CatScan

Catalog Scanner and Report Generator
for the Palm Computing Platform

Users Guide

Version 1.5
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Introduction

CatScan is a powerful tool for viewing, searching, and modifying catalogs (databases) using a Palm Computing platform handheld device. Databases can be searched manually on a standard unit, such as a Palm III or Palm V, and can also be searched using the built-in barcode scanner of the Symbol SPT 15xx, SPT17xx, and SPT 18xx,the Symbol CSM150 or PSC Momentum plug-in barcode scanners for the Handspring Visor, or the Socket Communications SDIO scanner for PalmOS handhelds with an SDIO slot.

The complete software package consists of the following items:

- **CatScan.prc** is the handheld software which is installed into your Palm or Symbol unit.
- **CSDB_AreaCodes.pdb** is a sample database file which you can install into your handheld unit which contains area codes. Installing it is optional, but is a useful way to help get started familiarizing yourself with the software.

For **Windows**, the following two additional files are used:

- **CatScanCnd.dll** is a "Conduit" which is run by the Palm HotSync Manager when you HotSync the unit to transfer data from the desktop to the Palm and vice-versa.
- **Install.exe** is a special program which must be used just once to install the software, and to notify the HotSync Manager that a new conduit (**CatScanCnd.dll**) is now present and must be run when HotSyncs occur.

For **Macintosh**, the following one additional file is used:

- **CatScan Conduit** is a Macintosh (PowerPC only) conduit which transfers data from the desktop to the Palm and vice-versa. **Note that use of this software requires use of version 2 of the Palm MacPac software**.

Installation

Windows:

1. Verify that the standard Palm desktop software, including the "HotSync Manager" software, is installed on your computer. If the HotSync Manager is running, you should see a small red and blue icon in the lower right hand corner of your computer screen, showing two arrows in a circular pattern. **If HotSync Manager is not installed or running, do not proceed,** but return to the manual that accompanied your Palm, Symbol, or Handspring handheld unit, and follow the instructions there to properly install the desktop software.
2. Double-click on **Install.exe** to run it. This program will copy all the contents of the folder it is in (including **CatScan.prc**, **CatScanCnd.dll**, and the files containing the manual) into a CatScan folder inside the folder which contains your Palm software (typically C:\Palm). **Install.exe** will also arrange for the handheld software (**CatScan.prc**) to be installed in your handheld unit at the time of the next HotSync, notify the HotSync manager that a new conduit has been installed (you'll see the HotSync manager icon disappear and then reappear as part of this process), and automatically open this manual file when it finishes.
3. Verify that the conduit is properly installed by clicking on the small HotSync icon in the lower right of your Windows desktop (the HotSync icon is a circle with a blue and red arrow facing in opposite directions). From the menu which appears, click on **Custom**. A window will appear listing all of the Conduits which are active on your system. One of these should be "CatScan". Click on that to select it, then click on **Change**. Click the radio

button next to the setting which reads **Download New Catalog to Handheld**, and also click on the **Set As Default**. Click on **OK**, then click on **Done**.

4. Now put the handheld unit in the cradle and perform a HotSync. This will install the software into your Palm handheld device.

5. When the HotSync process is finished, press the HotSync button *again* and perform a *second* HotSync. This HotSync will create the necessary folders which will be used by **CatScan** to download and upload information to and from the Palm (this will be discussed below).

6. If you need to install the handheld software in additional Palms (which requires that you purchase multiple licenses for the software), use the standard Palm "Install Tool" (accessed from the Install button inside your Palm desktop software) to install **CatScan.prc** in one or more additional Palms. Use this same method if you want to install the sample file **CSDB_AreaCodes.pdb** into your handheld.

If you should ever wish to deinstall the conduit, you'll find a program named **SCS Conduit Uninstaller.exe** inside the CatScan folder which contains the conduit. Run (by double-clicking) the uninstaller and the conduit will be uninstalled.

Macintosh:

Verify that the standard Palm desktop software, including the "HotSync Manager" software, is installed on your computer. **If HotSync Manager is not installed or running, do not proceed,** but return to the manual that accompanied your Palm, Symbol, or Handspring handheld unit, and follow the instructions there to properly install the desktop software.

Drag the file **CatScan Conduit** into the Conduits folder inside your Palm folder (or wherever your Palm software is stored). Now start the **HotSync Manager** application (most typically using the "instant Palm menu" on the right end of your menu bar). In **HotSync Manager**, select **Conduit Settings** under the **HotSync** menu. You should now see the conduit named "CatScan" listed. Double-click on it to bring up the settings window. We'll discuss the settings for the CatScan conduit below. Verify at this time that the "Install" conduit is set to "Install files". Close the **Conduit Settings** window by clicking on the close box in the upper left corner.

Now select **Install** from the **HotSync** menu, click on the **Add To List** button, and use the file browser to locate the file **CatScan.prc**, and click on **Add File**. If you want to install the sample file **CSDB_AreaCodes.pdb**, click on **Add** and select that file to install as well. Close the **Install Handheld Files** window by clicking on the close box in the upper left corner.

The next time you HotSync your handheld unit, two things will happen. First, the **CatScan** software will be installed into the handheld unit. Next, a folder named CatScan will be created in your user directory (see below for a diagram of where this folder is located). It is in that CatScan folder that subsequent actions (uploading inventories and downloading new catalogs) will occur. Each handheld unit into which you install **CatScan** software will have its own user name, its own user folder, and its own CatScan sub-folder. *After* you install the software and the conduit and this folder has been created by the HotSync, then you'll be able to set up a "catalog" to be installed into the software as described below.

To de-install the conduit, simply drag it out of the Conduits folder.

Licensing the Software - Entering Your Serial Number

Before you license the software, it is fully usable for a period of 14 days. Once you have licensed the software and obtained a serial number from Stevens Creek Software, you need to enter that S/N into the software to fully license it. Run the **CatScan** program, tap on the Palm "Menu" button (in the extreme lower left of the screen, adjacent to the "Graffiti" area). Now select **About CatScan** from

the **Configure** Menu in the **CatScan** software (depicted elsewhere in this manual). In the screen which appears (below), enter your serial number (SN). If you enter the correct number, your software will be licensed (and you'll see this indicated if you return to the "About" screen).

Setting up and Installing Catalogs

CatScan is designed to view (and modify) catalogs (databases). To create the catalog (database) to begin with, you will generally do so by creating a text file on the desktop (with some limitations, you can also create a catalog on the handheld unit itself; that will be discussed below). You can create this file by simply typing it in using a simple text editor (e.g., WordPad or NotePad on Windows, SimpleText on Macintosh), or, in most cases, you can export the information from an existing database or spreadsheet which already contains the information.

A catalog can contain up to 32 fields. The limit on the total size of all the contents of one record (the sum of the lengths of each field in the record) is 1024 characters; there is no limit (other than 1024) on any one field, but fields must be single line only (that is, they cannot contain multiple lines of text). Fields can be separated by tabs, or commas; in the latter case, if any field contains a comma, it must be surrounded by quotation marks (this is the normal configuration of a "comma-separated" file, also known as a CSV file). The first line of the file MUST contain the titles of each of the fields. A field can be missing in any record, but its place must be marked by an appropriate tab or comma. Fields in different records do NOT have to be the same length.

So a file might look like this (where →▬ represents the tab character):

```
Area Code →▬ State →▬ City/Area
408 →▬ CA →▬ San Jose, Sunnyvale, Cupertino
978 →▬ NJ →▬ New Brunswick
801 →▬ UT →▬
```

Or, if you prefer to use CSV format:

```
Area Code,State,City/Area
408,CA,"San Jose, Sunnyvale, Cupertino "
978,NJ,New Brunswick
801,UT,
```

The software determines whether this is a tab-delimited or comma-separated file based on the presence (or absence) of a tab character in the very first line. If a tab is found anywhere on the first line, the software assumes this is a tab-delimited file; otherwise it is treated as a CSV file.

The order of items in the database is up to you, both the order of the fields within one record and the order of the records themselves. However there are some issues that come into play. As you'll see, the main display of data allows for a single line of display for all fields except the final one, which is displayed on multiple lines if necessary. Thus if you have a database with one field that has lengthier contents than the others, you should put it last.Another consideration is search speed. You can lookup data in any field in the database, but there are two special fields - the index field (for catalogs which will be searched in conjunction with barcode scanning, this will typically be the barcode field), and the sort field, which is used to sort the database. The closer these two fields are to the beginning of each line (each record), the faster the software will operate.

The name of the file can be anything you like, with two exceptions - you are limited to 26 letters maximum, and the name must end in ".txt". So Books.txt, or AreaCodes.txt, or Catalog.txt would all be acceptable names.

Installing the Catalog in the Handheld Unit

To download data into the handheld unit, you must create a series of tab-delimited text files containing the information and place them into a special folder (directory). A typical setup is shown

in the diagram below, but many of the names may be different. First, you must locate your "Palm" folder, that is, the folder in which all the standard Palm software is stored. This may be called `Palm` (e.g., `C:\Palm`), or possibly something else. On Macintosh only, you next locate the folder named `Users` (this isn't present on Windows). Next, you must locate the folder within that folder which corresponds to the handheld unit to which you are installing the software.Whenever you HotSync a handheld unit to that desktop computer for the first time, a new sub-folder is created (shown here as `Boris`). If the name of the handheld unit is short, and has no spaces, the name of the folder will be exactly the same as that of the handheld unit, as in this example (Boris). This is also always true if you are using a Macintosh. However, if you are using Windows, and if the name is longe or if there are spaces, the name of the folder will be different. The folder for a handheld unit named "Natasha," for example, will be named `Natash`. The folder for a handheld unit named "John Smith" will be named `SmithJ`. So your first task is to identify the proper folder.

<table>
<tr><td align="center">Macintosh</td><td align="center">Windows</td></tr>
</table>

```
Macintosh HD                          C:
  Palm                                  Palm
    Users                                 Boris
      Boris                                 CatScan
        CatScan                               Downloads
          Downloads                             MyCatalog.txt
            MyCatalog.txt                     Previous Downloads
          Previous Downloads                  Uploads
          Uploads                             Previous Uploads
          Previous Uploads
```

You won't need to create any of these folders (shown in black) yourself. When you install your Palm (or related, e.g., IBM, Franklin, Symbol) desktop software, the main directory (shown as `Palm` above but this name may vary on your system) will be created, and, on a Macintosh, a sub-directory (or folder) named `Users` will also be created. Whenever you HotSync a handheld unit to that desktop computer for the first time, a new sub-folder is then created (shown here as `Boris`). After you perform two HotSync operations (one on Macintosh) during the install of the software as described above, the `CatScan` folder, along with its sub-folders `Downloads`, `Previous Downloads`, `Uploads`, and `Previous Uploads` will be automatically created.

Whenever you HotSync, the **CatScan Conduit** looks for files ending in "`.txt`" in the `Downloads` folder. If one or more such files are found, the contents of that file or files will be downloaded into your handheld unit. The file or files will then be moved to the `Previous Downloads` folder so that they won't be reinstalled by subsequent HotSyncs. To complete the story, data which are uploaded from the Palm back to the desktop are put first into the `Uploads` folder. If the same data are uploaded again, the previous version is moved into the `Previous Uploads` folder prior to uploading the new data to the `Uploads` folder. The `Previous Uploads` folder in fact holds up to nine previous versions of the uploaded data, numbered consecutively `XXX01.txt` to `XXX09.txt`, where `XXX` is the name of your database (e.g., `Books`) and `XXX01.txt` is the most recent of the previous uploads, `XXX09.txt` the oldest.

When you want to download ADDITIONAL items into an existing catalog, the format of the file is the same, and of course the name of the file must be the same (i.e., if the Conduit is set to "Synchronize" mode, a file named `Books.txt` will be appended to the existing `Books` database in your handheld unit. If the database is sorted and/or indexed (see below), the next time you access that database on the Palm, the new items will be sorted and/or indexed into place).

Overview of the CatScan Program

Once the software (and, optionally, the catalog) is installed on your handheld unit, go to the Applications window of your handheld and look for the **CatScan** icon:

Tapping on the icon will start the application, and you'll see a screen like the one shown below. If you haven't downloaded any catalogs into the software, you'll first be asked if you want to create a new catalog (database). If you answer yes, you'll have a chance to do so as described below under **Creating a New Database on the Palm**; if you answer no, the program will exit, because it cannot function without one or more databases.

Let's review the basic controls:
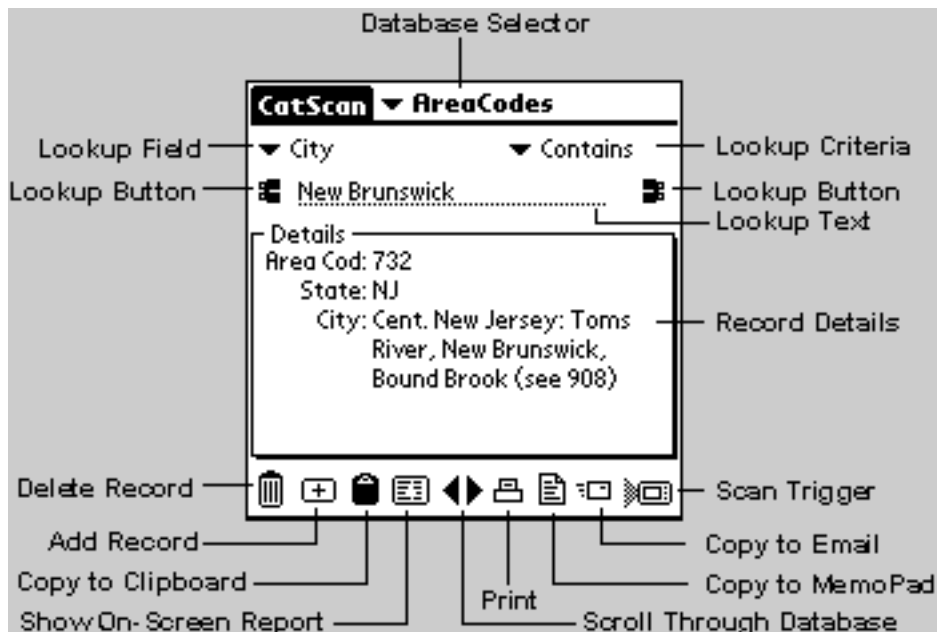
On the top line is the **Database Selector**. If you load more than one database into the unit, you select which database you are currently viewing with this selector. The next two lines are used to lookup items in the database. The **Lookup Field** selector selects which field you are going to look in; each field in your database will appear in this list. To the right is the **Lookup Criteria** selector, which offers you five choices - **Equals**, **Contains**, **Starts With, Not Equals,** and **Not Contains** (we realize the grammer isn't proper on the last two, but "Doesn't Contain" or "Not Equal To" are too long to fit). The next line contains the **Lookup Text** field where you enter the letters or words you are looking for, and a **Lookup Button** (the binoculars) which you tap on to perform the lookup. Once you do one lookup, tapping on the **Lookup Button** again without changing anything else (the field, the criteria, or the contents of the **Lookup Text**), it will act to perform a "Lookup Again", that is, it will find the *next* item in the database which matches the criteria.

If you have a unit like the Symbol SPT1500 or SPT1700 with a barcode scanner, or a Handspring Visor with the Symbol CSM150 or the PSC Momentum plug-in scanner, you can also perform a lookup by barcode scanning. When the scanner is activated, either with the **Scan Trigger** button (lower right) or the dedicated buttons on the unit, the **Lookup Field** is automatically changed to be the index field (how you set this field is discussed below), the **Lookup Criteria** is set to **Equals**, and the **Lookup Text** is set to the result of the scan.

In the main part of the screen is a summary of the information about the record which has been selected by the lookup operation. The left portion of the screen shows the field name (or the first part

of it), and the right portion of the screen shows the contents of each field (limited to one line except for the final field). If the contents are too long, they will be truncated, we'll discuss how to see it all later. If there are more fields than can be displayed on one screen, a scroll bar on the right side of this area will allow you to scroll to see more fields.

On the bottom of the screen are buttons which allow us to delete the current record, to add a new record, to display a report (list) on screen, and to create output from the database in four formats - clipboard, MemoPad, printer (requires PalmPrint software from Stevens Creek Software), and email, to scroll forwards and backwards through the database, and to trigger a scan. For the **Scan Trigger** button, tapping on this button, or pressing the physical button immediately below it on the unit (the MemoPad button), will trigger the scanner (on the SPT1500 or 1700, you can also use the large scan buttons which are part of the hardware unit itself).

If you do not have a barcode-scanning equipped unit the bottom line of the screen appears slightly different:
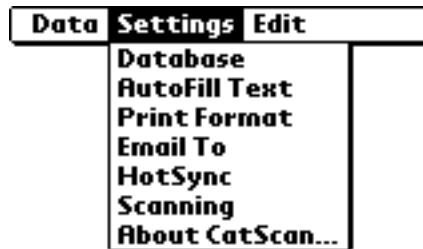

In this case, scanner button is replaced with an information button; tapping on this takes you to the "About" screen of the software.
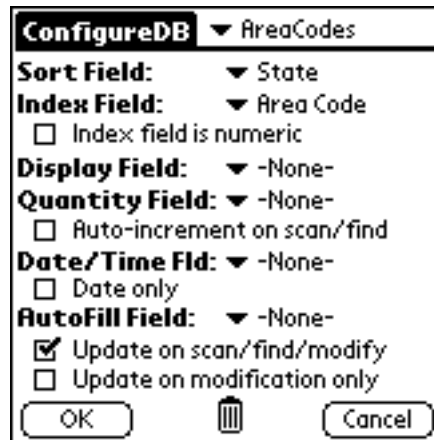
Configuring the Software

When you tap on the Menu button on the lower left of the Palm screen (adjacent to the Graffiti area), you'll see the **Settings** menu which contains six items:

Configuring the Database

Tap on **Database** and you'll see this screen:

There are a variety of special fields which you can designate for your database; any or all of them can be specified as **-None-** which will mean that special function isn't used by the software.

- **Sort Field** is the field by which the items in the database are sorted. If you don't specify a sort field, the data are left in the order in which they are downloaded into the handheld unit, and/or the order in which they are added to the database on the handheld unit itself. If you are using **CatScan** for data collection, not using a sort field may be desirable, since each item added to the database won't have to be sorted into place. If you use the database to look up information, and if the database has more than a few hundred entries, then you will find it highly desirable to specify a sort field, because otherwise data lookups on data in the sort field will take considerably more time.
- **Index Field** is a second field used to create an "index" which helps to find data rapidly when you are using the database for information lookups. This is particularly useful when you are using the software in conjunction with a barcode scanner. You might want the data sorted by the description of the item, but you also want the fastest possible lookup speed when you scan a barcode. By specifying the index field as the barcode field in this case, you will accomplish what you want. Use of the index field WILL use up more memory on the Palm (because a separate index must be created, which might take up as much as 25% as much memory as the original database). Also, if you are primarily using the software for data collection, specifying an index field will slow down the operation since each addition to the database will have to be re-indexed. If all entries in the index field are numeric, then you should check the **Index field is numeric** box, which will speed up searches on the

indexed field. Note that numeric index fields are limited to a 16-digit number, maximum.

Barcodes - Exact vs. Non-Exact Matching

Selecting a numeric index also has another consequence, which is that ONLY the numeric value of the data in the catalog is considered when looking up a scanned (or manually entered) value (such as a barcode) in the database. Sometimes, due to the way in which barcodes are stored in a desktop database (from which they are downloaded into **CatScan**), the barcode may not have leading zeroes included, whereas the scanned barcode WILL include leading zeroes. Conversely, a barcode in a database might include dashes or spaces, whereas the actual scanned barcode will most likely include neither. If the Index field is set to the barcode field, and the Index field is marked as numeric, then the scanned barcode will match the stored barcode, despite these differences (absense of a leading zero or presence of dashes or spaces in the stored barcode). In other words, if you scan the barcode "01234", it will match "01234" in your database, OR "1234", OR "12-34", OR "1 23 4", etc. On the other hand, if the Index field is NOT marked as numeric, then an EXACT match between all characters in the scanned barcode and the stored barcode must occur, "01234" will match ONLY "01234" and NOT "1234" or "12-34" etc.

- **Display Field** is a field which "pops up" when an item is looked up. If a display field is not specified, whenever you lookup an item in the database (manually or by barcode scanning), the complete details are displayed (as shown above). Sometimes, however, you are particularly interested in a single field. You might be doing a "price check", and when you scan an item you want the price field to be displayed. Or you might be taking notes on particular items, and when you scan that item you want a note field to popup, ready for you to enter your comments about that item.
- **Quantity Field** is a field where you store the quantity, which can be in whole numbers (integers) or decimals (e.g., 1.4), as you prefer. The quantity field has several special features. First, if you check the **Auto-increment on scan/find** checkbox, whenever you scan the item, the quantity will be incremented by one. Second, whenever you view on-screen reports (described below), the quantity field plays a special role. Third, when you do lookups on this field using the **Equals** or **Not Equals** mode, the lookup is based on a numeric comparison, so a blank field and a field containing the number "0" will both be found if you look for entries with a field Equals to 0 (if this not a quantity field, then Equals to "0" will find only entries containing "0" and not blank fields as well). It's perfectly possible to change the quantity field (or any other field) during the course of operation. Lets say you want to take an inventory before and after a trade show. Set up the database so that two of the fields are named, e.g., "Before" and "After". Before the show, set "Before" as the quantity field and take an inventory. After the show, change the quantity field to "After" and take another inventory. Now when you upload the data you'll have both sets of information. But note also that any field can contain numeric values; it doesn't have to be designated as "the" quantity field.
- **Date/Time Field** is a field which can be automatically filled in with the date and time or the date only (depending on whether the **Date only** box is unchecked or checked).
- **AutoFill Field** is a field which, whenever you scan or find an item, is filled in with fixed information which you enter by selecting **AutoFill Text** from the **Settings** menu on the main screen (see below). You might use this field to enter the name of the operator, or a room code, or other information which you want to attach to a series of items which are then scanned. So for example if you specify an AutoFill field, now if you enter "Fred" into the AutoFill text, every item subsequently scanned will have "Fred" written into the field

specified as the AutoFill field. Then if you change the AutoFill text to "Mary," subsequent items will be marked "Mary," etc.
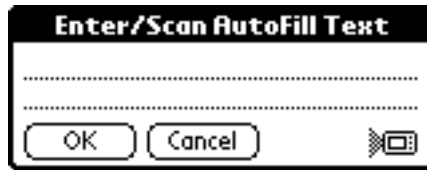
If you are using the software on a barcode-scanning unit, in the lower right hand corner you'll see the small scanner icon. Tapping on that icon, or alternatively pushing the right-most Palm "hard" button (the MemoPad button), will trigger the scanner, and allow you to scan information into this screen, rather than writing it in.

● Both the **Date/Time Field** and the **AutoFill Field** can be automatically filled in under two different circumstances, selected by checkboxes. One is to fill in the two fields (if one or both exist, of course) only when an item is modified (e.g., when the quantity is changed or some other modification is made). With this setting, the date/time shows the last time the item was changed. Alternatively, you can fill in the date/time and the autofill whenever an item is scanned or found. This would be the likely mode when using the software for asset tracking, because now the date and time will show when the item was last located. Note that the Date/Time Field and the AutoFill Field must both be updated under the same situation, that is, you can't have one updated only on modify and the other updated on scanning or lookup. Also note that modification on scanning or lookup ONLY applies when the criterion is "equals". This is because typically, "equals" will return only a single answer, whereas the other criteria ("contains" and "starts with") are more often satisfied by multiple entries, and the assumption is that you would only want the date/time stamp or the autofill to be applied to a unique entry. Of course, even the "equals" criteria MAY match multiple entries. In this case, the first time you tap the lookup button, the first of those entries will be date/time stamped and/or autofilled. Tapping the lookup button again, which acts as a "find next", will display the next matching item, and date/time stamp and/or autofill that item.

When you load a new database into the Palm, this screen will appear automatically when you start the software, to encourage you to set the proper settings for that database before using it. Note that there are separate settings for each database; you control which database the settings on this screen apply to by changing the database selector on the top line of the screen.

To delete the currently selected database from your Palm, tap on the trash can icon.

Creating a New Database on the Palm

Most of the time, you'll be downloading data from the desktop into **CatScan**. Particularly for data collection activities, however, you may find it desirable to create a database right on the handheld unit. On the **ConfigureDB** screen, at the bottom of the list of available databases, you'll find **Create New**. Select this item from the popup menu and you'll see this screen:

Enter the name of the database, and the name of one or more fields (you don't need to use them all, just fill in as many fields as you want to have in your database), then tap **Create** to create the new (empty) database (or **Cancel** if you change your mind, obviously). **CatScan** will then return you to the **ConfigureDB** screen to select the Sort field, Index field, and other configuration parameters for that database.

Note that when you create a database on the handheld unit, you are limited to eight fields maximum. If you want to create a database with the maximum of 32 fields that **CatScan** can handle, you need to create it on the desktop and download it into the handheld unit. Also note that you cannot add or delete fields from the database (or change their names) after you create it on the Palm, so you should think out carefully what you want before you start. If it becomes necessary, however, you will be able to upload the data to the desktop, modify it there, and then download it back to the Palm, so your decisions are not completely irreversible.

Configuring the HotSync

Tap on **HotSync** and you'll see this screen:

For "normal" use, you can leave the setting in this window set to **Use desktop setting**, and configure the actions of the HotSync Manager by using the desktop **Custom** setting, as with usual conduits. However some users may wish to have field personnel able to have access to database information via remote (modem) HotSync, and in those cases it can very advantageous to be able to configure the HotSync action remotely from the field. This screen allows you to do that.

Configuring the Scanner

Tap on **Scanner** and you'll see this screen:

```
┌─────────────────────────────────┐
│      Configure Scanning          │
│  ☐ Don't configure scanner       │
│  ☐ Don't scan check digits       │
│  On scanning unknown items:      │
│  [Add to database]  Ignore       │
│  ☐ Autoprint scanned items       │
│  (OK)  (Run ScanConfig)  (Cancel)│
└─────────────────────────────────┘
```

- **Don't configure scanner: CatScan** normally configures the scanner to scan a fixed set of barcode types (UPCA, CODE39, etc.), which should include all the common barcodes, and leaving this box unchecked allows that to happen. Some people, however, may have applications where they wish to ensure that a certain barcode type is NOT scanned (for example, there might be two barcodes on a package and you want to make sure only the one of a certain type is scanned). **CatScan** by itself doesn't let you do this. However, if you check the **Don't configure scanner** box, then the software will allow settings generated by other programs to "carry over" while you are using **CatScan**. In particular, **CatScan** is designed to work with an external scanner configuring program from **Stevens Creek Software** called **ScanConfig**. For more information about that, see the **ScanConfig** manual. If you have a copy of **ScanConfig** installed on your unit, you can access it to configure the scanner parameters by selecting the **Run ScanConfig** button (instead of the **OK** button) when you are finished configuring this screen [This button won't appear if **ScanConfig** is not installed on your handheld unit].
- **Don't scan check digits** should be checked if your catalog contains barcodes which do not include the check digit (the last digit of certain barcodes such as UPCA), and should be left UNchecked if the barcodes in your catalog are "complete" barcodes. If you have downloaded a catalog, and scanning does not seem to find the item you think it should, an incorrect setting of this checkbox may be the cause. If the **Don't configure scanner** bgutton is checked, then the **Don't scan check digits** button has no effect.
- **On scanning unknown items** tells the software what to do when you scan an item not in the catalog (database). If you select **Add to database**, a new entry will be made in the database, and the scanned information will be written into the first field of the database. In most cases, if you are going to use this feature you should set up the database so the index field (the barcode field in many cases) is the FIRST field, since that is the field into which this new information will be written.
- **Autoprint scanned items** is a special mode for people using **CatScan** in a "Scan & Print" mode. If this box is checked, whenever an item is scanned (either one that is in the database or one that it added to the database baseed on the "On scanning unknown items" setting), then as soon as the scan is done, a printout is automatically initiated using the current print format (discussed below). If a field is designated as a **Display Field** (see above), then when an item is scanned, that field is automatically displayed after the scan, allowing you to view and/or enter information into that field; *after* going through the various fields, *then* the print will occur.

Viewing Details, Modifying and Adding Items

When an item is displayed on the screen, either by a manual lookup process, a scan, or simply by scrolling through the database, it looks like this:

In this particular case, nothing is truncated except the name of the first field (shown as "Area Cod" but the full name is "Area Code"), but often, lengthy data will be truncated. If you tap in the Details Box on the line displaying any field, you'll get a "popup display" which lets you view the complete details of that field and, if you want to, modify the field as well. If you specify a **Display Field** in the database configuration (described above), then that field will automatically popup, without requiring you to tap on the screen at all. In this example, tapping on the line (or in this case three lines) that contain the "City" field will show you this display:
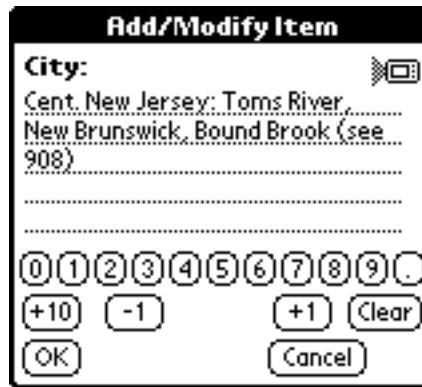
You can use this display simply to view the data, in which case just tap **OK** when you are done. Alternatively, you can modify the data, and then tap either **OK** (which updates the information and then returns to the main screen), or **OK, Next Field**, which updates the information and then displays the next field in the record, allowing you to move through the fields of the record one at a time (**OK, Next Field** isn't shown in this display, since in this example database, City is the final field; in the screen shot below, showing the Area Code field, it is displayed). You can also tap **OK, Next Field** if you haven't made any changes, just to view the next field.

If you are using the software on a barcode-scanning unit, in the upper right hand corner you'll see the small scanner icon. Tapping on that icon, or alternatively pushing the right-most Palm "hard" button (the MemoPad button), will trigger the scanner, and allow you to scan information into this screen, rather than writing it in.

The horozontal numeric keypad right below the dotted lines is straightforward - just tap the numbers

to enter a number, e.g., tap "3" and then "4" to enter "34" as the quantity. **Clear** erases the input. The +10, -1, and +1 buttons add the indicated amount to the quantity currently shown. You can either tap these buttons directly, or you can push the "hard" buttons on the case immediately below - the Palm DateBook icon button for +10, the AddressBook (phone) icon button for -1, and the ToDo List icon button for +1 (the final button, the MemoPad button, triggers the scanner, as it does on the other screens, although you're unlikely to be scanning the quantity). Of course you can also use Graffiti to simply write in the correct quantity. Note that the +10, +1, and -1 buttons WILL work if you have fractional (decimal) quantities, as long as the quantities themselves are positive. Thus "2.3" will become "3.3" when you press the +1 button, etc.

One subtle difference distinguishes the one field designated as the **Quantity Field** from other fields. When other fields are displayed, the "insertion point" is positioned by default at the end. But if the Quantity Field is displayed, the entire contents of the field are automatically selected. The consequence of this is that to change the number, you don't need to first press **Clear**, and then enter the new number; instead, just enter the new number which will replace the previous contents. For fields other than the **Quantity Field**, if you want to replace the contents of the field, you will need to either press **Clear** first, or alternatively drag across the starting contents of the field to select them.

Changing the Display Font

You have three choices of fonts for the displayed data (in this popup window only; the main screen always uses a standard font). To make this choice, tap on the **Menu** button and select **Set Font** from the **Edit Menu**:

When you do, you'll see this window letting you choose your font:

Choosing the third option ("large bold font") makes the display look like this:

This mode is especially desirable when you are using the software in a pure lookup mode, such as with a "Price Lookup" application. Set the Price field in your catalog to be the **Display Field**, and when you scan an item, it's price will be displayed in an easy to read font like that shown here.

Adding a New Record

To add a new record from scratch, just tap on the **Add Record** button (the plus sign) on the main screen. The software will display the first field, with blank contents like this:
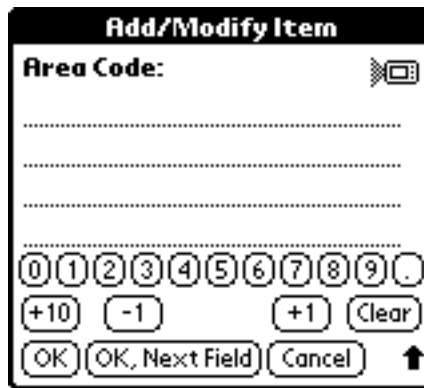
Enter the information and then tap **OK, Next Field** to move on to the next field and enter its information, or just **OK** to the main display after entering information into only this field.

Clearing the Database

When you are finished with a database, and have printed out some information and/or uploaded it to the desktop, there are three things you might want to do which are activated by the **Data** menu:
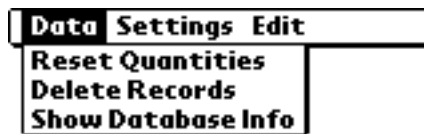
Reset Quantities sets all quantities (in the designated **Quantity Field**) to zero, assuming that you have designated one of the fields in the database as the quantity field (if you haven't, it does nothing). **Delete Records** deletes all the entries in a database, while leaving the database itself intact. This is most commonly selected when you are using **CatScan** for data collection, and want to "clean out" the handheld unit after uploading the data. **Show Database Info** displays the number of items in the currently active database and the total amount of memory they occupy. In addition, if one of the fields in the database is designated as the quantity field, **Show Database Info** will also

show the number of "non-zero" items, and the total quantity of all items (e.g., it will add 3 apples and 4 oranges and display "7" as the total quantity).

Creating Reports

Screen Reports

If you have performed a lookup which will find more than one entry (e.g., select all entries in our Area Code database where the State Equals "CA"), or if you haven't performed a lookup at all (or if you perform a lookup with a blank Lookup Field) so that all the entries in your database satisfy the lookup criteria, you may wish to look at a list of the items on screen. To do this, tap the **Show On-Screen Report** icon, and you'll see screen like these
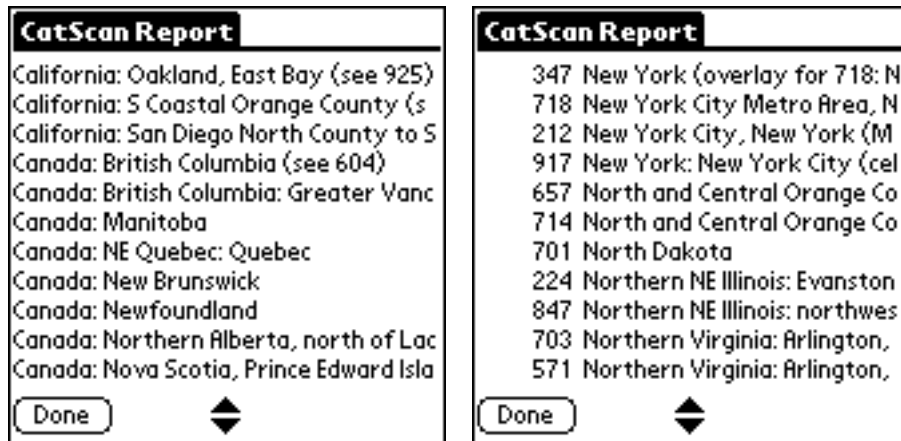
CatScan will display the eligible entries in your database in one or two columns. The main column will either be the data from the Sort Field, if there is one, or barring that, the Index Field, if there is one, or, barring that, the first field. A smaller initial column (shown in the example above on the right) will be shown if a field is designated as the **Quantity Field** (which wouldn't really be the case for this Area Code database, but probably will exist for many of your databases).

Tap on any item on the screen, and you'll be returned to the main **CatScan** screen, with that item displaying in full detail mode.

Other Reports

CatScan also provides a complete report generation facility, allowing you to generate reports in both fixed and special formats, and direct those reports to the Palm MemoPad application, an email outbox, a printer (requires a copy of Stevens Creek Software's **PalmPrint** software), or the Palm Clipboard. After you perform a lookup function (either manually or by barcode scanning), tap the appropriate icon (clipboard, MemoPad, printer, or email) on the bottom of the screen, and you'll see this screen:

Create Memo

What:
- ☐ Displayed Record
- ☑ Selected Records
- ☐ All Modified Records
- ☐ All Records

Format:
- ☐ Across
- ☐ Down
- ☑ ▼ New Report

(OK) (Cancel)

The first section of this screen controls what is put into the report. You can put the **Displayed Record** only, the **Selected Records**, **All Modified Records** (a modified record is one which has been changed since the last HotSync), or **All Records** into your report. "Selected Records" requires a bit of explanation, since only one record is displayed at any one time. However, if your lookup criteria matches more than one record, all of them are considered Selected Records. For example, if you set the Lookup Field and Criteria and Text to lookup all items for which the "State" "Equals" "NJ", then although only one area code from New Jersey will be displayed at any one time, all of the area codes in NJ will be considered "selected" and will print in your report.

An additional consideration when deciding what to print is the maximum size of the output. If you print, there is no limit to the output. The Palm Clipboard is limited to 1000 characters; if your report contains more information than that, only the first 1000 characters will be copied. Memos in the Palm MemoPad can contain up to 4000 characters, but if your report is longer than that, **CatScan** will simply create multiple memos to contain the entire report. Email is also limited to 4000 characters, but only ONE email will be created, so if your report contains more than 4000 characters, it will be truncated.

For email output, the output is automatically put into the outbox of an email application. If you have a Palm VII, **CatScan** places the order in the outbox of the iMessenger application. It does *not* send the email; you need to switch to the iMessenger program and do that yourself by tapping **Check & Send**. If you have a Palm with the email software **M/S Mail** from Mark/Space (www.markspace.com) installed, **CatScan** places the order in the outbox of the **M/S Mail** application. Again, it does *not* send the email immediately; you need to switch to the **M/S Mail** program and do that yourself by selecting the appropriate menu command. If you have a Kyocera 6035 Smartphone, or any other Palm with the Eudora email software installed, **CatScan** places the order in the outbox of the Eudora application. Again, it does *not* send the email immediately; you need to switch to the Eudora program and do that yourself by selecting the appropriate menu command. Finally, with any other Palm which has the standard Palm "Mail" program installed, the order is placed in the outbox of the standard Palm **Mail** program, from where it can be transferred to the outbox of your desktop Email program by the next HotSync. Note that if you have a Palm i705, neither iMessenger or Mail is present, and you must install an additional program such as **M/S Mail** for this feature in **CatScan** to be useful.

When you use **CatScan** to create emails, the "To" field in the outgoing email will be left blank unless you have previously used the **Email To** menu in the **Settings** menu to set the default "To" for your emails. Once set, this value will remain set until changed.

For the format of the report, you have three choices. **Across** lays out the fields across the page, with the field titles on top and then each record below that on a single line. The fields are made wide enough to accomodate the widest (longest) member of that field. An **Across** report would look like

this (note that some of the longer lines may wrap because there is no restriction on them):

```
Area Code   State                                         City
732         NJ      Cent. New Jersey: Toms River, New Brunswick, Bound Brook (see 90
609         NJ      S New Jersey: Trenton (see 856)
201         NJ      N New Jersey: Jersey City, Hackensack (see 973)
856         NJ      SW New Jersey: greater Camden area (split from 609)
973         NJ      N New Jersey: Newark Paterson Morristown (split from 201)
908         NJ      Cent. New Jersey: Elizabeth, Basking Ridge, Somerville, Bridgewa
```

Down lays out the fields down the page, with the field titles shown on each line before the contents of that field, and an extra blank line between records. A **Down** report would look like this:

```
Area Code: 732
State:     NJ
City:      Cent. New Jersey: Toms River, New Brunswick, Bound Brook (see 908)

Area Code: 609
State:     NJ
City:      S New Jersey: Trenton (see 856)

Area Code: 201
State:     NJ
City:      N New Jersey: Jersey City, Hackensack (see 973)

Area Code: 856
State:     NJ
City:      SW New Jersey: greater Camden area (split from 609)

Area Code: 973
State:     NJ
City:      N New Jersey: Newark Paterson Morristown (split from 201)

Area Code: 908
State:     NJ
City:      Cent. New Jersey: Elizabeth, Basking Ridge, Somerville, Bridgewater (se
```

The final format option allows you to select from various special formats which you create, as described in the next section.

When the "Scan & Print" mode is in effect, you won't see the choices shown here. Instead, the **What** will be automatically set to **Displayed Record** (that is, the entry which was just looked up or added to the database by scanning). The format will be taken from the last time you "manually" printed a report (or sent a report to the MemoPad or Clipboard), and can be any of the choices shown here (**Across**, **Down**, or custom format).

Creating Your Own Report Formats

You can create special formats, which are created directly in **CatScan**, but stored as regular memos in the Palm MemoPad application for convenience. A special format memo contains one or more special features, which are distinguished by one characteristic - they are surrounded by double angle brackets. In this manual, we use "<<" and ">>" which are each two characters, but the real characters are a SINGLE character each - ONE "double less than" or "double greater than" character, not TWO "less than" or "greater than" characters. On the Palm "popup keyboard, you'll find these characters in the lower right hand corner of the "Int'l" part of the keyboard. The "<<" character is in the lower right of the regular setting, the ">>" appears when you tap the Shift key on the keyboard. As you'll see below, however, normally you won't need to worry about entering these characters, because **CatScan** will do it for you.

Page Description Elements

There are five elements used to describe a report, each used in a pair to start and stop that element (very similar to HTML). These elements are:

- `<<TITLE>>` (paired with `<</TITLE>>`) - delinates the title of the report. This is the only REQUIRED element; when **CatScan** shows you a list of memos for you to pick a desired format from, it shows only memos containing this element. The title is NOT printed on the report.
- `<<PAGEHEADER>>` (paired with `<</PAGEHEADER>>`) - delinates the printed title of the report, which is centered on the top of the page.
- `<<DATAHEADER>>` (paired with `<</DATAHEADER>>`) - delinates one or more lines printed, left-justified, prior to the body of the report.
- `<<BODY>>` (paired with `<</BODY>>`) - delinates the body of the report.
- `<<FOOTER>>` (paired with `<</FOOTER>>`) - delinates the footer of the report, which is printed centered on the page at the bottom of the report

CatScan provides the means for you to create and edit reports using these elements without ever actually seeing them, as will be described shortly. However, if you go to the Palm MemoPad application, you will see these elements there.

Contents

Within any of the Page Description Elements, you can have a variety of contents, both fixed (simple text) and variable (field contents). Any normal text prints as is. Other special elements require a special format, as follows:

- `<<FIELD=FieldName>>` print the contents of the specified field of the selected record. If this is used in the header of a report, the contents of the first record in the report will be used.
- `<<FF>>` print a "form feed" (page eject)
- `<<ESC>>` print the "escape" character (required for many "control codes")
- `<<#nnn>>` or just `<<nnn>>` print the character whose decimal value is nnn.
- `<<LONGDATE>>` print the date in "long" format (with words)
- `<<DATE>>` print the date in "short" format (numbers only)
- `<<WIDTH=nn>>` set the width of the subsequent field(s) to nn columns wide. If the current justification is left justification, the output will either be truncated or padded to that width. If the current justification is centered, the output will be centered on a column of the requested width, and if the current justification is right, the output will be right-justified on a column of that width (or truncated if it is longer than the width). WIDTH=0 removes the column width restrictions.
- `<<LEFT>>` set left justification (the default at the start)

- <<CENTER>> set center justification. Note that this element does NOT cause the entire line to be centered on the page. The PageHeader and Footer are always centered on the page, and the DataHeader and the Body are always printed left justified. This center affects only how a particular field is printed within the space allowed for it in a columnar format, and only makes sense in conjunction with the use of the WIDTH element.
- <<RIGHT>> set right justification

With these explanations, here is a sample report. Note that in the PAGEHEADER element it is perfectly permissable to have a Field Name as part of the header; this is taken from the first selected record (but wouldn't really make sense unless it were the same for ALL selected records). In the body of the report, we print the Area Code centered on a column 8 characters wide (so that it is centered under the title "Area Code" on the first line), then we print the State field centered on a column 5 characters wide (again, to be centered under the title "State"). Note that we don't have to repeat the <<CENTER>> element; which continues in effect until changed. Now for the final column we switch the justification to left and print the first 20 characters of the City or Region where the Area Code applies.

```
<<TITLE>>Area Code Report<</TITLE>>
<<PAGEHEADER>>
Area Code report for <<State>>
<<LONGDATE>>

<</PAGEHEADER>>
<<DATAHEADER>>
Area Code State Region
<</DATAHEADER>>
<<BODY>>
<<WIDTH=9>><<CENTER>><<Area Code>> <<WIDTH=5>><<State>>
<<WIDTH=54>><<LEFT>><<City>>
<</BODY>>
<<FOOTER>>
End of Report
<</FOOTER>>
```

The output of this report would look like this:

```
                    Area Code report for NJ
                        Jun 23, 2000


Area Code   State               Region
   732        NJ   Cent. New Jersey: Toms River, New Brunswick, Bound Bro
   609        NJ   S New Jersey: Trenton (see 856)
   201        NJ   N New Jersey: Jersey City, Hackensack (see 973)
   856        NJ   SW New Jersey: greater Camden area (split from 609)
   973        NJ   N New Jersey: Newark Paterson Morristown (split from 2
   908        NJ   Cent. New Jersey: Elizabeth, Basking Ridge, Somerville


                         End of Report
```

Creating or Editing Print Format

Most of the "hard work" in creating memos containing the special print formats can be done for you by **CatScan**. Tap on **Print Format** in the menu from the main display and you'll see this screen:

You will see a list here of all memos in your MemoPad which fit the special format required for print format memos. Tap on one to select it as your special output format, and tap **OK** (or tap **Cancel**). Alternatively tap **Edit** to edit that format, or **New** to create a new format. When you tap **Edit** or **New** you'll see this screen:
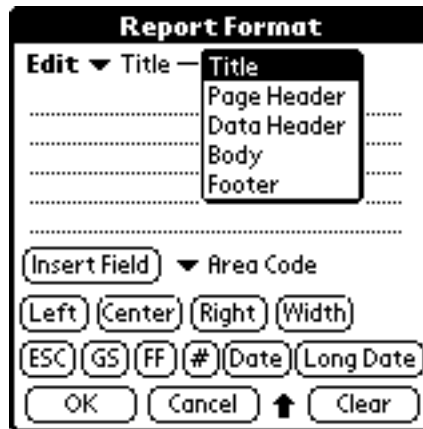
This screen provides the ability to select each of the five sections of the report (Title, Page Header, etc.) using a popup menu at the top Within each section, you can enter (via Graffiti or other methods) plain text into that section of the report format, and/or use the buttons at the bottom of the screen to insert the various elements into that section of the report - fields, alignment specifications, dates, special characters, etc. Most of the buttons will generate a "complete" insertion, e.g., press **Date** and `<<Date>>` will be inserted into the report format. Two of the buttons, **Width** and **#**, do something a little different, because they require additional input. Press **Width**, for example, and you'll see this: `<<Width=>>`. Unlike the other buttons, however, the insertion point will NOT be placed *after* the `>>`, but rather *before* it. This is because "`<<Width=>>`" is not a complete specification, but it requires that you add a number which is the width for that field.

Printing Barcodes

Some barcode printers require that when you send a barcode to be printed, you do not send the "check digit" (the last digit of the barcode). So you might have a 12-digit UPC barcode, but need to print only the first 11 digits. To do this, you need to make sure you are printing with left justification with a width corresponding to the barcode without check digit, like this: `<<LEFT>><<WIDTH=11>><<FIELD=Barcode>>`. Note that this will only work with barcodes of a fixed length (such as UPC codes).

Some examples for specific printers, showing sample text you'll want to enter into the BODY field,

and assuming the field in your database containing the barcode is named "Barcode". Note that these are examples only. Some of the specifics in the examples control such things as the height of the barcode, whether the barcode is centered on the page, etc. Details on how to control each of these things can be found in the programming manual corresponding to each printer, obtainable from the printer manufacturer (often downloadable from their Web site).

Monarch 6015: `<<ESC>>z4<<12>><<50>><<FIELD=Barcode>>`

Datamax E-3202:

```
<<ESC>>a<<1>><<GS>>H<<2>><<GS>>h<<100>>
<<GS>>k<<65>><<11>><<WIDTH=11>><<FIELD=Barcode>>
```

Seiko DPU-3445:

```
<<GS>>h<<100>><<GS>>H<<2>><<GS>>P<<1>>
<<GS>>k<<0>>  <<WIDTH=11>><<FIELD=Barcode>><<0>>
```

Zebra/Eltron (various models, e.g., P2242): [Note - this format starts and ends with a "return" and has a return (new line) after each command - these are essential. Also note that the quotation marks in the third line which are also essential.]

```
N
JF
B75,140,0,UA0,2,6,120,B,"<<FIELD=Barcode>>"
P1
```

Uploading Data to the Desktop

When you are ready to upload inventory from the handheld unit to the desktop, you need to configure the HotSync settings. There are two settings which are relevant. **Syncronize** uses the standard "Palm paradigm" and uploads only the information from the handheld unit which has been changed since your last HotSync. That means, for example, if you modify 7 items, do a HotSync, and then modify 3 more items, only the last 3 will be uploaded when your setting is **Syncronize**. The alternate setting is **Upload Handheld Data to Desktop**. With this setting, *all* the data which resides on your handheld unit is uploaded, whether or not it has been changed since the last HotSync. Of course, if you want to temporarily disable the conduit, you can also select **Do Nothing** from the configuration window.

Remember (as discussed in [Configuring the HotSync](#)above) that there are two ways in which the HotSync action is controlled. If **CatScan** is set to **Use desktop setting**, then you control the action of the HotSync from the HotSync "Custom" (Windows) or "Conduit Settings" (Macintosh) menu on the desktop. If **CatScan** is set to any other setting (using the menu), then that setting will be the operative one, and your desktop setting will be ignored.

Automatic Program Execution

Another feature of the conduit allows you to automatically execute a program (Windows) or AppleScript (Macintosh) following the upload of the data. On Windows, create a file named `OnUpload.txt` inside your `CatScan` folder. The contents of that file should be a single line of text, containing a typical Windows command line (such as might be entered using **Run**), for example, `Notepad C:\Palm\Boris\CatScan\Uploads\Inventory.txt` (which would automatically open a newly uploaded `Inventory` file using the Notepad application). Of course, if you want to execute more than one command, you can simply make a batch file of commands, and use your one command to execute the batch file. On a Macintosh, the file is named `OnUpload` and should be an executable AppleScript file; anything you can do with AppleScript can be used in this file. The creation of suitable batch files and AppleScripts is left as an exercise for the reader.

Appendix I: Notes on the Socket Communications SDIO Scanner

There are several special things to note about the use of **CatScan** in conjunction with the Socket Communications SDIO scanner.

Requirements

The SDIO scanner works on all Palm OS 4.1 and higher devices (through 5.x; not including the as-yet-unreleased PalmOS 6.x at this time). It requires a Palm handheld device with an SDIO slot, which include (as of this writing) the following Palm devices: Zire 31, Zire 71, Zire 72, Tungsten C, Tungsten E, Tungsten T, Tungsten T2, Tungsten T3, Tungsten W, Treo 600, m125, m130, m500, m505, m515, and i705. Some of these devices (e.g., the m-Series) were originally released with PalmOS 4.0; they must be upgraded to PalmOS 4.1 before attempting to use the SDIO scanner (this update is available at no charge from Palm).

Insertion of the Scanner

Different Palm devices have differing orientations of the SDIO slot. In the newer devices, like the Tungsten T3 shown below on the left, the slot is "normal", and the SDIO scanner is inserted as shown in the picture, with the word "Socket" facing the user. Some of the older devices, like the m505 shown below on the right, have a "reversed" slot, so the SDIO scanner must be inserted with the word "Socket" facing *away* from the user. Also, depending on the physical characteristics of the individual device, it will be preferable on some (as shown on the T3 below left) to include the rubber "collar" on the SDIO scanner; on others, as on the m505 shown below right, it is essential to *remove* the collar, because with it in place the scanner will not fully insert into the slot.

Left: Tungsten T3 with Socket Communications SDIO scanner inserted in the "normal" configuration
Right: Palm m505 with SDIO scanner inserted as required in the "reverse" configuration

Scanning Tips

Here are some tips provided by Socket for obtaining the best scanning performance from the SDIO Scanner. Note in particular the non-intuitive suggestion #4.

1. The SDIO scanner is not a laser, it's a camera. While users of laser scanner are used to sweeping the laser beam across the bar code, the red aiming beam of the SDIO ISC must be held reasonably steady on the target for a short period of time while the camera focuses and captures a clear image. This time should not be more than a quarter to a half of a second.

2. The red light from the SDIO scanner is simply an aiming beam - it doesn't add any auxiliary

lighting to the the target bar code. Like any camera, the target must be fairly well lighted by ambient lighting in order to get a clear picture. The SDIO ISC works better when the target bar code is well lighted.

3. Like all cameras, the SDIO ISC has a "focal length" (minimum and maximum distance from the target) where the captured image will be clearer. While the focal length of the laser is quite large, the focal length of the SDIO scanner is pretty small by comparison. For best results scanning 'normal' sized bar codes, the SDIO scanner should be held from about 4 to 7 inches (10 to 18 cm) from the target.

4. Just like the laser scanner, the SDIO scanner should **NOT** be positioned at exactly 90 degrees (perpendicular) from the target bar code, but at least 15 degrees above or below the target.

Configuring the Scanner

As of this writing, our **ScanConfig** program does not work with the Socket SDIO scanner. However, Socket provides a somewhat similar program (with more limited functionality) called **SocketScan**. If you want to override the default barcode choices of **CatScan**, use the Settings->Scanning menu in **CatScan** and check the "Don't Configure Scanner" box. In that case, the configuration you set up with **SocketScan** will remain in effect when **CatScan** is operating. Note, however, that regardless of the "scan trigger" you select in **SocketScan**, **CatScan** will override that choice, because it is "hard-coded" so that the MemoPad button is used to trigger the scan (you can also tap the on-screen button if you prefer).

Limitations and Requirements

Known limits of the software are as follows:

- **Number of databases:** 32
- **Number of fields per database:** 32
- **Number of records (entries) per database:** 32767 if the catalog is to be sorted and/or indexed, 65535 if it is not
- **Maximum length of the name of any field:** 31 characters
- **Maximum length of the name of any database:** 25 characters
- **Maximum custom formats for reports:** 32
- **Maximum length of any scanned barcode:** 64 characters
- **Maximum length of the sum of all information in all fields of one record:** 1023 less the number of fields (e.g., if there are 10 fields, the maximum number of characters in all fields is 1013).
- **Maximum length of the data in any one field:** same as previous limitation (i.e., if the database has only one field, that field can have up to 1023 characters in it).
- **Lines of text per field:** 1 (i.e., no "returns" embedded in any field)
- **Supported barcode scanners:** Symbol SPT15xx, Symbol SPT17xx, Symbol 18xx, Symbol CSM150 (plug-in scanner for the Handspring Visor), PSC Momentum (plug-in scanner for the Handspring Visor), Socket Communications SDIO barcode scanner for any PalmOS with an SDIO slot
- **Supported PalmOS:** Version 3.0 or higher
- **Supported Palm HotSync Manager:** Version 3.0 or higher (Windows), Version 2.0 or higher (Macintosh)

Technical Support

If you need technical support for **CatScan**, you should first check our support web page, http://www.stevenscreek.com/palm/support.html, where we have tried to assemble answers to all the most commonly encountered problems with downloading, installing, and using our software. If that doesn't solve your problem, we encourage you to do so by email at support@stevenscreek.com.