Edit the values in the fields.
5. Click the Save button.

You can use this dialog to save the shooting time of the Micro data. See Section 2.3.1 (33 page).

4.3.4 Deleting micro data

To delete micro data,

1. Select the micro data you are going to delete.
2. Click the Delete button.
3. You will be prompted to confirm the deletion.
4. Click the OK button if you really want to delete it.

This action will delete the image files belonging to the data you are going to delete. In case you need them, be sure to back them up in advance.

4.3.5 Displaying the corresponding Macro data

When you click a row on the Search Result panel of the Micro page, the Macro button on the top of the panel will be enabled if the Macro data corresponding to the row are stored in the database.

To display the Macro data corresponding to the row,

1. Select the Micro data to which you are going to display the Macro data corresponding.
2. Click the Macro button.

4.4 Purposes for exporting and importing data

tkDerm can save the search result as a file and import data from the file. This can make the data stored by tkDerm to be handled by a spread sheet application such as Microsoft Excel. This can also make tkDerm to import the data exported by tkDerm running on a different computer. Furthermore, you can get a custom database storing only the data you are interested in by exporting the data of you interest and importing them to an empty database.

4.5 Exporting data

To export the Macro or Micro data,

1. Visit the Macro page or Micro page of the main window if you are going to export Macro or MIcro data, respectively. You cannot use the Patient page for exporting data because tkDerm cannot export the Patient data without the Macro or Micro data that are related with them.

2. Show the data you are going to export in the Search Result panel.

3. Click the Export button on the top of the Search Result panel to open the Select window.

4. Select the file type. If you are going to import the exported file to tkDerm, choose the txt option. If you are going to import the exported file to a spreadsheet application such as Microsoft Excel, choose the csv option.

5. The Macro or Micro Export window will pop up if you click the OK button.

6. Type the file name, choose the destination directory and click the Save button.

4.6 Importing data

To import the Macro or Micro data,

1. Visit the Macro page or Micro page of the main window if you are going to import Macro or MIcro data, respectively. You cannot use the Patient page for importing data because tkDerm cannot import the Patient data without the Macro or Micro data that are related with them.

2. Click the Import button on the top of the Search Condition panel. The Select a dump file name window will pop up.

3. The TEXT file type is selected by default. You can choose the CSV file type.

4. Choose the file to be imported and click the Open button.

5. The data in the file will be imported to the current database and shown in the Search Result panel.

Chapter 5

Showing photos

This chapter describes the use of the image and clipboard windows. The former displays a single image, whereas the latter can display more than one image at once. So, the latter is useful to compare one image with another. You can let these windows pop up by the buttons on the top of the thumbnail panel, which also enables you to copy image files to another directory, rotate them, or open them with Adobe Photoshop.

5.1 Opening an image file in the image window

To open an image file in the image window,

1. Select the data of which you are going to open the images.

2. The thumbnail images belonging to the data will appear in the thumbnail panel.

3. Click the thumbnail representing the image you are going to open and click the Open button on the top of the thumbnail panel.

4. Double-clicking the thumbnail also open the image it represents.

5.1.1 Opening the image window of the tabnotebook style

You can use the image window of the tabnotebook style instead of the independent image window. The style of the image window can be set in the Image Panel Type field in the Preferences dialog. See Section 14.4 (122 page).

To navigate through the tabnotebook pages,

1. To visit a page, click the tab on the top of the page.
2. To visit the next page, press the letter n (=next) while the Control key is already held down.
3. To visit the previous page, press the letter p (=previous) while the Control key is already held down.

5.1.2 Opening more than one image window at once

To open more than one image window at once,

1. Click the first thumbnail representing the image you are going to open.
2. Click the second thumbnail while the Shift key is already held down (=shift-click).
3. Shift-click any number of the thumbnails if you want.
4. Click the Open button on the top of the thumbnail panel.

5.1.3 Resizing the image in the image window

When the image window pops up, the size of the image automatically gets adjusted to that of the window. The magnification is shown between the Shrink and Enlarge buttons at the bottom in the window. To change the magnification, click the Shrink or Enlarge button.

5.1.4 Exporting the image from the image window

The Export Image dialog will pop up if you click the Export button on the image window. When you type a file name, choose a directory and click

the Save button, the image file will be copied to the directory you have just selected.

The Export button on the top of the thumbnail panel also works in the same way.

5.2 Opening more than one image in the clipboard window

The clipboard window can display more than one image in a single window. This is useful to compare one image with another.

To open more than one image in the clipboard window,

1. Click the first thumbnail representing the image you are going to open.

2. Click the second thumbnail while the Shift key is already held down (=shift-click).

3. Shift-click any number of the thumbnails if you want.

4. Click the Clip button on the top of the thumbnail panel, which will make tkDerm to keep the selected images in its memory.

5. Click the Clipboard button on the top of the thumbnail panel, which will present the clipboard window displaying the selected images.

Clicking the Clip button replaces the images stored in the clipboard memory with the ones you have just selected. If you would like to add images to the memory instead of replacing, click the Clip button while the Shift key is already held down (=shift-click). This way enables you to display the images you shot on different occasions in one clipboard window and makes it easier for you to follow up a patient. Of course, it is also possible to display the images of different patients as well as the images of macro and micro photos of a patient.

Caution : On some versions of Tcl/Tk, it could happen that the clipboard window has no image just after it pops up. If this happens, the images will appear when you refresh the window by such a way as moving the scroll bar or resizing the window.

5.2.1 Opening the clipboard window of the tabnotebook style

You can use the clipboard window of the tabnotebook style instead of the independent clipboard window. The style of the clipboard window can be set in the Clipboard Panel Type field in the Preferences dialog. See Section 14.4 (122 page).

5.2.2 Exporting the canvas on the clipboard window

The Export Canvas dialog will pop up if you click the Export Canvas button on the clipboard window. When you type a file name, choose a directory and click the Save button, a PostScript file representing the canvas will be copied to the directory you have just selected.

Caution : The canvas to be copied is what you see in the window and excludes the area that is scrolled out. You should be sure that the whole part of the canvas you would like to copy is shown in the window before exporting it. If some part is scrolled out, you should make all the images you are going to copy seen in the window by adjusting the magnification or arrangement of the images with the Shrink, Enlarge, Incr Column, or Incr Row button.

It would be better for you to convert the PostScript files to Portable Document Format (PDF) if you are going to print them or attach them to e-mail. The easiest way to convert a PostScript file to a PDF one differs from one operating system to another. For example, on Mac OS 10.5, double-clicking a PostScript file will start the Preview application, which automatically convert the file to a PDF one.

5.2.3 Exporting images from the clipboard window

Selecting an image on the clipboard window by clicking it makes the Export Image button enabled. The Export Image dialog will pop up if you click the Export Image button on the clipboard window. When you type a file name, choose a directory and click the Save button, the image file will be copied to the directory you have just selected.

The Choose Directory dialog will appear if you click the Export Image button on the condition that more than one image is selected by shift-cliking. When you choose a directory and click the Save button, all the images you

have selected will be copied to the directory of your choice as the original file names.

5.2.4 Resizing images in the clipboard window

When the clipboard window pops up, the magnification of the images automatically gets adjusted according to the size of the window. The magnification is shown between the Shrink and Enlarge buttons at the bottom in the window. To change the magnification, click the Shrink or Enlarge button.

5.2.5 Changing the arrangement of the images in the clipboard window

The arrangement of the images in the clipboard window (column × row) is shown between the Incr Column and Incr Row buttons.

To change the arrangement, click the Incr Column or Incr Row button.

The default arrangement can be set by the Clipboard Image Number in Row field in the Preferences dialog. See Section 14.4 (120 page).

5.2.6 Adding images to the clipboard window

To add images to the clipboard window that has already popped up,

1. Click the thumbnail you are going to add or shift-click the thumbnails if you would like to choose more than one image.

2. Click the Clip button on the top of the thumbnail panel to make tkDerm to keep the images to be added in its memory.

3. Visit the clipboard window that has already popped up and click the Paste button at the bottom of the window.

This way enables you to display the images you shot on different occasions in one clipboard window and makes it easier for you to follow up a patient. Of course, it is also possible to display the images of different patients as well as the images of macro and micro photos of a patient.

5.2.7 Deleting images from the clipboard window

To delete images from the clipboard window,

1. Click the image you are going to delete or shift-click the images if you would like to choose more than one image.

2. Click the Delete button at the bottom of the window.

This action just makes the image(s) to disappear from the window and does not actually delete the file(s) corresponding to the image(s). If you would like to delete the file(s), refer to Section 5.4 (65 page).

5.2.8 Moving images in the clipboard window

To move forward or backward an image in the clipboard window, click the image you are going to move and click the Forward or Backward button, respectively.

5.2.9 Exporting images from the thumbnail panel

Selecting a thumbnail in the thumbnail panel by clicking it makes the Export button enabled. The Export Image dialog will pop up if you click the Export button. When you type a file name, choose a directory and click the Save button, the image file will be copied to the directory you have just selected.

The Choose Directory dialog will appear if you click the Export button on the condition that more than one thumbnail is selected by shift-cliking. When you choose a directory and click the Save button, all the images you have selected will be copied to the directory of your choice as the original file names.

5.3 Rotating an image from the thumbnail panel

To rotate an image,

1. Click the thumbnail representing the image file you are going to rotate.

2. Click the Rotate button.

3. Select the degree with which you are going to rotate the image clockwise from the menu that has just popped up.

tkDerm permits only the user who logged in as the tkDerm superuser to do this action because it will result in a change of the image file. When you log in as a user other than the tkDerm superuser, the Rotate button will remain disabled even if you select a thumbnail. tkDerm superuser means the user who initialized tkDerm. See Section 1.7 (23 page).

5.4 Deleting images

To delete an image,

1. Click the thumbnail you are going to delete.
2. Click the Delete button on the top of the thumbnail panel.
3. You will be prompted for confirmation.
4. If you click the OK button, the image file will be deleted.

tkDerm permits only the user who logged in as the tkDerm superuser to do this action because it will delete the image file. When you log in as a user other than the tkDerm superuser, the Delete button will remain disabled even if you select a thumbnail. tkDerm superuser means the user who initialized tkDerm. See Section 1.7 (23 page).

The image that has been deleted cannot be restored. Be sure that you intend to delete the image before clicking the Delete button.

5.5 Opening an image with Adobe Photoshop

The image files are saved deep in the photo-storing directory. So, it is somewhat cumbersome to open the image files with programs other than tkDerm. tkDerm offers a convenient way to open the image files with Adobe Photoshop.

To open an image with Adobe Photoshop,

1. Put the directory name where Photoshop looks for JavaScript files (i.e. preset/script directory under Photoshop installation directory on Mac

OS) in the Photoshop JavaScript Directory field in the Preferences dialog (Section 14.4 119 page) and save the change.

2. Click the Retouch button, which gets enabled only when the Photoshop JavaScript Directory field in the Preferences dialog is set.

3. The Enter a JavaScript file name dialog will pop up with the default file and directory names, the latter of which is set in the Photoshop JavaScript Directory field in the Preferences dialog.

4. Click the Save button to save the script file.

5. Launch Adobe Photoshop and select the JavaScript file from File/Script menu.

6. After retouching, click the Update button to update the thumbnail.

5.6 Opening a photo-storing directory with Adobe Bridge

Adobe Bridge is a file browser shipped with Adobe products such as Photoshop.

To open a photo-storing directory with Adobe Bridge,

1. Put the directory name where Bridge looks for JavaScript files (i.e. Presets/Scripts directory under Bridge installation directory on Mac OS) in the Bridge JavaScript Directory field in the Preferences dialog (Section 14.4 119 page) and save the change.

2. Click the row whose photo-storing directory you are going to open with Bridge.

3. Click the Bridge button, which gets enabled only when the Bridge JavaScript Directory field in the Preferences dialog is set.

4. Launch Adobe Bridge and open the javaScript file from Bridge by double-clicking it.

5.7 Opening a photo-storing directory with the Finder on Macintosh OS 10.5

The Finder on Macintosh OS 10.5 Leopard brought you the new way of file browsing called Cover Flow. Using Cover Flow, you can actually see the image files in the Finder by flipping through them.

To open a photo-storing directory with the Finder,

1. Click the row of which you would like to browse the images.
2. Click the Copy button on the top of the thumbnail panel on the condition that the directory name you would like to visit appears in the directory path entry just left to the button, which will copy the directory path to the clipboard, which is used for data transfer between applications and has nothing to do with the clipboard window of tkDerm.
3. Select the Go to... item from the Go menu of the Finder and you will be prompted for the destination directory.
4. Paste the directory name stored in the clipboard to the entry in the dialog, which will make the Finder to show the directory.

Chapter 6

Managing databases

This chapter explains how to create or delete databases. It also explains the way to dump a database or restore it.

tkDerm can handle more than one database. It is a good idea to create a database for every hospital if you are going to store the data of two or more hospitals. In this case, you should be sure that you cannot search through the data across the different databases.

6.1 The Create & Drop Database dialog

The Create & Drop Database dialog will pop up if you select the Database. . . item from the Admin menu. All the databases are listed in the Database table in the upper part of the dialog. In the lower part, there are various buttons whose functions will be presented in the following sections.

6.2 Creating a database

To create a database,

1. Click the Create button. The Create Database dialog will appear. The meanings of the fields are:

   DB The database name.

   Description A brief explanation for the database.

Tables If you choose yes, the Patient, Macro and Micro tables will be created when creating the database. If you choose no, they will not. Choose yes if you are going to create a database for inserting data by your hand. To restore the database with the volume dump or import the exported data, you should select yes. On the contrary, choose no if you are going to create a database for the database dump because the dump file contains the table definitions. Refer to Section 6.4 (71 page) for restoring databases.

Encryption If you choose bf or aes, the data in the First_Name, Last_Name and ID columns will be encrypted. bf and aes mean Blowfish and AES, respectively.

Caution : tkDerm doesn't support encryption of multi-byte characters such as Japanese Kana and Kanji.

Body_Diagram You can choose the body diagram on the distribution dialog. eruption32 is for skin diseases in general, while decubitus32 is for decubitus. You can draw the diagram by yourself with the distribution editor, which is explained in Chapter 11 (93 page).

PNG Choose yes if you are going to create a database to which tkDerm touch running on the iPad connects. If you choose yes, choosing yes as Tables, bf or aes as Encryption and eruption32 as Body_Diagram is required. In addition, you must already set up the server software suite as described in tkDerm touch Documentation, which you can get via the tkDerm touch support page (http://tkderm.sourceforge.net/touch.html).

2. After completing the fields, click the Add button.

3. You will be prompted for the postgres password. Please give it.

   Hint : If you turn the "Crypto.Function" option on in the "Enable contrib modules" dialog during the installation of PostgreSQL on Windows, you will not be prompted for the postgres password at this step.

4. You will be asked to type an encryption key if you selected bf or aes in the Encryption field. Be sure to remember the key as it will be required whenever you are going to connect to the database.

   Caution : You cannot decrypt the data if you forget the encryption key.

Hint : You can encrypt a database without encryption later by clicking the Encrypt/Decrypt button. Conversely, you can decrypt an encrypted database by clicking the same button. To know more about this topic, see Section 6.7 (73 page).

5. If the database is created successfully, you will be connected to it automatically.

6.3 Dumping a database

To dump a database,

1. Select a database in the Create & Drop Database dialog and click the Delete button. The Enter a dump file name dialog will appear.
2. Enter a file name and choose a destination directory.
3. Click the Save button.

At this step, the following command will be executed.

```
pg_dump database_name -Fc --file=dump_file_name
```

It is necessary to set the PostgreSQL Directory item in the Preferences dialog properly for tkDerm to find the pg_dump file and execute the above command. See Section 14.4 (118 page) for setting the item.

Caution : An error will occur when dumping a database on Tcl/Tk 8.5. Tcl/Tk 8.4 works fine when dumping a database.

Caution : The dump file doesn't contain the encryption algorithm nor the encryption key. You will be prompted for this information when restoring the database.

6.4 Restoring a database

To restore a database,

1. Create a database without tables. See Section 6.2 (69 page). The database name can be different from that of the source database. *Caution : When creating a database for restoration, you should choose no*

in the Tables field on the Create Database dialog. Restoration will fail if the database to be restored has tables as the dump file includes the table definitions.

2. If the database is created successfully, you will be connected to it automatically.
3. Click the Restore button.
4. The Select a dump file name dialog will pop up.
5. Select a dump file and click the Open button.
6. The Select encryption algorithm dialog will appear.
7. Select an item among the radio buttons. Be sure to choose the algorithm the dumped database uses.
8. You will be prompted for the encryption key if you have chosen bf or aes as the encryption algorithm. Be sure to type the encryption key with which the dumped database are encrypted.

At this step, the following command will be executed.

```
pg_restore -U postgres --dbname=database_name dump_file_name
```

It is necessary to set the PostgreSQL Directory item in the Preferences dialog properly for tkDerm to find the pg_restore file and execute the above command. See Section 14.4 (118 page).

Caution : The dump file will be restored to the currently connected database irrespective of the selection in the database table on the Create & Drop Database dialog.

6.5 Destroying a database

To destroy a database,

1. Select the database you are going to destroy in the table on the Create & Drop Database dialog.
2. Click the Drop button. You will be prompted for confirmation.

3. Click the OK button and the database will be dropped.

Caution : If you drop a database, you cannot recover it forever. Be sure that you really want to drop it before doing that.

Caution : If you drop a database, the photos belonging to it will be deleted. If you need them, back them up before dropping the database.

6.6 Vacuum

In PostgreSQL, the rows that are deleted by an update operation are not physically removed from their tables; they remain present until a VACUUM is done. Therefore it is necessary to do VACUUM periodically on frequent-updated tables.

The Vacuum button on the Create & Drop Database dialog offers a convenient way to do VACUUM.

To vacuum a database,

1. Select the database you are going to vacuum in the table on the Create & Drop Database dialog.

2. Click the Vacuum button.

By doing that, the following command will be executed.

```
vacuum full analyze;
```

ANALYZE updates statistics used by the planner to determine the most efficient way to execute a query. VACUUM ANALYZE performs a VACUUM and then an ANALYZE sequentially, which is useful combination for routine maintenance. See the PostgreSQL Documentation for a more detailed explanation of VACUUM and ANALYZE.

6.7 Encryption and decryption

6.7.1 Encryption

You can encrypt the ID, First_Name and Last_Name rows of the database you created without encryption.

To encrypt a database,

1. Select the database you are going to encrypt in the table on the Create & Drop Database dialog.

2. Click the Encrypt/Decrypt button. You will be prompted for confirmation.

3. Click the OK button if you are sure to want to encrypt the database. *Caution : Encryption of multi-byte characters is not supported. If you dare to do that, decryption will fail. Caution : In case of troubles that could happened with encryption, it is preferable to create a dump of the database before encrypt it. See Section 6.4 (71 page) for the information on the SQL dump.*

4. You will be asked to select the algorithm of encryption. Choose bf (Blowfish) or aes (AES).

5. You will be prompted for an encryption key. This key will be required whenever you are going to connect to the database. *Caution : If you forget the key, you cannot decrypt the database forever.*

6. You will be informed that encryption is successful by the message line in the Create & Drop Database dialog,

6.7.2 Decryption

You can decrypt an encrypted database. To decrypt a database,

1. Select the database you are going to encrypt in the table on the Create & Drop Database dialog.

2. Click the Encrypt/Decrypt button. You will be prompted for confirmation.

3. Click the OK button if you are sure to want to decrypt the database.

4. You will be prompted for the encryption key.

5. If you give it, the database will be decrypted.

6.7.3 Confirmation of encryption

tkDerm automatically decrypt the data when it shows them. Therefore, to confirm that they are really encrypted, you should use a PostgreSQL client program called psql as follows (t1 is the database of which you are going to check the encryption).

```
$ psql t1
Password:
Welcome to psql 8.?.?, the PostgreSQL interactive terminal.

Type:  \copyright for distribution terms
       \h for help with SQL commands
       \? for help with psql commands
       \g or terminate with semicolon to execute query
       \q to quit

t1=> select id from patient;
                        id
------------------------------------------------
 \033\231qD\261\177\347~\014{\245\035;\316y\016
(1 row)

t1=> select first_name from patient;
       first_name
-------------------------
 Mn\320\372\377\017\340.
(1 row)

t1=> select last_name from patient;
         last_name
---------------------------
 \366m?\222\310\306\232\254
(1 row)
```

Instead of executing these commands separately, you can type the following command.

```
t1=> select id,first_name,last_name from patient;
```

Chapter 7

Making a backup with volumes

At the time of registration, photos are copied to the photo-storing directory that is specified in the Photo Directory field in the Preferences dialog. To make it easy to back up the photos, tkDerm offers a convenient way to divide the photo-storing directory into subdirectories whose size matches that of removable media such as CD-ROM and DVD-ROM. These subdirectories are called volumes. By using volumes, you can back up and restore any amount from the photo-storing directory.

You can set the size of volumes in the Volume Capacity(MB) field in the Preferences dialog. If the size of the current volume exceeds the value set in the Volume Capacity(MB) field at registration, a new volume will be created automatically. From the time on, photos will be copied to the new volume.

This chapter presents the structure of the photo-storing directory tree, followed by the instructions on how to make volumes manually as well as back up and restore volumes.

7.1 The structure of the photo-storing directory tree

The absolute path of the registered photo is:

> *photo directory/database name/volume name/camera name/yyyymmdd/hhmmss/file name*

The separator (/) should be replaced with the character(s) appropriate for the operating system.

In this example,

photo directory The directory specified in the Photo Directory field in the Preferences dialog. See Section 14.4 (116 page).

yyyymmdd The date of the photo session. For example, 20000102 means 2 January, 2000.

hhmmss The time of the photo session. For example, 012345 means 01:23:45.

In essence, the photo directory is divided into subdirectories that are named according to databases, which are further divided into volumes.

Integer numbers larger than zero will be assigned to the volumes automatically. For example, the first volume is named 1. The second is 2 and so on. The first volume is created automatically when you create a database.

7.2 The Volume dialog

The Volume dialog will pop up if you select the Volume... item from the Register menu.

You can see the volume list box in the upper part of the dialog, which shows all the volumes of the current database.

Below the volume list box, you will find the Used progress bar. If you select a volume in the list box and click the Check button just right to the bar, the bar will show the percentage of the volume already used. The percentage is obtained by dividing the current directory usage by the value specified in the Volume Capacity(MB) field in the Preferences dialog.

In the lower part of the dialog, there are various buttons, whose functions will be explained in the following sections.

7.3 Creating volumes

If the size of the current volume exceeds the value set in the Volume Capacity(MB) field at registration, a new volume will be created automatically. Therefore, you usually don't need to make volumes by yourself.

If you dare to create a volume by yourself with some reasons, click the New button in the Volume dialog. A new volume will be made and its full path will appear in the volume list box. From the time on, photos will be copied into the new volume at registration.

7.4 Dumping data corresponding to a volume

You can dump data corresponding to a volume.

To create data dump for a volume,

1. Select the volume for which you are going to dump the data in the volume list box on the Volume dialog.

2. Click the Dump button.

3. The Enter a dump file name dialog will appear.

4. Enter a dump file name and choose a destination directory.

5. A text file containing the data for the volume will be saved in the specified directory.

Caution : The dump file is a plain text file. Therefore, it can be read by those who don't have the access privilege to the database.

7.5 Restoring data corresponding to a volume

To restore data corresponding to a volume,

1. Connect to the database to which you are going to feed back the dump. If it doesn't exist, you should create a database by the way explained in Section 6.2 (69 page). You should choose yes as the value of the Tables field.

2. Click the Restore button in the Volume dialog. The Select a dump file name dialog will pop up.

3. Select a dump file and click the OK button.

4. The dump file will be fed back to the current database.

7.6 Dumping volumes

Volumes are no other than directories. Therefore, tkDerm offers no special way to dump volumes. You can back up volumes by the same way to back up usual directories.

7.7 Restoring volumes

To restore a volume,

1. Connect to the database that has the data corresponding to the volume you are going to restore. If there is no database that has such data, restore the data by the way detailed in the Section 7.5 (79 page).

2. Mount a volume backup medium.

3. Click the Photo Restore button in the Volume dialog. The Choose Photo Directory dialog will appear.

4. Select the mount point of the volume backup medium and click the OK button.

5. If restoration is successful, the full path of the restored volume will appear in the volume list box on the Volume dialog.

The sequential events that occur at volume restoration are:

1. A directory whose name is that of the current database is created in the directory specified in the Photo Directory field in the Preferences dialog, if it doesn't exist.

2. The volume name is retrieved from the database based on the information on the camera name and the session time obtained from the mounted backup medium.

3. A directory whose name is the volume name is created in the directory whose name is that of the current database.

4. The whole directory tree in the backup medium is copied to the directory whose name is the volume name.

Chapter 8

Managing diagnoses

tkDerm has a database that stores data on diagnoses and their synonyms. The supposed benefits of keeping such a database include:

1. to reduce the number of mistakes in spelling of diagnoses.

2. to reduce the number of key strokes in typing diagnoses.

3. to improve efficiency of a search using a diagnosis as a key.

tkDerm offers two ways of registering diagnoses and their synonyms. One is to use the Diagnosis entry in the New Data or Edit Macro (or Micro) dialog. The other is to use the Diagnosis dialog.

The subsequent sections describe how to use the diagnosis database.

8.1 The potential benefits of registering diagnoses

1. Reducing the number of mistakes in spelling of diagnoses.

   Type a diagnosis in the Diagnosis entry in the New Data or Edit Macro (or Micro) dialog and then press the Tab or Return key. If the diagnosis is registered, nothing will happen. If not, the Register Diagnosis dialog will pop up. This means that every diagnosis will be compared with all the diagnoses stored in the database whenever you type it. If the Register Diagnosis dialog pops up, confirm the spelling of the diagnosis.

2. Reducing the number of key strokes in typing diagnoses.

   Registering an abbreviation for a long diagnosis (for example, scc for squamous cell carcinoma) as a synonym can reduce the number of key strokes and avoid mistakes in typing.

3. Improving efficiency of a search using a diagnosis as a key.

   Some diseases have more than one name. For example, solar keratosis may be called actinic keratosis. If you type more than one name for a disease in the Diagnosis entry in the New Data or Edit Macro (or Micro) dialog, a search by one of the names would bring you only a subset of what you would expected. To avoid this situation, you would better to register all the possible names for a disease as synonyms for the disease. If you type the Tab or Return key whenever you type a diagnosis in the Diagnosis entry in the New Data or Edit Macro (or Micro) dialog, diagnoses registered as synonyms for a disease would be converted to the diagnosis name (not synonym name) of the disease, which makes you keep the one name for one disease policy.

8.2 Registering diagnoses or synonyms by the Diagnosis entry in the New Data or Edit Macro (or Micro) dialog

1. Type a diagnosis or synonym in the Diagnosis entry in the New Data or Edit Macro (or Micro) dialog and then press the Tab or Return key.

2. If the diagnosis or synonym is not registered, the Register Diagnosis dialog will pop up.

3. If the word just typed is a diagnosis, click the Diagnosis button.

4. If the word just typed is a synonym, click the Synonym button after choosing the diagnosis corresponding to the synonym from the list box.

8.3 Handling diagnoses or synonyms by the Diagnosis Editor dialog

If you choose the Diagnosis... from the Admin menu, the Diagnosis Editor dialog will appear. You can register or delete diagnoses and synonyms with the dialog.

Registering diagnoses To register a diagnosis,

1. Click the Diagnosis button. The New Diagnosis dialog will pop up.
2. Enter a diagnosis and click the Add button.

Deleting diagnoses To delete a diagnosis,

1. Choose the diagnosis you are going to delete from the Diagnosis list box in the left side of the dialog.
2. Click the Delete button just below the list box.
3. If no synonyms are registered for the diagnosis, the diagnosis will be deleted.
4. If synonyms are registered for the diagnosis, the Confirm dialog will inform you that this action will also delete the synonyms.
5. Clicking the OK button will delete the diagnosis as well as the synonyms.

Registering synonyms To register a synonym,

1. Choose the diagnosis for which you are going to register a synonym from the Diagnosis list box in the left side of the dialog.
2. Click the Synonym button. The New Synonym dialog will pop up.
3. Enter a synonym and click the Add button.

You can register more than one synonym for a diagnosis. On the contrary, you cannot register a synonym for more than one diagnosis. Therefore, if you are going to register a synonym already registered for another diagnosis, a notice will let you know that the synonym is already registered.

Deleting synonyms To delete a synonym,

1. Choose the synonym you are going to delete from the Synonym list box in the right side of the dialog.
2. Click the Delete button just below the list box.

Chapter 9

Utilizing camera data

The camera name and the data insertion time are the most important information tkDerm handles because the photo-storing directory tree is arranged based on these information as explained in Section 7.1 (77 page).

The data insertion time will appear automatically in the Time entry in the New Data or Edit Macro (or Micro) Data dialog if you visit the Macro or Micro page of the dialog.

On the contrary, it is up to you to insert the camera name in the dialog. Therefore, the consistency of the photo-storing directory depends on how exactly you type the camera name in the dialog.

tkDerm will present candidates for the camera name as radio buttons in the dialog if you have registered them in the camera database. This will make you choose a camera name from the candidates instead of typing it by yourself and keep you from making a mistake in spelling it.

This chapter describes the merit of registering camera data and how to register them.

9.1 Easy data insertion by registering camera data

If you have registered no camera data and visit the Macro or Micro page of the New Data dialog or the Edit Macro or Micro Data dialog, the Camera field will be presented as a text entry and you need to type a camera name by yourself.

By contrast, if you have registered camera data, the Camera field will appear as radio buttons representing the registered camera names. The default selection is the camera that has been selected or registered most recently. Just below the radio buttons is a text entry that holds the camera now selected. If you cannot find the camera name you are going to insert among the radio buttons, you can type whatever you want into the entry even if it has not been registered yet. Be sure that a text to be registered in the camera database is not the selected name of the radio buttons but the one in the text entry.

9.2 Registering camera data

To register camera data,

1. Choose the Camera... item from the Admin menu. The Insert & Delete Camera Data dialog will pop up.

2. Click the New button. The Add camera data dialog will appear.

   Brief descriptions for the fields are:

   Camera A camera name.

   Is_Macro The kind of targets. "macro" means the clinical photo, whereas "micro" means the microscopic photo.

   Is_Exif The file type. Usually, "exif" means the files produced by digital cameras, whereas "nonexif" means the files produced by scanning photographic films.

   Vendor The manufacturer of the camera.

   Model The model name of the camera.

3. If you are using a digital camera, click the Select button. The Image File Selection dialog will pop up.

4. Choose the file produced by the camera you are going to register. The default directory selected when the dialog pops up is the one specified in the Import Directory field in the Preferences dialog. See Section 14.4 (115 page) for this setting.

5. Click the Open button. All the fields except for the Camera and Is_Macro items will be filled or selected automatically by retrieving the information on the fields from the selected file.

6. Type the camera name in the Camera entry and choose an item from the Is_Macro radio buttons.

7. If you are using a film camera, you cannot resort to the method just mentioned. You must fill and choose all the fields by yourself.

8. If registration of the camera is successful, the data on the camera will appear in the list box in the Insert & Delete Camera Data dialog.

9.3 Deleting camera data

To delete camera data,

1. Choose the Camera. . . item from the Admin menu. The Insert & Delete Camera Data dialog will pop up.

2. Choose the camera you are going to delete in the list box in the Insert & Delete Camera Data dialog.

3. If deletion of the camera is successful, the data on the camera will disappear from the list box in the Insert & Delete Camera Data dialog.

9.4 Using a camera both for macro and micro photos

To use a camera both for macro and micro photos,

1. Register one camera name for macro photos and another for micro photos.

2. Choose "macro" from the Is_Macro radio buttons for macro photos and "micro" for micro photos.

3. Don't let macro and micro photos coexist in the same memory card because you cannot register macro and micro photos simultaneously.

Chapter 10

Sharing tkDerm with others

More than one user can share a tkDerm installation. In this situation, if users type their name in the Doctor or Operator entry in the Macro or Micro page, respectively, of the New Data dialog, the information can be used on a search. Nonetheless, it is somewhat cumbersome to type your name in the entry whenever you insert new data. That's why tkDerm offers a function to store doctor data in the database and by utilizing them, you can make it easy to enter your name when inserting new data.

10.1 Understanding user accounts in tkDerm

tkDerm handles two types of user accounts: the operating system user account and the PostgreSQL user account. Although they are conceptually independent of each other, tkDerm keeps them maintain a correspondence with each other by assigning the same name as the operating system account to the PostgreSQL user account.

You should have an operating system user account before installing tkDerm. When you initialize tkDerm, the tkDerm Setup Wizard will create a PostgreSQL user account whose name is the same as your operating system account and whose password is the one for which you will be prompted during initialization. The user account used when you initialize tkDerm will be treated as the tkDerm superuser, who can do all the functions offered by tkDerm including the ones elicited from the Admin and Package menus, which are not permitted to perform by the other user accounts.

When the tkDerm superuser registers new doctor data, tkDerm will create

a PostgreSQL user account, if it has not existed yet, whose name is the same as the operating system user account that should be typed in the Account entry in the Add Doctor data dialog and whose password is the one to be given at registration. The user account so created doesn't have the privileges of the superuser and cannot execute the menu items from the Admin and Package menus and some actions that will result in a change of the photos such as rotating or deleting them.

When tkDerm starts up, it connects to the PostgreSQL server with the account whose name is the same as the operating system account and with the password given at the startup.

10.2 Easy data insertion by registering doctor data

If you have registered no doctor data and visit the Macro page of the New Data dialog or the Edit Macro Data dialog, the Doctor field will be presented as a text entry and you need to type a doctor's name by yourself.

By contrast, if you have registered doctor data, the Doctor field will appear as radio buttons representing the registered doctor names. The default selection is the doctor that has been selected or registered most recently. Just below the radio buttons is a text entry that holds the doctor now selected. If you cannot find the doctor name you are going to insert among the radio buttons, you can type whatever you want into the entry even if it has not been registered yet. Be sure that a text to be registered in the doctor database is not the selected name of the radio buttons but the one in the text entry.

More than one doctor can share an operating system user account when executing tkDerm. In this situation, if you register these doctors' data that share an operating system account, the Doctor field will be presented with radio buttons representing these doctors when tkDerm is executed by the account.

On the contrary, a doctor can use more than an account depending on the situation. For example, you should execute tkDerm as the tkDerm superuser if you are going to do some administrative tasks including image registration and the preference setting. By contrast, it is preferable to do tkDerm as an account other than the superuser if you are going to only insert, update

or search data and don't need the privilege of the superuser on the session because the superuser can do destroying actions such as deleting data and photos and might bring about an accidental data loss. In this situation, it is convenient to assign a doctor's name to two different accounts: the superuser and an account other than the superuser, thus making the same name appear in the Doctor entry when you execute tkDerm as both of these accounts.

The Operator field in Micro page of the New Data dialog or the Edit Micro dialog is equivalent to the Doctor field described above. All the explanations about the Doctor field are also applicable to the Operator field.

10.3 Registering doctor data

To register doctor data,

1. Choose the Doctor... item from the Admin menu. The Insert & Delete Doctor Data dialog will pop up.
2. Click the New button. The Add Doctor data dialog will appear.

   Brief descriptions for the fields are:

   Doctor A doctor name.

   Account An operating system account the doctor uses. A PostgreSQL user account whose name matches this will be created when registering this data.

   Full_Name A full name of the doctor.
3. After completing the fields, click the Add button.
4. If a PostgreSQL role whose name matches the account doesn't exist, you will be prompted for a password.
5. If you give it, a PostgreSQL role whose name is the same as the account will be created and the doctor's data you entered will be registered in the doctor database.
6. If registration of the doctor is successful, the data on the doctor will appear in the list box in the Insert & Delete Doctor Data dialog.

Caution : The password you entered at this step will be required when tkDerm is executed by the account.

10.4 Deleting doctor data

To delete doctor data,

1. Choose the Doctor... item from the Admin menu. The Insert & Delete Doctor Data dialog will pop up.
2. Choose the doctor you are going to delete in the list box in the Insert & Delete Doctor Data dialog.
3. If deletion of the doctor is successful, the data on the doctor will disappear from the list box in the Insert & Delete Doctor Data dialog.
4. If the account doesn't be shared by other data, the PostgreSQL role whose name matches the account will be removed.

10.5 Change password

To change the password, as the tkDerm superuser

1. Choose the row of which you are going to change the password in the list box in the Insert & Delete Doctor Data dialog.
2. Click the Password button. The Password dialog will pop up.
3. If you give it twice, the password will be altered.

Hint : Users other than the superuser can change their own password via the Password... command from the File menu.

Chapter 11

Creating a body diagram by your hands

This chapter describes how to create a body diagram to specify the distribution of an eruption as you like.

11.1 How to create a body diagram

The body diagram in the Distribution dialog has 32 parts that are selectable by mouse clicking. The information on which parts are selected is translated to a 32-bit string when saved into the database. The selectable parts of the body diagram are called hot spots, which can be created by yourself.

To create hot spots,

1. Launch the distribution editor.
2. Choose the background image if you would like to use it.
3. Draw objects with the tool bar.
4. Create hot spots from objects.
5. Save a script describing how to create hot spots.

The following sections explain each step in detail.

11.2 Launching the distribution editor

To launch the distribution editor, choose the Distribution Editor... from the Admin menu.

11.3 Setting the size and background color of the canvas

If you are going to use a background image, this step can be omitted since pasting an image on the canvas will adjust the canvas size to that of the image automatically.

To set the size and background color,

1. Choose the Canvas from the Image menu and the canvas dialog will pop up.
2. Change the figures in the width and height entries if you are going to set the canvas size to the one different from the default setting.
3. You can choose the background color with the color selector launched by clicking the ... button just right to the color entry.
4. Clicking the save button will save the setting and it will take effect immediately.

11.4 Choosing a background image

1. Two patterns of the human body images, that is, body1.jpg and body2.jpg are ready to use as the background image. If you choose one of them from the Image menu, it will be pasted on the canvas.
2. If you want to use an image prepared by yourself, choose the Choose Image... from the Image menu. The file selector dialog will pop up and you can choose the file you are going to use. Just after completing the file selection, the image will appear on the canvas.
3. If you are not satisfied with the image pasted on the canvas, you can delete the image by clicking the image to select and pressing the delete key.

11.5 Tool bar

There is a tool bar located in the left part of the distribution editor. With the tools, you can make objects as you like, which will be turned hot spots by the below mentioned method. This section describes the function of each button on the tool bar.

11.5.1 Selection tool

Use this button to change to the selection mode.
When you are in the selection mode,

1. To select an object, click it or enclose it by dragging.
2. To select more than one object at once, shift-click objects or enclose them by dragging.

When you are not in the selection mode, you cannot execute any operations other than Clear from the Object menu.

11.5.2 Rectangle tool

Use this button to change to the rectangle mode.
In this mode, you can create rectangles by dragging.

11.5.3 Oval tool

Use this button to change to the oval mode.
In this mode, you can create ovals by dragging.

11.5.4 Spline tool

Use this button to change to the spline mode.
You can draw spline lines in this mode.
Double-clicking results in an enclosed line.

11.5.5 Free tool

Use this button to change to the free line mode.
You can draw free lines in this mode.

11.5.6 Text tool

Use this button to change to the text mode.

Click to add or edit text messages.

11.5.7 Pen color

Click to select a pen color.

Use the More... button to select more colors by the color picker.

The pen size can be changed with the Pen Size menu.

11.5.8 Fill color

Click to select a fill color.

Use the More... button to select more colors by the color picker.

11.6 Creating objects

With these tools, you can create objects on the canvas or the background image.

11.7 Moving objects

To move an object,

1. Select an object you are going to move.
2. Drag the object or use the up/down/left/right keys.

11.8 Enlarging or shrinking objects

To enlarge or shrink an object,

1. Select an object of which you are going to change the size.
2. Choose the Enlarge or Reduce from the Object menu.

11.9 Duplicating objects

To duplicate an object, choose the Duplicate, Reflect Vertical or Reflect Horizontal from the Object menu.

11.10 Deleting objects

To delete an object, choose the Delete from the Object menu or press the delete key.

To delete all the objects, choose the Clear from the Object menu.

11.11 Creating a hot spot from an object

The selectable parts of the body diagram are called hot spots. A hot spot has its name and its order in the 32-bit string representing the whole body.

To create a hot spot from an object,

1. Select an object.
2. Choose the Make Hot Spot... to pop up the Name of Hot Spot dialog.
3. Enter a name of the hot spot and click the Save button.

To confirm that the object is changed to a hot spot, put the mouse cursor over the object. It will flash and you can see the name of it in the Name entry and its order in the 32-bit string in the Order entry in the upper part of the distribution editor.

11.12 Renaming hot spots

To rename a hot spot,

1. Select a hot spot.
2. Choose the Rename Hot Spot... from the Object menu to pop up the New Name of Hot Spot dialog.
3. Enter a new name of the hot spot and click the Save button.

To confirm that the name of the hot spot is changed, put the mouse cursor over the hot spot. You can see its name in the Name entry in the upper part of the distribution editor.

11.13 Changing the order of hot spots

Incremental integers beginning from zero are assigned to hot spots when they are created. The first hot spot has an integer 0 and the second has 1 and so son. This number represents the order of the hot spot in the 32-bit string. The order in the 32-bit string corresponds to the back-to-front ordering of the objects on the canvas.

To change the order of a hot spot,

1. Select a hot spot.

2. To increment the order, choose the Bring to Front from the Object menu.

3. To decrement the order, choose the Send to Back from the Object menu.

To confirm that the order of the hot spot is changed, put the mouse cursor over the hot spot. You can see its order in the Order entry in the upper part of the distribution editor.

11.14 Saving a script

When you are finished creating 32 hot spots, choose the Save from the File menu. A script describing how to create the objects will be saved in dist/script directory in your home directory.

The script will appear in the Body_Diagram field in the Create database dialog and can be used as the body diagram when you create a database.

Caution : Scripts saved in directories other than the default one cannot be used by the Create database dialog nor the Distribution dialog. Don't change the default directory for saving scripts.

11.15 Editing a script

Use the Open... from the File menu to open the script you are going to edit. Objects will be drawn on the canvas according to the script and be ready to edit.

Chapter 12

Creating packages

tkDerm is a Tcl/Tk script consisting of over fifteen thousand lines. To structure such a large program, tkDerm has a short main program named tkderm.tcl and a library of support scripts. The Tcl package facility provide a convenient way for organizing a large program by this strategy. By using the package system and the namespace facility, which is another Tcl invention to support a large scale application development by providing a way to avoid conflicts between procedures and global variables used in different packages, tkDerm is divided into over twenty modules. Furthermore, tkDerm provide a facility to make it easy to add your own package by yourself.

This chapter describes how to add your own functions to tkDerm with the package facility.

12.1 The package directories

tkDerm manages two types of packages: the system-defined and user-defined packages.

The former is shipped with tkDerm and installed in the pkg directory in the tkDerm installation directory. The latter will be installed in the directory specified by the Package Directory item in the Preferences dialog (Section 14.4 119 page) if you create it by the method described in the next section.

12.2 Creating a package

To create a package,

1. Choose the Create Package... item from the Package menu.
2. The Create Package dialog will appear.

   Brief descriptions for the entries are:

   Package_Name Name of the package.

   Version Version number of the package.

   Author Name of the author.

   E-Mail E-Mail address of the author.
3. If you fill all the entries and click the Create button, a package will be created in the directory specified by the Package Directory item in the Preferences dialog.

12.3 Loading a package

To load the package created, restart tkDerm. If loading is successful, the package name will appear as a Package menu item below the separator line. Nothing will happen when you choose the package name from the Package menu just after you have created it because the Create Package... command makes only a framework of the package. To make the package do some useful functions, you must implement them as described in the following section.

12.4 Writing a code for the package

The script file you must edit to implement a program is the "<package name>.tcl" file in the scripts directory in the Package Directory (in this example, pkg/foobar1.0/scripts/foobar.tcl).

The script file can be read as:

```
#####################################################
########## foobar.tcl
##########
########## Copyright 2008 Manabu Inuzuka <manabu@example.com>
##########
########## package name:foobar
```

```
########## package version:1.0
########## tkDerm version:1.4.0
##########
```

—some lines are omitted here for saving the space—

```
namespace eval foobar {

### variable declaration should be here

    namespace export *
}

### init will be executed when your package is selected from package menu.
proc foobar::init {} {

}
```

—the script is continuing—

1. The lines commented out at the top of the script reflect the information you gave in the Create Package dialog.

2. The lines to define a namespace start from the " namespace eval <package name>" line. You should define variables to be used in the package and export functions here.

3. The procedure named "init" is the one that will be called when you choose the package from the Package menu. You should implement this procedure to make the package do what you want.

4. The following get_help_text and display_help procedures (not shown here) are the functions that will display the online manual. You need not to edit them. On how to write the online manual, you should read the following section.

tkDerm should have been shipped with some useful packages. Studying them will help you to implement your own package.

12.5 Writing an online manual

While the mouse cursor is on the Online Help item from the Package menu, you can choose the package name of which you are going to read the online manual. If you choose it, a window displaying the manual will appear.

The file you will see is in the "<Package Directory>/<package name><version number>/man" directory. Which file will be shown depends on the language environment and the operating system running. If you are in the English environment, you will see the file named "en.man". If you are in the Japanese environment, you will see the "ja_sjis.man" file on Windows, the "ja_utf-8.man" file on Macintosh or the "ja_euc-jp.man" file on Linux.

You should complete the manual by editing the file.

12.6 Package versions

If there are packages that have the same name and different version numbers, the newest version will be loaded.

12.7 Removing a package

To remove a package, just remove the package directory (in this example, pkg/foobar1.0). When tkDerm restarts, the package name will disappear from the Package menu.

Chapter 13

Changing appearances

The graphical user interface of tkDerm consists of the Tk widgets. They are user interface components such as windows, buttons, menus and scroll bars. Tk has a facility named "option database" to control the attributes of the widgets including color and size. By using this facility, you can customize the look and feel of tkDerm.

This chapter explains the process in which the attributes of the widgets are set and then describes the way to customize the appearance of tkDerm with the Appearance dialog.

13.1 Three steps in setting appearances

When tkDerm starts up, it loads the following settings in this order to determine the attributes of the widgets.

Default settings hardcoded in the script The default settings are hardcoded in the script file named "tkderm.tcl". The settings will be loaded when you click the Default button on the Appearance dialog.

Default settings of the installation basis The "tkderm_rsrc" file in the "res" directory in the tkDerm installation directory has default settings of the installation basis. If tkDerm finds it at the startup, it will load the settings, thus overriding the default settings hardcoded in itself.

Settings of the user basis The settings in the Appearance dialog are saved in the ".tkderm_rsrc" file in your home directory. If it exists, tkDerm

will read it at the startup and override the settings of the installation basis.

13.2 The Appearance dialog

1. The Appearance dialog will pop up when you choose the Appearance... item from the File menu.
2. The Appearance dialog consists of multiple pages. You can visit a page if you click the tab at the top of the page.
3. Each row contains an item name, an entry and a button from left to right.
4. If you click an item name, a tiny window showing a brief explanation for the item will appear. Click the window to quit.
5. Most items are for specifying the color. You can do it with the Colors dialog that will pop up by clicking the button.
6. You should type an integer in the entry in the scrollbar borderwidth or scrollbar width item.
7. After completing the entries, click the Save button to save the settings in the ".tkderm_rsrc" file in your home directory. The settings will come into effect when you restart tkDerm.
8. The default values will be set in all the entries if you click the Default button. tkDerm will restore its default appearance if you save the settings and restart tkDerm.

13.3 The format of .tkderm_rsrc

The first several lines of the .tkderm_rsrc file in your home directory should be like the following.

```
### Lines below here automatically added by tkderm 1.0.0
### 2007-09-26 15:05:19
### Do not edit below here
```

```
*Frame.background: #6893db
*Canvas.background: #6893db
*Checkbutton.background: #6893db
*Checkbutton.foreground: #ffffff
*Checkbutton.highlightBackground: #6893db
```

tkDerm interprets the file as follows.

1. Lines beginning with "#" should be interpreted as comments.
2. Empty lines should be ignored.
3. A string before the colon (:) should be interpreted as the variable name, whereas a string after the colon should be regarded as its value.
4. Space or tab or a sequence of them should be ignored when it is in the head or tail of the variable name or its value.

Chapter 14

Customizing tkDerm

You can control some aspects of the behavior of tkDerm with the Preferences dialog. The preference control is realized by the same Tcl facility with which the appearance control takes effect: the option database. Therefore, the mechanism by which the preference settings come into effect is essentially the same as that by which the appearance settings do.

This chapter describes how the preference settings take effect and then how to use the Preferences dialog, followed by a detailed explanation for each item in the dialog.

14.1 Three steps in setting preferences

The preference settings come into effect through three steps as is the case of the appearance settings described above.

Default settings hardcoded in the script The default settings are hardcoded in the script file named "tkderm.tcl". The settings will be loaded when you click the Default button on the Preferences dialog.

Default settings of the installation basis The "tkderm_profile" file in the "res" directory in the tkDerm installation directory has default settings of the installation basis. If tkDerm finds it at the startup, it will load the settings, thus overriding the default settings hardcoded in itself.

Settings of the user basis The settings in the Preferences dialog are saved in the ".tkderm_profile" file in your home directory. If it exists, tkDerm

will read it at the startup and override the settings of the installation basis.

Caution : The ".tkderm_profile" file is saved in the home directory of a current user. tkDerm cannot find .tkderm_profile if it starts up by a user other than the user who saved it because it will look for .tkderm_profile in the home directory of the one who is executing tkDerm. To circumvent this problem, copy the ".tkderm_profile" file in the home directory of the one who saved it to home directories of all the users who are going to execute tkDerm.

14.2 When do the Preference settings take effect ?

When the Preference settings take effect depends on the widget type by which you set a value of the item in the Preferences dialog.

Buttons When you click the check buttons or radio buttons, the settings will take effect except for the Language setting (see below).

Entries When you press the Return key or click the Save button after typing a value in the entry, the settings will take effect. Be sure that it is necessary to press the Return key or click the Save button.

Language You must restart tkDerm after changing the Language setting to see the effect. This is because the language with which tkDerm shows button names, menu items, window titles or messages is chosen when it starts up.

The settings you have made effective by these ways will be lost if you don't save them before quitting tkDerm. Be sure to save the settings by the Save button if you want to make the settings effective in the subsequent sessions.

14.3 The Preferences dialog

1. The Preferences dialog will pop up when you choose the Preference. . . item from the File menu.

2. The Preferences dialog consists of multiple pages. You can visit a page if you click the tab at the top of the page.

3. Each row contains an item name, buttons or an entry and in some rows a "..."button from left to right.

4. If you click an item name, a tiny window showing a brief explanation for the item will appear. Click the window to quit.

5. Most "..." buttons are for showing the Choose Directory dialog. The "..." button in the Font item is for displaying the Font Selection dialog.

6. After completing the items, click the Save button to save the settings in the ".tkderm_profile" file in your home directory.

7. The default values will be set in all the items if you click the Default button. tkDerm will restore its default behavior if you save the settings.

14.4 How to set an each item in the Preferences dialog

This section describes the meaning of each item.

PostgreSQL Server The IP address of the PostgreSQL server. tkDerm can connect to the PostgreSQL server running on a remote host. To configure tkDerm and PostgreSQL in such a fashion, you should type the IP address of the server in this entry and edit postgresql.conf and pg_hba.conf files in the PostgreSQL installation. On detailed explanation for this topic, you should consult the chapter on the client authentication in the PostgreSQL Documentation.

The default value is "localhost".

Language The language used for displaying button names, menu items, window titles or messages.

You must restart tkDerm after changing the Language setting to see the effect because the language used in tkDerm is chosen when it starts up.

Auto The language will be chosen automatically according to the one used in the operating system running.

English English will be chosen irrespective of the language used in the operating system running.

Japanese Japanese will be chosen irrespective of the language used in the operating system running.

The default value is "Auto".

font This sets the font used for showing data in the table of the Search Result panel and the Register window. The Font Selection dialog will pop up when you click the "..." button. You should choose items from the Font, Size and Format menus. According to your choice, the font example in the middle of the dialog will change. The Reset button will turn the font to the default setting.

If you leave this entry empty, a system font depending on the operating system will be chosen.

The default value is empty.

Datestyle This specifies how to handle a date input in the Birthday entry in the New Data dialog.

YMD To select month-day-year interpretation.

MDY To select month-day-year interpretation.

DMY To select day-month-year interpretation.

For example, 01/02/03 is interpreted as 3 February 2001 in the YMD mode, 2 January 2003 in the MDY mode and 1 February 2003 in the DMY mode. On the contrary, 2001-02-03, 20010203 and 010203 is regarded as 3 February 2001 in every mode. Therefore, it is preferable to use these style in typing a date because they are unambiguous in interpretation.

You can find a complete description for date/time interpretation in the Appendix in the PostgreSQL documentation.

The default value is "YMD".

Notebook Order This specifies ordering of the pages of the main window.

Patient_First Patient-Macro-Micro ordering.

Patient_Last Macro-Micro-Patient ordering.

The default value is "Patient_First".

Patient Attribute Order This specifies ordering of the First_Name and Last_Name attributes in the Patient page of the New Data dialog and the tables in which patient data are shown.

Auto The ordering is chosen automatically according to the language setting described above, that is, First_Name-Last_Name ordering is selected in case of English, while Last_Name-First_Name ordering is selected in case of Japanese.

First_Last First_Name-Last_Name ordering irrespective of the language setting.

Last_First Last_Name-First_Name ordering irrespective of the language setting.

The default value is "Auto".

Volume Capacity(MB) This specifies the size of the volume in megabytes.

If you leave this entry empty, the Used progress bar in the Volume dialog and the Volume progress bar in the Register window will not work.

You should consult Chapter 7 (77 page) for information on volumes.

The default value is "650".

Max Interval(min) If you set this item, dummy data will be inserted automatically at image registration when the shooting time is apart from the data insertion time by more than the time (in minutes) that is set in this item.

If you leave this entry empty, the automatic dummy data insertion will not happen.

You should consult Section 3.4.5 (40 page) on this topic.

The default value is empty.

Time Adjustment(sec) tkDerm enters the current time into the following entries automatically.

1. The Time entry in the Macro page of the New Data dialog.
2. The Insert_Time entry in the Micro page of the New Data dialog.
3. The Time entry in the Edit Micro Data dialog if you click the " ! " button.

Automatic Image Registration (see Chapter 3 starting from 35 page) doesn't work properly if the current time reported by the clock in your computer is much different from the time of the clock in your digital camera. This sets a time adjustment (in minutes) in these entries to adjust the timing difference between the computer and camera.

To set this item, you can use the Adjust Clock dialog that will pop up via the Adjust Clock... command from the Admin menu.

The default value is "0" (no adjustment).

Removable Media Directory This specifies the directory to which a memory card of your digital camera is mounted.

This directory must be writable by the tkDerm superuser and empty at image registration.

It will be created if it doesn't exist at image registration.

You can specify this item by a path name relative to your home directory in addition to by an absolute path.

It is better to set this item by the Choose Directory dialog that will pop up when you click the "..." button than to type a path name by yourself because the latter method may result in specifying a directory that doesn't exist by errors in typing.

If you choose the Import Exif Files item from the Register menu, tkDerm will look for jpeg files under this directory and if it find them, it will copy them to the directory specified in the Import Directory item (see below).

If you leave this entry empty, the Choose Removable Media Directory dialog will pop up when you choose the Import Exif Files item from the

Register menu and you should select the mount point of the memory card.

The default value is empty.

Import Directory This specifies the directory in which tkDerm looks for image files to be registered.

This directory must be writable by the tkDerm superuser and empty at image registration. If you are going to use tkDerm touch, the directory must be writable by the PostgreSQL superuser, postgres, too.

It will be created if it doesn't exist at image registration.

You can specify this item by a path name relative to your home directory in addition to by an absolute path.

It is better to set this item by the Choose Directory dialog that will pop up when you click the "..." button than to type a path name by yourself because the latter method may result in specifying a directory that doesn't exist by errors in typing.

If you choose the Import Exif Files item from the Register menu, tkDerm will copy jpeg files found under the directory specified in the Removable Media Directory (see above) to this directory.

If you leave this entry empty, the Choose Import Directory dialog will pop up when you choose the Import Exif Files item or the Register... item from the Register menu and you should select the directory for pooling image files to be registered.

The default value is empty.

Mounted Import Directory If you are going to register photos by tkDerm on the client machine and the Import Directory of the server machine is mounted on the client, you should set the mount point as this item.

If the Import Directory and tkDerm are on the same machine, that is, locathost is set as the PostgreSQL Server item, it is not necessary to set this item.

The default value is empty.

Clean Photo This specifies whether or not image files are removed from the Import Directory after image registration.

The default value is "Off" (image files aren't removed).

Photo Directory This specifies the top directory of the image-storing directory tree.

This directory must be writable by the tkDerm superuser and empty before the first image registration.

It will be created if it doesn't exist at image registration.

You can specify this item by a path name relative to your home directory in addition to by an absolute path.

It is better to set this item by the Choose Directory dialog that will pop up when you click the "..." button than to type a path name by yourself because the latter method may result in specifying a directory that doesn't exist by errors in typing.

You should set this item to a directory outside your home directory if you share tkDerm others because the directory must be readable by all users.

The default value is "photo" (a directory named photo in your home directory).

Backup Photo This specifies whether or not the image-storing directory is duplicated at image registration.

The default value is "Off" (the image-storing directory isn't duplicated).

Backup Photo Directory This specifies the top directory of a duplicate of the image-storing directory tree.

This setting is ignored if the Backup Photo item described above isn't checked.

This directory must be writable by the tkDerm superuser and empty before the first image backup.

It will be created if it doesn't exist at the first image backup.

You can specify this item by a path name relative to your home directory in addition to by an absolute path.

It is better to set this item by the Choose Directory dialog that will pop up when you click the "..." button than to type a path name by

yourself because the latter method may result in specifying a directory that doesn't exist by mistakes in typing.

It is advisable to locate the directory specified by this item in a hard drive that is different from the drive in which the Photo Directory described above resides not to lose your image files in case of a disk failure.

The default value is empty.

PNG Photo Directory This specifies the directory under which PNG files for tkDerm touch are deployed.

The PostgreSQL superuser, postgres, needs write permission for this directory.

The default value is empty.

Backup Data This specifies whether or not session data are inserted to a PostgreSQL server running on a remote host.

The default is "Off" (session data aren't inserted to a remote server).

PostgreSQL Backup Server This specifies the IP address of the remote host to which session data are inserted when the Backup Data item described above has been set to "On".

To duplicate session data in a remote server, the following conditions must be met:

1. A PostgreSQL server is running on a remote host.
2. The server has a database whose name is the same as the one you are going to duplicate.
3. The server can accept a connection request from the host running tkDerm.

You can control client authentication of PostgreSQL by editing the postgresql.conf and pg_hba.conf files. See the PostgreSQL documentation for details.

The default value is empty.

PostgreSQL Directory This specifies the PostgreSQL installation directory.

It is better to set this item by the Choose Directory dialog that will pop up when you click the "..." button than to type a path name by yourself because the latter method may result in specifying a directory that doesn't exist by mistakes in typing.

tkDerm uses some client applications that are shipped with PostgreSQL to do some important tasks. For example,

1. bin/pg_dump is required for dumping databases
2. bin/pg_restore is required for restoring databases
3. share/contrib/pgcrypt.sql and bin/psql are required for encrypting or decrypting databases

In the above examples, the executable files or the script are expressed as path names relative to the top directory of a PostgreSQL installation.

This setting tells tkDerm where to look for the client applications. Therefore, if this item is not properly set, tkDerm cannot perform the above mentioned tasks.

ImageMagick Directory PNG files for tkDerm touch are created by ImageMagick.

This specifies the directory in which ImageMagick executables, convert and identify, are installed.

On Macintosh and Linux, typing in the terminal

```
which convert
```

will show the absolute path of convert.

You need not set this item if you don't use tkDerm touch.

The default value is empty.

ExifTool Directory When using tkDerm touch, Exif data such as the shooting time and the camera model name are read with the Perl module, Image::ExifTool.

This specifies the installation directory of the module.

In the terminal, the command

```
perldoc -ml Image::Exiftool
```

will show the absolute path of Image::ExifTool. The path excluding the last /Image/Exiftool.pm should be entered as the ExifTool Directory of the preferences setting.

You need not set this item if you don't use tkDerm touch.

The default value is empty.

Photoshop JavaScript Directory This sets the directory in which tkDerm saves a JavaScript file for the Adobe Photoshop to open image files registered by tkDerm by reading the JavaScript file.

On this topic, see Section 5.5 (65 page).

The default value is empty.

Bridge JavaScript Directory This sets the directory in which tkDerm saves a JavaScript file for the Adobe Bridge to open a photo-storing directory by reading the JavaScript file.

On this topic, see Section 5.6 (66 page).

The default value is empty.

Package Directory This specifies the top directory of user-defined packages.

This directory must be writable by the tkDerm superuser and empty before the first package creation.

It will be created if it doesn't exist when tkDerm is started up.

You can specify this item by a path name relative to your home directory in addition to by an absolute path.

It is better to set this item by the Choose Directory dialog that will pop up when you click the "..." button than to type a path name by yourself because the latter method may result in specifying a directory that doesn't exist by errors in typing.

You should set this item to a directory outside your home directory if you share tkDerm others because the directory must be readable and executable by all users.

The default value is "pkg" (a directory named pkg in your home directory).

Thumbnail Prefix This specifies the prefix of thumbnail files.

tkDerm regards a file whose name begins with the string specified by this setting as a thumbnail file. You should change the default value "tn" to another string if the names of image files happen to begin with "tn" because in such an exceptional case, tkDerm cannot distinguish thumbnail files from original image files. Except for such a rare situation, you need not change the default setting.

The default value is "tn".

Caution : This setting must be done before the first image registration because tkDerm wouldn't recognize the thumbnails already created if you change the thumbnail prefix later.

Thumbnail Width This sets the width of the thumbnail in pixels.

The default value is 150.

Thumbnail Rim Length This sets the width of the rim of the thumbnail in pixels.

The default value is 10.

PNG Full Height This sets the length in pixels of the shorter rims of PNG photos for tkDerm touch.

The default is 1536.

PNG Thumb Height This sets the length in pixels of the shorter rims of the thumbnails of PNG photos for tkDerm touch.

The default is 154.

PNG Thumb Height This sets the length in pixels of the shorter rims of the icons of PNG photos for tkDerm touch.

The default is 44.

Clipboard Image Number in Row This sets the number of the images in the row in the clipboard window or tabnotebook.

The default value is 2.

Register Thumbnail Number in Row This sets the number of the thumbnails in the row in the register window.

The default value is 5.

Appearance Dialog Lines This sets the number of lines per page in the Appearance dialog.

The default value is 10.

Pref Dialog Lines This sets the number of lines per page in the Preferences dialog.

The default value is 10.

Patient Select Row This sets the number of rows of the Search Result panel in the Patient page of the main window.

The default value is 10.

Macro Select Row This sets the number of rows of the Search Result panel in the Macro page of the main window.

The default value is 10.

Micro Select Row This sets the number of rows of the Search Result panel in the Micro page of the main window.

The default value is 10.

Database Empty Row This sets the number of empty rows of the database table in the Create & Drop Database dialog.

The default value is 2.

Camera Empty Row This sets the number of empty rows of the database table in the Insert & Delete Camera Data dialog.

The default value is 2.

Doctor Empty Row This sets the number of empty rows of the database table in the Insert & Delete Doctor Data dialog.

The default value is 2.

Register Empty Row This sets the number of empty rows of the data table in the register window.

The default value is 2.

Image Panel Type This specifies the style of the image window.

Window The image window is presented as an independent window.

Tab The image window is presented as a page of the tabnotebook style.

The default value is "Window".

Clipboard Panel Type This specifies the style of the clipboard window.

Window The clipboard window is presented as an independent window.

Tab The clipboard window is presented as a page of the tabnotebook style.

The default value is "Window".

Register Log This specifies whether or not Automatic Image Registration (AIR, see Chapter 3 (35 page) writes its report as a file named tkderm_register.txt in your home directory.

If the tkderm_register.txt file doesn't exist in your home directory, it will be created. If it does, new data will be added to the file.

On how to read the tkderm_register.txt file, you should consult Section 15.2 (126 page).

The default value is "Off".

Bug Log This specifies whether or not tkDerm writes a bug report as a file named tkderm_bug.txt in your home directory instead of popping up an error-reporting dialog when an error occurs.

If the tkderm_bug.txt file doesn't exist in your home directory, it will be created. If it does, a new report will be added to the file.

The default value is "Off".

Expect Windows Debug This specifies whether or not outputs from Expect are shown for debugging on Windows.

Expect is a Tcl-based program for automating interactive programs and is used in tkDerm for dumping, restoring and encrypting databases.

On platforms other than Windows, this setting is ignored.

The default value is "Off".

14.5 The format of .tkderm_profile

The first several lines of the .tkderm_profile file in your home directory should be like the following.

```
### Lines below here automatically added by tkderm 1.0.0
### 2007-09-26 15:01:43
### Do not edit below here
Lang: Auto
DateStyle: YMD
NoteOrder: Patient_Last
BackupVolume: 650
```

tkDerm interprets the file as follows.

1. Lines beginning with "#" should be interpreted as comments.
2. Empty lines should be ignored.
3. A string before the colon (:) should be interpreted as the variable name, whereas a string after the colon should be regarded as its value.
4. Space or tab or a sequence of them should be ignored when it is in the head or tail of the variable name or its value.

Chapter 15

Appendixes

15.1 Representing body parts by tkDerm

tkDerm divides the human body into 32 parts and stores information on the distribution of an eruption in the database as a bit string of 32-bit long.

The 32-bit string is expressed as the following three modes depending on the situation.

The distribution dialog mode You can see it in the Distribution dialog that will pop up when you click the "..." button just right to the Distribution field in the Macro page of the New Data dialog. The Distribution dialog will also appear when you click the "..." button in the Distribution page of the Display Condition panel in the Macro page of the main window.

On how to use the Distribution dialog, you should consult Section 2.2.4 (30 page).

The distribution table mode You can see it as an aggregation of the cells of 16-unit width and 2-unit height in the upper part of the Distribution dialog.

As for the eruption32 body diagram, the upper row of the cells represents the right half of the body, while the lower row represents the left half except for the head. Within the halves, the left cells represent the cephalic side.

On how to use the Distribution table, you should consult Section 2.2.4 (30 page).

The 8-digit string of the hexadecimal number mode It is used in the Distribution field of the Macro page, the Location field of the Micro page, and the Distribution column in the Search Result panel in the Macro page of the main window.

As for the eruption32 body diagram, a 32-bit number is expressed as a 8-digit string of the hexadecimal number having 4-bit information per digit. Except for the head, the first 4 digits represent the right half of the body, while the last 4 digits represent the left half. Within the halves, the left digits represent the cephalic side.

15.2 How to read the tkderm_register.txt

The following is an example of tkderm_register.txt.

```
.....................................
.....................................
register log written by tkderm 1.0.0
photo_type:macro;camera:k
2007-10-01 16:13:30
.....................................
exif_time is 2007-09-28 09:23:39
entry_time is 2007-09-28 09:24:47
diff is 00:01:08
entry_time is 2007-09-28 09:50:04
diff is 00:26:25
entry_guess is 2007-09-28 09:24:47
.....................................
exif_time is 2007-09-28 09:23:53
entry_time is 2007-09-28 09:24:47
diff is 00:00:54
entry_time is 2007-09-28 09:50:04
diff is 00:26:11
entry_guess is 2007-09-28 09:24:47
.....................................
exif_time is 2007-09-28 09:49:16
entry_time is 2007-09-28 09:24:47
diff is 00:24:29
```

```
entry_time is 2007-09-28 09:50:04
diff is 00:00:48
entry_guess is 2007-09-28 09:50:04
.....................................
exif_time is 2007-09-28 09:49:27
entry_time is 2007-09-28 09:24:47
diff is 00:24:40
entry_time is 2007-09-28 09:50:04
diff is 00:00:37
entry_guess is 2007-09-28 09:50:04
.....................................
```

The example consists of five blocks if you regard the dotted lines as separators. The first block contains three lines and the other ones contain six lines each.

The first block is printed at once per an Automatic Image Registration session and includes information on the tkDerm version, the kind of the targets (macro or micro), the camera name and the time when the data were written.

As for the other blocks, one block corresponds to one photo. You can see that four photos have been registered as the example includes four blocks.

A brief description for each line in the block is:

exif_time The time stamp recorded in the Exif file.

entry_time The session time stored in the database.

diff The difference between them.

entry_guess The entry_time corresponding to the minimum value of the "diff"s.

tkDerm should guess the entry_guess to be the estimated session time for the photo.

15.3 How to contact the author

Feel free to contact the author by e-mail at tkderm@mac.com.

15.4 The distribution condition

15.4.1 tkDerm: A Tcl-based Dermatological Image Database Client for the PostgreSQL


```
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