PalmIRA User Guide (v 2.0)

What is PalmIRA?

PalmIRA stands for Palm Information Retrieval Application.

The main purpose of the application is to provide a PalmOS PDA user with a fast method to search effectively through supported PalmOS databases. Upon the entry of a query, the PalmIRA application returns a ranked list of documents that satisfy the query.

PalmIRA acts like an internet search engine where you enter a query and returned is a list of documents relevant to that query. PalmIRA accomplishes this by task by using a HotSync conduit to build an index. PalmIRA utilizes the index to determine the degree of similarity of each of the documents to the query instead of the more time consuming method of searching the larger original document collection.

Currently, PalmIRA is only capable of searching the PalmOS MemoPad, Date Book, Address Book, To Do List and Mail applications. There are plans to extend the functionality of the application to include searching additional application data sources but this is beyond the scope of the current research.

This application was created as part of a M.Sc. thesis at the University of Alberta by Jeffery Antoniuk (jeffery@cs.ualberta.ca) and supervised by Dr. Mario Nascimento (mn@cs.ualberta.ca). The research involves how to engineer an information retrieval application in a PalmOS constrained environment. More specifically the research deals with how to create the index and how to best solve the collection fusion problem of the multiple heterogeneous textual databases available for information retrieval queries on a PalmOS device.

What's New in 2.0

- Fusion of results into one global result list, Collection Fusion Option (only PalmIRA.prc changed from previous version)

Installation Process (New or Upgrade)

1. Download and Run "PalmIRA.exe"
2. HotSync your PDA to install the file
3. Run PalmIRA on the PalmOS device and within the Menu->Options->Preferences:Database screen check the checkbox(s) representing the PalmOS application(s) that you would like to request to be indexed. See the Preferences:Database section () below for more details.
4. HotSync a second time to build the files required by PalmIRA (the conduit does not execute during the same HotSync operation that the PalmIRA application is installed)
5. Test PalmIRA

The first step of the installation process automatically registers the PalmIRA conduit with the Palm HotSync Manager and sets up the PalmIRA PDA application so the application is installed during the next HotSync synchronization.

**Using PalmIRA**

Each time your PDA is synchronized with your PC, PalmIRA will update PalmIRA’s index files giving PalmIRA an updated view of your PalmOS textual information.

**Preference Screen**

The preference screen allows the user to activate/deactivate stemming. Stemming is the act of reducing words into their root forms by eliminating the suffix at the end of the word. The stem of “zoomed” would be “zoom”. Therefore, with stemming activated, the query of “zoom” would return all documents that contain words with the root “zoom”. For example: “zoom”, “zoomed”, “zooming”, etc.

**Figure 1**

Informs the user whether or not the status of the system is to stem the query.

In order to change the status of the system, toggle the checkbox and during the next HotSync synchronization, the index will be rebuild to reflect the user request.

Collection fusion produces one global ranked result list that contains documents from all databases (e.g. MemoPad, Mail, etc.) as in Figure 3. If inactive, results are displayed for each database individually Figure 4.

If the checkbox is unchecked and then a HotSync synchronization is executed, the preference screen will look like the below Figure 2.
Preferences: Database Screen

This menu item allows the user to choose which of the 5 built-in PalmOS applications that the user would like to be able to search. The options include: the MemoPad application, the Date Book application, the Address Book application, the To Do list application and the Mail application. This screen shows on the left the application that will be searched next time the user enters a query and the right column allows the user to check the checkbox indicating which application the user requests to be indexed (and thus searchable) after the next HotSync application.

Figure 5

By checking the appropriate checkbox(s), this indicates the application(s) that will be “actively indexed” and thus actively searchable after the next HotSync synchronization. Multiple checkboxes may be selected.

Application(s) that currently indexed and that will be searched during the next query operation.
Query Entry Screen

Figure 6

The user may select all available collections to search through (default) or just one individual application data source.

Query string entry

Result Screen

Figure 7

After pressing the search button, PalmIRA searches an index and returns a list of documents relevant to the query sorted by weight and with a short snippet of the original document.

The user is allowed to browse the list by moving backwards or forwards by:

- next/previous 10 items in the result list
- current position within the list, first to tenth results out of the 30 total results
- first/last items in the result list
**Document Display Screen**

By selecting one of the result list items, the PalmIRA displays the corresponding MemoPad document.

**Figure 8**

![Palm OS Emulator](image)

**Support and Suggestions**

If you have any questions, difficulties installing, or using PalmIRA, or if you have any suggestions or improvements, please view the web page at [http://db.cs.ualberta.ca/PalmIRA](http://db.cs.ualberta.ca/PalmIRA) and click on the email link in the suggestions/feedback section.
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