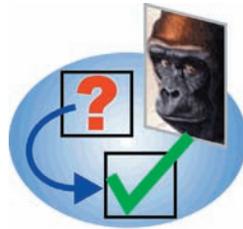


DbFixIt2

Version 2



A Comprehensive Utility Program for Detecting and Fixing Errors and removing Duplicate Records in Palm OS Databases

By C. E. Steuart Dewar, **Pimlico Software, Inc.**
In association with

The Dewar Wildlife Trust, Inc.

Last Revised: 22-November-2009, 19:22
For Version 2.0a

Copyright © 2009, Pimlico Software, Inc.
All Rights Reserved

Table Of Contents

The ONLY essential thing you need to know about DbFixIt2:.....	3
Why do you need DbFixIt2?	3
Registering (paying for) your DbFixIt2 program.....	4
The Gorilla Haven Connection.....	4
DbFixIt2 - The Quick Tour	5
DbFixIt2 - Advanced Operation.....	6
DbFixIt2 - Menu Options	6
DbFixIt2 - Trouble-Shooting Problems.....	8
DbFixIt2 - Trouble-Shooting - Continued	9
DbFixIt2 Errors and Actions	10
Known issues in Third Party Software	14
DateBk5 and DateBk6	14
Agendus.....	14
Fatal DbFixIt2 Errors.....	15
Palm OS Memory and Data Manager Error Codes	15

The ONLY essential thing you need to know about DbFixIt2:

Just tap the **Easy Fix** or **Easy Check Button** - that's all you really have to know. Unregistered versions of DbFixIt2 will detect and report errors, but only registered versions have the ability to correct errors and remove duplicate records.

Why do you need DbFixIt2?

DbFixIt2 can detect errors and then also **repair** records in the PIM databases often without the loss of any data. For example, if a ToDo record ended up with an impossible priority value that was crashing the built-in Tasks application, DbFixIt2 will find the error, change the priority setting to 1 and the record can then be read. Or perhaps it's a calendar record with an invalid date, or a memo record that was too long - all these problems are detected and fixed.

DbFixIt2 can also remove duplicate records created by hotsync errors. Removing duplicate records by hand can be tedious and very time consuming. DbFixIt2 can do that safely and automatically.

DbFixIt2 also detects unusual errors such as duplicate Unique ID's (which can cause applications to unexpectedly retrieve the wrong record), or locked records left in a database (which can cause unexpected MemHandle Overlock errors), or even non-deleted records with Nil Chunks (which will crash many applications). And DbFixIt2 can scan **all** databases on the handheld and run a set of generic tests on the database for problems that might be causing an application to stumble.

Furthermore, there are two known problems in newer Palm OS devices that affect all users from time to time:

1. **The calendar, or other PIM databases fail to sync and it just hangs when it gets to that conduit.** This problem appears to be a bug in the conduit and/or Palm OS related to the presence of deleted records in the database. DbFixIt2 has a quick feature to remove all deleted records and this almost always corrects the problem. Pimlico's earlier utility, dbScan, also had the ability to remove deleted records, but DbFixIt2 has additional, special logic to sidestep issues with the PalmOne DM Patch software which could then crash underneath dbScan before it could correct the problem.

2. **The Contacts database can balloon up to huge sizes, full of junk data.** We have seen contacts databases as large as 50Mb in which over 98% of all that space was wasted by junk that got into the database. DbFixIt2 can surgically remove all the junk data without affecting your contacts data. That 50Mb database was only 468k after running DbFixIt2! There is no other method of removing the junk data other than exporting the contacts database in a different format (which usually results in the loss of information such as photos, anniversary/birthdays etc.), and re-importing it.

And if you never sync your handheld device, DbFixIt2 can remove deleted records so that your databases do not get too large (deleted records are only removed from a database via a hotsync).

Errors in databases can arise for a large number of reasons - even the built-in applications have some obscure bugs, but if you frequently use third party software, or test beta software, or occasionally run into hotsync problems, you will find DbFixIt2 to be indispensable.

Preference and option settings in DbFixIt2

The only option settings for DbFixIt2 are the options to run in silent mode, ignore warnings and to provide alternate Database types for scanning. These option settings are stored in DbFixIt2's preference record in the system preference database. If you delete DbFixIt2, that will also delete the DbFixIt2 preference record.

If you need technical assistance on DbFixIt2

All basic support on DbFixIt2 is provided through this E-mail address: PimlicoSupport@bigfoot.com. Any questions regarding your electronic order, administrative support, or basic technical support should go to this E-mail address.

If you have a detailed technical question or problem with DbFixIt2, or you get no response from the Bigfoot email address, send an E-mail to: SWSupport@PimlicoSoftware.com, but any problem reports must be made on a tech support form. There is a copy of the tech support form in the DbFixIt2 zip archive which you can copy and paste into an E-mail, or you can download a copy of the form from the DbFixIt2 web page: <http://www.PimlicoSoftware.com/DbFixIt2.htm>. Priority will always be given to reports that are submitted properly on that form.

Certain types of corruption in the database may be so severe as to crash the Palm OS before DbFixIt2 can even see the data and under those circumstances, your only option will be to delete the database and overwrite it from the desktop or a backup copy.

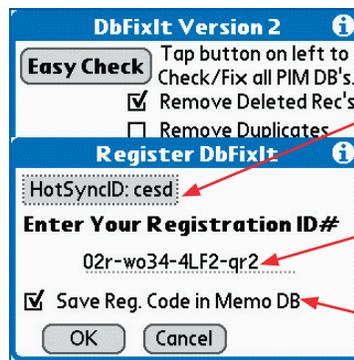
Registering (paying for) your DbFixIt2 program

DbFixIt2 can be downloaded on a trial basis to scan your PIM databases for errors. However, in order to have the full functionality of also fixing these errors, the program does have to be registered.

DbFixIt2 can be registered by going to the **ABOUT dialog** (Tap on menu Button, and select ABOUT from the OPTIONS menu). This dialog will tell you the web site to go to register the product and provides brief instructions on how to purchase the program.

When you purchase DbFixIt2, you will receive an email within 24-48 hours or so containing your permanent registration code for the program. Obviously, you can use this program and not register it until you actually need it, but do keep in mind that when that time comes, you may then have to wait as long as 24-48 hours to get your registration code, so if you do intend to use this utility, purchasing the registration beforehand would clearly make sense.

When you receive your registration code, just select **Register DbFixIt2** from the **Options** menu and enter your registration code as shown below:



This is your current HotSync-User name that you will need to provide when you register.

This is where you enter your registration code. Tap the **OK** button when you have finished entering it.

Check this box to save a copy of your registration code in the Memo database. That way if you ever lose it, DbFixIt2 will automatically retrieve it for you.

When entering your registration code, be careful to distinguish between the digit 0 and the letter 'o' (the letter is always in lower case and small), and between the digit '1' and the letter 'L' (the letter is always in upper case to avoid any confusion). The actual characters are not case sensitive.

If you do not have web access, you can send the registration payment in cash or check in US Dollars (must be drawn on a USA bank, or have a USA street address on the front) and mail it to:

Pimlico Software, Inc.
2031 Lowery Road
Morganton, GA 30560

Electronic registration is always much faster, efficient and safer than registering by mail and is highly recommended. If you have not used this method before, you should be aware that these eCommerce sites feature encryption to ensure that no data is intercepted by any other party.

Language Availability

The initial release of DbFixIt2 is in English. It is likely that versions in the more popular languages may be forthcoming.



The Gorilla Haven Connection

All the profits from the sale of DbFixIt2 and DateBk3/4/5/6 (and this means virtually all the revenue) is donated to wildlife conservation and in particular, the Dewar Wildlife Trust's **Gorilla Haven** project which supports an AZA certified sanctuary for Western Lowland Gorillas on the Dewar's 324 acres surrounding Paris Mountain in the North Georgia Mountains. You can learn more about this ambitious project from

Gorilla Haven www.gorilla-haven.org.

Gorilla Haven is a member of the Gorilla SSP (Species Survival Plan) and the first gorilla arrived in March of 2003. It will be one of the largest set of controlled habitats (if not the largest) in the world for gorillas and will provide a permanent haven for gorillas that do not currently fit into zoo plans (see the Gorilla Haven web site for details).

DbFixIt2 - The Quick

Basic Operation. For most users, the operation of DbFixIt2 is very simple: just launch the application and tap the **Easy Fix** button at top left. **Cautionary Note: It is always highly recommended that you make a backup copy of your desktop PIM data and/or the PIM data on the handheld before running DbFixIt2.** That way, you can always recover any changes made by DbFixIt2 should the desired results not be obtained.

Unregistered versions of the application will simply display **Easy Check**, since unregistered versions can only check the database and cannot correct any of the errors that may be found. DbFixIt2 will then scan all the major PIM databases on the device (either the traditional Palm OS set of Datebook/AddressBook/MemoPad/ToDo's, or the newer PalmOne proprietary set of PIM databases: Calendar/Contacts/Memos/Tasks). If any errors are found, a dialog appears identifying the record and the specific error condition. Unregistered versions do allow the function of removing deleted records to function. This can be useful for people who never sync their databases and therefore never end up removing deleted records.

In the example below, an error was found in the Tasks Database. An item was found with an impossible priority value of 28777- this **should** of course always be a number in the range of 1-5 for the priority.

The screenshot shows a dialog box titled "Database Problem Found" with the following text: "Tasks Database: Bad Priority Value: 28777. Rec=586 (No Description Available)". Below the text, it says "Suggested Action is: Fix It" and "Correct Problem?". At the bottom are four buttons: "Yes", "Yes To All", "No", and "Quit".

Annotations with arrows point to various parts of the dialog box:

- Identifies Database and the specific problem that was found (points to the title and error text).
- The record number in the database where the error was found (points to "Rec=586").
- Description field for the item (in this case the description field was blank). (points to "(No Description Available)").
- Select **Yes** to fix the problem and continue scanning. (points to the "Yes" button).
- Select **Yes To All** to fix the problem and continue scanning but without displaying any more error messages (all errors will be corrected). (points to the "Yes To All" button).
- Select **No** to leave the problem uncorrected and continue scanning. (points to the "No" button).
- Select **Quit** to immediately exit the scan and return to the main screen. (points to the "Quit" button).
- What DbFixIt2 is recommending that you do. (points to the "Suggested Action is: Fix It" text).

Some errors may be relatively benign, such as a failure to properly clean up the repeat structure for an appointment, while others may be very obvious (such as an invalid date). Others may be serious, but so subtle that the only symptom is weird behavior in an application (such as having duplicate unique ID's in the database). In general you would always want DbFixIt2 to correct any problem that it finds.

After DbFixIt2 has corrected your database, you should set the conduits for any databases that were corrected so the handheld overwrites the desktop. Normally this is accomplished in the Palm **Desktop** application, by clicking on the HotSync-Icon in the system tray (windows) or desktop(Mac), selecting **Custom...** then click on the conduit in the left column, tap the **Change...** button and select the action **Handheld overwrites Desktop**. This will then just change the action on the next hotsync which you should perform right away to update the desktop.

A list of all detected error conditions, a brief description, and what correction DbFixIt2 applies will be found in the section: **DbFixIt2 Errors and Actions**.

DbFixIt2 - Advanced Operation

DbFixIt2 also has an Advanced Operating mode where you can scan individual databases and also select any database for checking. If a known PIM database is selected in the list, then the more comprehensive checking is invoked (since the structure of the database is known). Otherwise, only the standard generic tests for database integrity are performed (duplicate unique ID's, NIL chunks, warning for deleted records at end of database, locked records left in database).

Check this box to remove all deleted records from all four PIM databases (or the selected Database in *Advanced Use* mode). There is a known bug in Palm's software whereby deleted records can, under some conditions cause the conduits to hang.

Database Name and current record are displayed here. Note that database is scanned **backwards**.

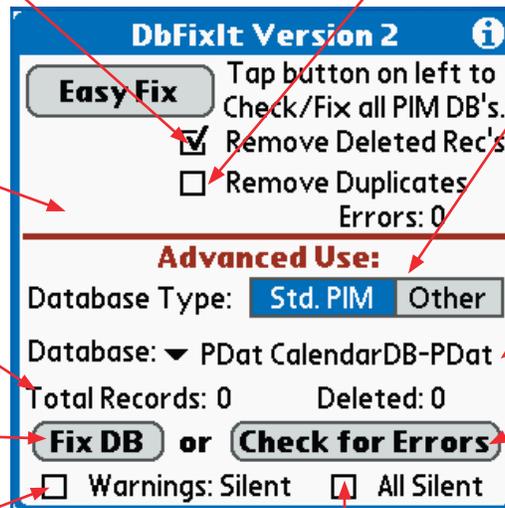
Shows total number of records and deleted records in the currently selected PIM database.

Tap **Fix DB** to fix errors in the currently selected database (registered versions only).

Check this box to avoid displaying warnings (errors will still display).

Check this box to remove duplicate records in the database. This can take a **substantial amount of time** on larger databases (5-10mins. or more).

Note: While DbFixIt2 is running its scan, tap anywhere on the screen to abort the scan and return to the main



Select either the standard PIM databases, or all the databases on the handheld device.

Tap to select a single database from either the PIM list or the master list of all databases. There may be a substantial delay caused by the Palm Dm Patch Software if a "mirror" database is selected.

Tap **Check for Errors** to just scan for errors in the currently selected database, without fixing any of them.

Tap this checkbox to avoid displaying all error messages. If you had tapped **Fix DB**, errors will continue to be corrected. Only the summary report of the total errors found will be displayed at the conclusion of the scan.

DbFixIt2 - Menu Options

Reset AppInfo Block - Under some conditions, the AppInfo block of a database can become corrupt. This is where things like the names of the categories, next unique ID, etc. are stored. If the database shows no errors but is still causing problems, or you get a crash whenever trying to access the category selection dialog, try this option on the selected database. You will need to re-enter all the category names, starting with the default **Unfiled** and then your regular category names. In general, it is recommended that you attempt to hotsync the database to the desktop and then sync again with the desktop overwriting the handheld. This option is not available on unregistered versions of DbFixIt2.

Remove All Calendar Blobs - When Palm introduced their proprietary PIM apps and databases, they added a feature to include "Blobs" (Binary Large Objects) at the end of some records to store additional information such as timezone information and meeting information in the Calendar database. These items may be corrupt due to interaction with other third party software, or may need to be removed for some reason, such as reinitializing all the timezone information.

Remove Deleted Records - This is similar to the function of just checking the **Remove Deleted Rec's** checkbox, but with two significant differences: (1) it will attempt to make a copy of the selected database (in the Advanced Use section) under a different name and creator ID and apply the changes to that database and then swap the database back. This prevents interference from the PalmOne DM patch software if it has been enabled. The DM Patch software is rather fragile and can easily crash if there is the slightest corruption present, and will sometimes crash underneath DbFixIt2 before DbFixIt2 even has a chance to delete the record. (2) - it removes archived as well as non-archived records that are marked as deleted. Checking the box to remove deleted records only removes non-archived, deleted records as those are the one's that usually trip up the DM Patch software. So try this option if you get a reset on trying to remove Deleted Records in the EasyFix section or if the conduit still hangs. Also, you may want to use this option if you never hotsync as it then makes no difference if they are archived or not.

Remove Range of Records - Under some conditions, an application may crash whenever it attempts to access a certain record and provide no method of removing the corrupt record. In this case, you can use this menu option to delete a record or a range of records so the bad record is removed from the database. Records marked in this manner are **removed** from the database completely (i.e. not deleted). On the next hotsync, such records would be restored if the conduit is set to synchronize.

The following dialog appears when this option is selected:

Enter the Starting Record number in this field (or use the Find Button to set it).

Tap this button to make a backup copy of the database (same as menu option in main form).

Tap this button to restore the currently selected database from a backup made with DbFixIt2.

Tap this button to remove all records from the Starting Record to the ending record. The ending record is set to the starting record whenever the ending record field is tapped. If the ending field is blank, just one record is removed. This option is not available on unregistered versions of DbFixIt2.

Find normally ignores case. Check this box to perform a case-sensitive match.



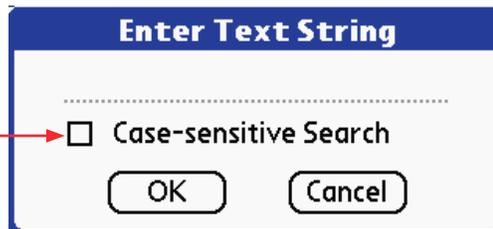
Name of currently Selected Database.

Tap this button to set the ending record number to the last record in the database.

When scanning the database searching for a matching text string, this shows the current record being searched.

Tap this button to return to the main form.

Tap this button to open up a dialog to enter a text string to locate a record with.



When a match is found, you have the option of using that record, or telling DbFixIt2 to continue the search to find a later matching record.

Backup Selected Database - This option will make a backup of the currently selected database. The Creator ID is remembered in DbFixIt2's preferences and changed to **CESJ**. The letter 'J' is then prefixed to the filename. Only one backup can be saved at a time by this routine. This is only to be used as a last resort because it will write a blank file header. Some apps (and this includes the built-in applications) will **not** handle a blank header and the backed up file will not be readable). **So use with Caution!!**

Restore From Backup - This option will take the currently selected database, verify that it has a backup saved by the above command and then restore the database from the backup. This option can be used before repairing a database or as a method of trying to find corrupt records by selected deletion of records across a range followed by restoration if the deleted block did not contain the corrupted record. **See also cautionary note above about Backup!!**

MultiByte Language - This option allows you to tell DbFixIt2 that characters in the extended character set are in fact valid in description/note fields (an alert appears which allows you to toggle the status of this preference option). If you are using Japanese, Hebrew, etc. you will want to set this option to avoid having description fields purged of valid characters.

Other Database Types... - This option brings up a dialog where you can specify database types other than 'DATA' to be included in the **Other** database list. Enter a list of up to ten database types separated by commas into the dialog. This will be remembered in the preference settings. By default, this dialog will just display 'DATA' the first time around since that is the standard type for databases that just contain data.

Register DbFixIt2 - Use this option to enter your registration code for DbFixIt2.

DbFixIt2 - Trouble-Shooting Problems

DbFixIt2 crashes when scanning a database. While it is possible that a severely corrupt database might crash DbFixIt, it is far more likely that it is the Palm OS that is crashing underneath DbFixIt2 even before it can access the record. And the most likely cause if scanning a PIM database is the PalmOne DM patch software which attempts to copy records back and forth between the PalmOne PIM database and the specially created “mirror” database that masquerades as the standard Palm OS PIM database (for compatibility reasons). Try scanning each database individually in the *Advanced Section* by selecting it in the drop-down list. If you find one database is causing a reset or in particular a *DmWrite: DmWrite Check Failed* error, then tap the **Other** button, select that one database in the popup list and then try the *Remove Deleted Records* menu option. That often fixes that problem.

If resets are still occurring, the next step is to delete the mirror database using a third party file utility like FileZ (which you can download from almost any Palm Software archive - there’s also a copy at: <http://www.PimlicoSoftware.com/filez.prc>):

PalmOne Database Name	Mirror Database Name
CalendarDB-PDat	DatebookDB
ContactsDB-PAdd	AddressDB
MemosDB-PMem	MemoDB
TasksDB-PTod	ToDoDB

It is recommended that you make a copy of your primary database first if at all possible - under some conditions, it has been reported that deleting the mirror database can result in the deletion of the PalmOne Database by the DM Patch software, although this is not something that generally happens. After deleting the database, try repeating the scan with DbFixIt2. If it still fails and you have an external memory card, use FileZ to copy the PIM database to an SD card and either copy it from there to your desktop and then send the file to Pimlico Software via email (SWSupport@PimlicoSoftware.com), along with a Fille-out Tech Report form.

Note: Not all databases can be scanned by DbFixIt2 - databases used by memory-resident routines might cause the underlying application to crash (for example, WiFi databases, driver databases, some system databases, etc.).

Conduit still hangs after removing deleted records. While removing deleted records usually fixes the problem with a conduit that hangs on HotSync, there are other reasons why the conduit software might hang. If you can have the desktop overwrite the handheld, that will often resolve the issue, but typically in cases like this the desktop is pretty far out of date, and the user really wants to recover the database on the handheld if at all possible.

The first step is to completely remove the desktop/conduit software, download the very latest release of the conduit from the company’s website and re-install. Note that it is **very** important to remove the conduit first as otherwise, the windows registry is not cleaned up and that can also be where the problem lies.

If it still fails to sync and DbFixIt2 declares there are no errors in the database, then try setting the conduit so the handheld overwrites the desktop and hotsync. If that still fails and you have a device that supports an external memory card, try backing up your handheld to the SD card using a backup program like *BackupBuddy* or *BackupMan*. Then hard reset the handheld and **just** restore the one database that was failing to sync. Set all conduits to *Do Nothing* except the one for the database you are trying to recover - set that conduit to have the Handheld overwrite the Desktop. It is most unlikely at this point you will still find the conduit failing. After this, you can proceed with a full restore of the handheld and run another sync to be sure that it is now synching normally.

DbFixIt2 - Trouble-Shooting - Continued

Application crashes but DbFixIt2 says the database is clean. Keep in mind that DbFixIt2 cannot fix internal errors in records from proprietary databases written by other third party applications, whose structure is unknown to DbFixIt2. It is possible that there is a syntactic error in a record which is tripping up the application. In that case, you can try using the *Remove Range of Records...* menu command. This allows you to selectively delete all records in a specified range. This may allow you to recover at least a portion of the database - especially if you can zero in on the corrupt record that is crashing the application. A “Binary” search may allow you to zero in fairly quickly - for example, with just ten tests, you can locate a single corrupt record out of a 1,000 record database. In this case, you would start out by making a copy of the database by tapping the *Make Backup Copy of Database* button, and then split the database in half by deleting all records up to the midpoint. Then test the app to see if it still crashes if it does, the bad record must be in the **Last Half** of the database, so split the database in half again. If it does not crash, then the bad record was in the first half, so tap the *Restore Database from Backup* button and this time just delete from the first record to a record one quarter the total number of records. Repeat this procedure until you have narrowed down the offending record. Even with a database of 16,000 records, it only takes 14 iterations to locate the bad record. If you know any text in the record, you can use the *Find* button to locate records which contain that matching text string.

Feature to remove Duplicate Records not removing all duplicates. First of all, records must be 100% identical for them to be removed by this function. For example, if two records are identical, but in different categories, they are not considered identical, nor will they if one record is private and the other is not private.

In some cases, due to benign corruption, two records may appear identical in all respects to the user but internally may differ because the records were not properly compacted by the application (DbFixIt2 checks that the records are of identical length before comparing them).

DbFixIt2 does not require that the database be sorted in any order. Every record is compared to every other record in the database, so even out of place records that are duplicates will be removed by this routine.

Duplicate records are marked as deleted in the database (not removed), so if you subsequently do a regular sync, those duplicates will be removed from the desktop database as well. However, in most cases, it is usually recommended that after running a DbFixIt2 scan, you set the designated conduit(s) so the handheld overwrites the desktop.

Scan is very slow when Remove Duplicates option is selected. The scan of the database when the option to remove Duplicated records will indeed take **far longer** than normal! It is highly recommended that you make sure your batteries are not nearly drained down as really large databases could take as long as 5-10mins or possibly more to scan and while it's not likely to cause a serious problem, it's never a good idea to have a device's battery fail while a program is actively scanning and possibly attempting to modify a database. As an example, a calendar database of 7,500 records takes about 2m20s to scan on a Palm Centro. A data of 25,000 records might take as long as 20-30 minutes to scan. As long as the record number in the top pane is counting down, you can be sure the program is operating normally and not frozen.

What Databases are safe to remove Duplicates From? In general you should only use this option on the standard PIM databases (Calendar, Contacts, Memos, Tasks) as other databases may have legitimate duplicate records. That's why this option is automatically reset if you select a database in the Advanced Pane. You can then manually re-select this option in which case, DbFixIt2 will then remove duplicate records, but it is advised that you do not use this option unless you either (a) know that duplicates should not be present in this database, or (b) have backed up the database so it can be easily restored if a problem surfaces. Removing duplicate records from some system databases could easily cause the Palm OS to crash and require a hard reset.

DbFixIt2 Errors and Actions

This table lists all error messages in DbFixIt2, the type (E=Error, W=Warning, I=Information) and a description of the error condition and the fix that DbFixIt2 will apply to correct it.

Error	Type	Description of Error and the Fix that DbFixIt2 will apply
Record has NIL Chunk	E	Only deleted records are allowed to have no chunk (data) and a non-deleted record was found. The record will be changed to a deleted record (since there is no data associated with the record anyway).
Deleted Record not at end of Database	W	By convention, deleted records are stored at the end of a Palm OS database. However, not all applications follow this convention so with some applications this may well not be an error condition. If you “fix” this problem, the deleted record will be moved to the end of the database (it should always be safe to do this as if the application doesn’t care about the order, then it won’t mind having all deleted records moved to the end of the database). For some databases, like the Calendar database, this is a significant error condition that will result in the apparent loss of data.
Record has Invalid Lock Count of: XXX	W	This indicates that a locked record was left in the database. An application should always unlock all records when it exits. Locked records can cause an unexpected reset later on when that same record is accessed, especially if by another application. DbFixIt2 will reset the correct lock count on the record.
This record’s uniqueID is already in use	E	A duplicate unique ID has been found in the database. This can cause problems such as the wrong record being unexpectedly displayed on a global find , or an alarm going off on the wrong record, etc. DbFixIt2 will correct the problem by copying the record to a new record with what should be a unique ID (unless the AppInfoBlock of that database has been corrupted in some way). Note: DbFixIt2 can only do this check if there are less than 21,845 records in the database).
Not enough memory to include checks for Unique ID’s	I	This is not an error condition. DbFixIt2 can only perform the duplicate unique ID check if there are less than 21,845 records in the database. You might want to run the scan and check the box to remove duplicate records as it is possible the large size of your database is due to a number of duplicate records.
End Time, but no Start Time	W	In the Datebook or Calendar databases, DbFixIt2 found an item which had a valid End Time, but no Start Time. Properly written applications should ensure that both fields are set to a null value if the item is untimed. DbFixIt2 will set the end time to a null value.
Start Time or End Time has hours > 23	E	The hours field in the time field is invalid as 23 is the maximum number of hours. DbFixIt2 sets any item with a corrupt date or time field to today’s date and a time of 9am so it can be easily found and moved to the correct date and time.
Start Time or End Time has minutes > 59	E	The minutes field in the time field is invalid as 59 is the maximum number of minutes. DbFixIt2 sets any item with a corrupt date or time field to today’s date and a time of 9am so it can be easily found and moved to the correct date and time.
Month/Day or Year is bad	E	The date field for this item is invalid (non-existent date). DbFixIt2 sets any item with a corrupt date or time field to today’s date and a time of 9am so it can be easily found and moved to the correct date and time.
Start Time > End Time	E	The Start Time was greater than the End time in the traditional Palm OS Datebook database (this is not an error in the proprietary PalmOne Calendar database as this is used to mark items that extend past midnight). DbFixIt2 sets any item with a corrupt date or time field to today’s date and a time of 9am so it can be easily found and moved to the correct date and time.
Unable to fix bad Time Field, Removing Record	E	When applying a correction to the Date/time field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.

Error	Type	Description of Error and the Fix that DbFixIt2 will apply
Alarm Advance > 99	E	The advance field for an alarm has a value greater than 99 which is not allowed. DbFixIt2 will remove the alarm indicator for this record.
Alarm Advance Unit > Days	E	The alarm type field can only have a value of 0, 1 or 2 for Minutes, hours or days. DbFixIt2 will remove the alarm indicator for this record.
Unable to clear Alarm Field, Removing Record	E	When attempting to remove the Alarm field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Repeat has NNN Exceptions	W	Where NNN is the number of exceptions found for a repeat records. This may not necessarily be an error condition if you routinely change or mark instances of a repeat as done. This warning only appears if there are more than 200 exceptions to a single repeat record. If you tell DbFixIt2 to fix this problem, the repeat indicator on the record will be removed.
No Displayable Occurrences of Repeat Event	W	There is a repeat record in the database, but there are no displayable occurrences because the very last displayable occurrence was deleted. Early versions of the built-in calendar application failed to check for this condition and could end up with these “orphans” in the database. DbFixIt2 will remove this record.
Invalid Repeat Type	E	Valid repeat types are Day/week/month/year - in this case the numeric code in this field does not correspond to any defined repeat type. DbFixIt2 will remove the repeat indicator on the record.
Repeat End Date < Start Date	E	The ending date for the repeat is earlier than the start date of the record. DbFixIt2 will remove the repeat indicator on the record.
Repeat End Date month/day/year bad	E	The ending date for the repeat has an invalid date format. DbFixIt2 will remove the repeat indicator on the record.
Frequency on Repeat Event is zero!	E	The repeat frequency for a repeat record must have a value of at least 1 to be valid. DbFixIt2 will remove the repeat indicator on the record.
Weekly Repeat, no days specified	E	On a weekly repeat, no days of the week were selected for the repeat - this indicates an invalid repeat specification. DbFixIt2 will remove the repeat indicator on the record.
Repeat On > Last Saturday	E	The <i>Repeat On</i> field in the repeat indicator has a value greater than 6 (only 0-6 are valid for the seven days of the week). DbFixIt2 will remove the repeat indicator on the record.
Repeat Start of Week > Saturday	E	The <i>Repeat Start of Week</i> field in the repeat indicator has a value greater than 6 (only 0-6 are valid for the seven days of the week). DbFixIt2 will remove the repeat indicator on the record.
Frequency field in some repeat events was > 99	W	This is either not a fault, or a benign error condition as it does not seem to affect the built-in calendar or Datebook applications, nor the conduits or desktops that are generally used. Pimlico’s DateBk application does permit a value up to 255 in this field in order to allow enhanced functionality. It is only reported once at the conclusion of the scan. No fix is applied to this issue.
Repeat On field in some repeat events not Null	W	This is a benign error condition caused by sloppy programming in some conduits (not present in the standard Palm conduits). It is only reported once at the conclusion of the scan and no fix is applied to this issue.
Unable to clear Repeat Field, Removing Record	E	When attempting to remove the Repeat field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Non-Repeat Record found in Repeat Record Section of Database	E	In the Datebook and calendar databases, repeat records must come before all non-repeat records, and in this case a non-repeat record was found earlier than a repeat record. DbFixIt2 will re-sort the entire database and start the scan over again.

Error	Type	Description of Error and the Fix that DbFixIt2 will apply
This Record is in the Wrong Position by date	E	An item was found in the Datebook/Calendar database in the wrong position by date (all non-repeat items are sorted by date). DbFixIt2 will re-sort the database and start the scan over again at the top.
This Record is in the wrong Position by time	E	An item was found in the Datebook/Calendar database in the wrong position by time (all non-repeat items are sorted by date and then by start time). DbFixIt2 will re-sort the database and start the scan over again at the top.
Since Database is not in correct order, it will now be sorted and scanning resumed back at the beginning	I	This message appears just to alert you to the fact that DbFixIt2 is going to sort the entire database and then resume the scan again from the top.
Non-repeat record has an Exceptions List?	E	Only repeat records should have an exceptions list. While this is in theory a benign fault, it does indicate corruption in the database. DbFixIt2 will remove the exceptions field from the record.
Unable to clear Exceptions Field	E	When attempting to remove the exceptions field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Description field > 255 chars	E	Description fields in the Datebook/Calendar/ToDo/Tasks databases are limited to 255 characters. DbFixIt2 will truncate the description to the maximum permitted length.
Unable to Truncate Description Field to maximum permitted size	E	When attempting to fix the length of the Description field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Note field > NNN chars	E	Note fields in the Datebook/AddressBook/ToDo/MemoPad databases are limited to 4095 characters and to 32,767 characters in the Calendar/Contacts/memos/Tasks database. DbFixIt2 will truncate the note field to the maximum permitted length.
Unable to Truncate Note Field to maximum permitted size	E	When attempting to fix the length of the Note field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Location field > 255 chars	E	Location fields in the Calendar database are limited to 255 characters. DbFixIt2 will truncate the location field to the maximum permitted length.
Unable to Truncate Location Field to maximum permitted size	E	When attempting to fix the length of the Location field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Both Description and Note are blank - corrupt record	E	Both the description field and the note field for an item are blank. The convention for the Palm OS PIM databases is to remove all such records, so none should ever be found by DbFixIt2. DbFixIt2 will remove the blank record.
Unused Bytes at end of record	E	With a database whose structure is completely known, DbFixIt2 has determined there are unused bytes past the logical end of the record. DbFixIt2 will resize the record to remove the unused bytes and recover the wasted space.
This record is SHORT by NNN Bytes	E	With a database whose structure is completely known, DbFixIt2 has determined that there are structures whose data lies past the end of the logical record. This will result in a read from non-memory and definitely indicates corruption. DbFixIt2 will resize the record to the minimum valid length. Note that there may then be corrupted data in those structures, so rescanning the database is recommended if this error is seen.
Due Date month/day/year bad	E	This error is associated with a Task or ToDo that has a bad due date. DbFixIt2 will change the Due Date to today's date.
Unable to fix bad Date Field	E	When attempting to fix the Date field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Bad Priority Value: NNNN	E	A task or Todo has an invalid priority field, NNN is the value of the priority field. DbFixIt2 will change the priority of the item to '1'.

Error	Type	Description of Error and the Fix that DbFixIt2 will apply
Unable to fix bad Priority Field	E	When attempting to fix the Priority field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Tasks Database”, “Warning: Undefined bits set in ‘record-Flags’ field	W	Supposedly unused bits in the ‘record-flags’ field are set. While this is a benign error condition, it does indicate corruption or faulty programming in the application updating this database, and could potentially result in problems with future updates of the application that used those bit fields. DbFixIt2 will set the unused bits to zero.
Unable to clear undefined Record flag bits in header	E	When attempting to fix the ‘record-flags’ field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Warning: Undefined bits set in ‘dataFlags’ field	W	Supposedly unused bits in the ‘data-flags’ field are set. While this is a benign error condition, it does indicate corruption or faulty programming in the application updating this database, and could potentially result in problems with future updates of the application that used those bit fields. DbFixIt2 will set the unused bits to zero.
Unable to clear undefined Data flag bits in header	E	When attempting to fix the ‘data-flags’ field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Bad Due Date (Y-M-D): YY-MM-DD	E	The Due date field of a Task record has an invalid date. DbFixIt2 will reset the date to today’s date.
Not successful in repairing Due Date field	E	When attempting to fix the Due Date field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Bad Completion Date(Y-M-D):	E	The Completion date field of a Task record has an invalid date. DbFixIt2 will reset the date to today’s date.
Not successful in repairing Completion Date field	E	When attempting to fix the Completion Date field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Bad Alarm(Hrs-Mins-advance): HH-MM-AA	E	A bad alarm field was found on a Tasks record, the Hours, minutes and advance value are displayed. DbFixIt2 will remove the alarm indicator on this task.
Not successful in removing alarm field	E	When attempting to remove the alarm field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Tasks Database, ‘dataFlags.repeat’ set, but pointer was Null	E	The record header indicated there was a repeat on the Task, but the pointer to the repeat was NULL - indicating a corrupt record. DbFixIt2 will remove the alarm indicator on this task.
Not successful in repairing repeat field	E	When attempting to remove the repeat field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
Bad Repeat Start Date(Y-M-D): YY-MM-DD	E	The repeat start date was invalid (as indicated), and DbFixIt2 it will remove the repeat indicator on the record.
Not successful in repairing repeat field	E	When attempting to remove the repeat field, the PalmOS reported a fault on that record. DbFixIt2 will then remove the corrupt record instead.
No Displayable Occurrences of Repeat Task	W	There are no displayable occurrences of this repeat task and this record most likely is not visible in the Tasks database. DbFixIt2 will remove it.
Record Too Long: NNNN	E	With a database where the maximum record length is known (such as the Memo or Memos databases), this error indicates that a record was found that exceeded the maximum length. DbFixIt2 will truncate the record to the maximum permitted length.
Blob goes beyond end of record	E	A BLOB was found that extended past the physical end of the record - this always indicates corruption. DbFixIt2 will remove the corrupt Blob
Too many blobs	E	There is a limit of 10 Blobs per record and this limit has been exceeded. All Blobs beyond the maximum number will be discarded by DbFixIt2.

Error	Type	Description of Error and the Fix that DbFixIt2 will apply
Blob CreatorID has Invalid Character(s)	E	The CreatorID field of a BLOB has invalid characters outside of the normal Ascii Character set (i.e. a non-displayable character). DbFixIt2 will remove the corrupt Blob.
Blob with Invalid Creator ID Found (non-displayable characters).	E	This error appears an alert. There is also an option to continue testing for corrupt Blobs silently (in case there are a huge number of such errors).
Last blob not aligned with end of record	E	The last Blob in the record does not align properly with the physical end of the record. The Blob will be removed by DbFixIt2.
Blob Header extends past end of record by: NNN Bytes	E	The header of a Blob extends past the end of the record indicating a corrupt/ Blob Fragment. The corrupt Blob is removed by DbFixIt2.
Blob size does not agree with contents	E	For Blobs where the structure is known, this error indicates that the size of the Blob itself does not match the stated size of the Blob in the Blob Header. The corrupt Blob is removed by DbFixIt2.
BLOB ID = XXXX Is this a valid BLOB? (Answer No or No To All if not sure).	I	This message appears if a Blob is found with a creator ID that does not match any installed application (if there is a match on the creatorID, DbFixIt2 assumes that the Blob is valid and will not complain about it). If you know this Blob is valid, then allow it and it will be put into a temporary list so no further complaints will be made about that Blob during the current pass. If you answer No or No To All then the Blob will be removed by DbFixIt2.
Record has non-word aligned handle (removed from Database)	E	This message appears if a record has a bad pointer into memory. This error will crash any application that attempts to read the database. DbFixIt2's only action is to remove the corrupt record.
Duplicate Record Found	E	A perfect, duplicate record was found in the database. Note that the records must be perfect duplicates. Small differences such as the records being in a different category, or one being private and one being non-private will not be treated as a perfect match. The record will be marked as deleted and moved to the end of the database.

Known issues in Third Party Software

DateBk5 and DateBk6

Both DateBk5 and DateBk6 allow a value in the range 100-255 in the Frequency field of a repeat specification. The built-in Tasks application only allows a value up to 99. Attempting to read a task that has a value > 99 in the frequency field can cause a reset in the built-in Tasks application, so such values should be avoided if the built-in Tasks or desktop applications are used on a regular basis. DbFixIt2 will generate a single warning following the completion of the database scan if such values are present.

Agendus

Agendus also allows a value of 100-255 in the Frequency field of a repeat specification (see note above), but also appears to put several other values in the repeat specification that are not compatible with the built-in Tasks application. A value of 6 has been seen in the repeat specification (which is "invalid" and instantly crashes the built-in Tasks application) and on weekly/monthly interval type repeats, Agendus does not set a default value as the built-in tasks application does. Such conditions also instantly crash the built-in tasks application and are reported as errors at this time unless Agendus is present in which case they are reported as warnings. Note that an interval repeat created in the built-in Tasks application always properly initializes the remaining repeat fields in structure, and there is no reason why Agendus could not also do this which would then avoid crashing the built-in application. However, Agendus has its own desktop application so these unexpected values would not be an issue with their desktop application.

Fatal DbFixIt2 Errors

All these errors are fatal and will cause DbFixIt2 to abort the scan of the database as there is no point continuing the scan under these conditions. Your only recourse at this point would likely be to do a hard reset on the handheld and restore the PIM databases from your last backup.

Error	Type	Description of Error and the Fix that DbFixIt2 will apply
DmRemoveRecord Failed	F	Attempting to remove a record resulted in a fault.
MemHandleResize Failed	F	Attempting to resize a record resulted in a fault.
DmResizeRecord Failed with error code: NNN	F	Attempting to resize a record resulted in a fault and NNN is the error code of the specific fault (see table below).
Palm OS Cannot lock down handle	F	DbFixIt2 tried to lock down a handle, but the Palm OS returned a fault indicating the database or Palm OS is likely severely corrupt.
Not Enough Room For Packed Record? Extra Bytes Needed = nn	I	An internal error condition which might indicate a Corrupt Palm OS or possibly an error in the application. Notify Pimlico Software if you see this.
Resized Contacts Record is too long. Wasted Bytes = nn	I	An internal error condition which might indicate a Corrupt Palm OS or possibly an error in the application. Notify Pimlico Software if you see this..

Palm OS Memory and Data Manager Error Codes

```

257 memErrChunkLocked
258 memErrNotEnoughSpace
259 memErrInvalidParam
260 memErrChunkNotLocked
261 memErrCardNotPresent
262 memErrNoCardHeader
263 memErrInvalidStoreHeader
264 memErrRAMOnlyCard
265 memErrWriteProtect
266 memErrNoRAMonCard
267 memErrNoStore
268 memErrROMOnlyCard
=====
513 dmErrMemError
514 dmErrIndexOutOfRange
515 dmErrInvalidParam
516 dmErrReadOnly
517 dmErrDatabaseOpen
518 dmErrCantOpen
519 dmErrCantFind
520 dmErrRecordInWrongCard
521 dmErrCorruptDatabase
522 dmErrRecordDeleted
523 dmErrRecordArchived
524 dmErrNotRecordDB
525 dmErrNotResourceDB
526 dmErrROMBased
527 dmErrRecordBusy
528 dmErrResourceNotFound
529 dmErrNoOpenDatabase
530 dmErrInvalidCategory
531 dmErrNotValidRecord
532 dmErrWriteOutOfBounds
533 dmErrSeekFailed
534 dmErrAlreadyOpenForWrites
535 dmErrOpenedByAnotherTask
536 dmErrUniqueIDNotFound
537 dmErrAlreadyExists
538 dmErrInvalidDatabaseName
539 dmErrDatabaseProtected
540 dmErrDatabaseNotProtected
    
```