Palm Commander

Version 3.2

User Guide

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2.Welcome to Palm Commander

Palm Commander is a powerful Palm OS utility. It gives you control over your Palm OS powered device.

With Palm Commander you can manage databases in the Palm Memory as well as files on external memory cards.

You also can view and edit the contents of the system preferences database.

Palm Commander can help you save more memory by compressing applications, so you can load more programs into your device.

Also, Palm Commander has a very useful button launcher which can help you start your favorite Palm programs in a very convenient way.

This User Guide will help you get familiar with the program.

3. Technical Support

All technical information related to the product is available at the Palm Commander website:

http://www.PalmCommander.com

4.Installation

Palm Commander usually comes in the form of a ZIP file. You can unpack the file with programs like PowerArchiver or WinZip, or just 'double tap' the file if you use Windows XP.

Inside this ZIP file you will find the main module pc.prc and some other files.

All you have to do to install Palm Commander on your PDA is install this one file: pc.prc.

If you want to use compression features of the Palm Commander you need to install also Zlib library (file SysZLib.prc or SysZLibARM.prc for the ARM based devices).

If you want to use some of the special fonts included into the package, you need to install some or all databases form the folder fonts. Once you do that you can see additional fonts in the list on the Select Font dialog.

Starting from version 3 the Benchmark test implemented as a separate file: benchmark.prc.

The process of installation is different for different operating systems and desktop software. Please, check the manual for your desktop software to find out how you can install new programs onto your PDA.

If you are using the Palm Desktop software on a Windows computer, you can simply 'double tap' that file and the Install Tool dialog will come up:
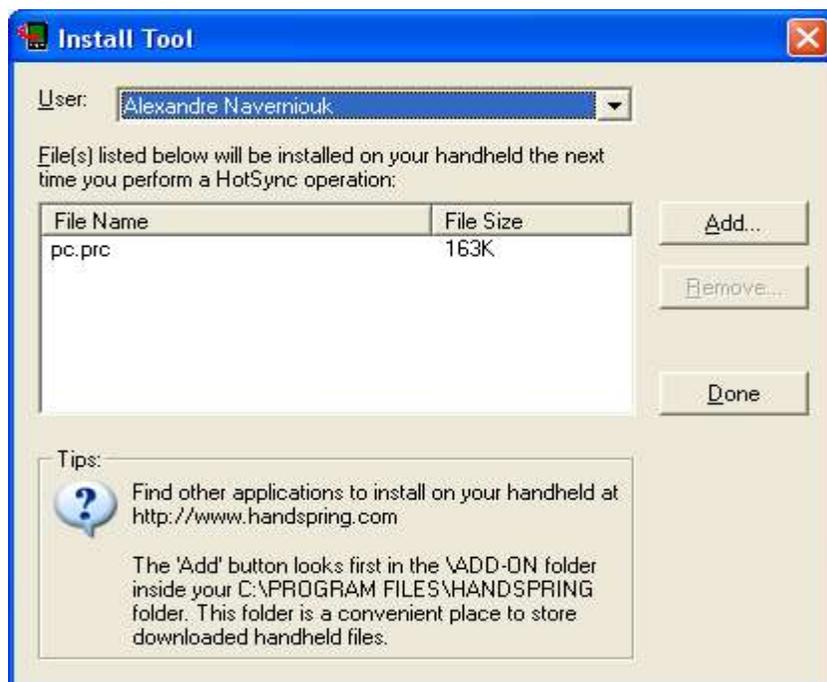
tap 'Done' and the program will be automatically installed next time you synchronize your PDA . Note, that you have to synchronize your PDA in order to install Palm Commander.

If the dialog does not come up or if you use different desktop software, please check the documentation for your Palm Desktop.

Palm Commander needs about 160KB in memory. If you do not have enough space, please, remove some files from your PDA.

Once you successfully install Palm Commander you can see the Palm Commander icon in the list of programs:

By default, Palm Commander registeres in the 'Utilities' category, but on some versions of Palm OS this registration process does not work properly. If you do not see Palm Commander icon in the 'Utilities' screen, choose category 'All'.

Now you can start Palm Commander for the first time.

5.Registration

After installation, Palm Commander will run in the demo mode. If you want to continue using the program you need to register Palm Commander.

Select the "Options/Register" menu item:

If you bought Palm Commander you probably received the activation key in the confirmation e-mail. Activation key is a number up to 5 digits in length.

If you did not get the activation key, please send us an e-mail to: support@lexansoft.com

Enter the activation key and click OK.

Now your Palm Commander is registered and ready to work!

6. Main Screen

The main screen has two panels, left and right.

When you open Palm Commander for the first time it shows the list of databases in your Palm Memory in the left panel and Card Information in the right panel. Later you will learn how to change between the different types of panels.
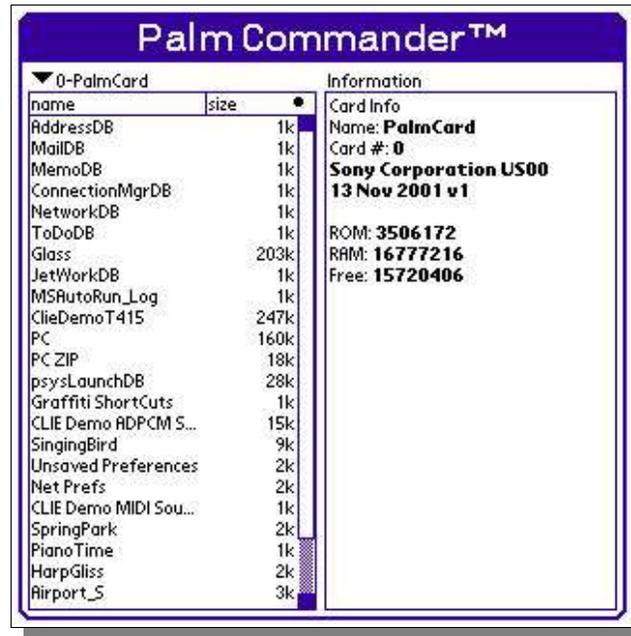
Let's first of all check how the interface works. The left panel has two columns: name and size. If you tap on the column title, the table will be sorted by that column and you will see a little arrow near the column title. If you tap the same column title again, the sorting will be done in reverse order.

Changing column width

You can easily change the widths of the columns by moving the border line between column titles. The table will be redrawn automatically while you are moving the border.

Changing column type

The 'size' column has a little circle in the title bar. If you tap it you will see the list of all possible values for this column:

Once you select an option you want, the column in the panel will show the corresponding values.
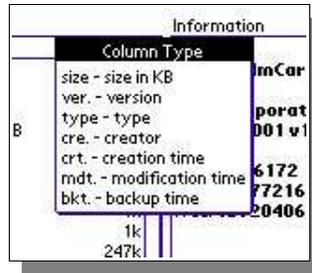
Multiple selection

Now try to tap the databases in the list. You will see that this changes the selection in the list, and at the same time the right panel shows brief information about the selected database.

If you want to select multiple items in the list just hold the PageUp hard button while you keep taping the items. You can change the selection for several lines by moving the stylus across the list. If you move out of the list, up or down, the list will start scrolling automatically. As a mater of fact, the scrolling will go faster if you keep holding the stylus outside of the list. This is a very convenient way to select (or deselect) large parts of the list.

Context Menus

If you tap an item in the list and hold your stylus for half a second, the context menu will come up. We call it the context menu because it is different depending what view is active and what item you are tapping.

For example if you bring up the context menu for a database in the database list you will see following:
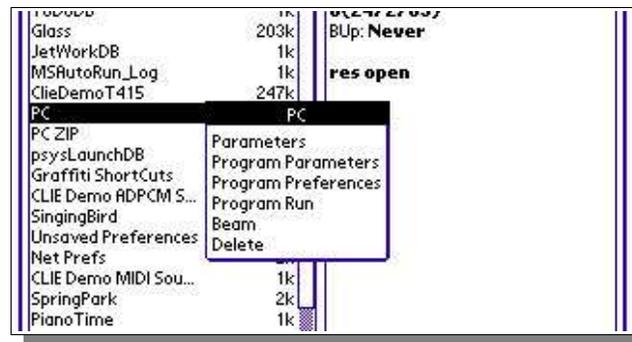
Check the title of the context menu. It shows the object you are working with. In our example it is the 'pc' database.

When the context menu appears on the screen, it is already in the select. That means that you do not have to tap once again to select your item (you can if you want). You can just move your stylus onto the item you want and release it. You will the selection changing while you move you stylus from one item to another.

If you do not want to select any of the items, just tap the screen outside of the context menu. This will close the menu window.

Drag-and-drop

Palm Commander supports drag-and-drop operations. So if you want to copy a database from one memory card to another you can set up your panels to show two different memory cards and after that just drag-and-drop items from one panel to another.

If you have multiple lines selected in the list you can drag-and-drop the whole selection by moving any of the selected items.

Drag-and-drop operations are very useful for importing/exporting files from/to external memory cards.

By default the drag-n-drop copies files. If you want to move them (delete the original when copying is done) you have to hold PageUP (or Jog) button when you drop the files. If you do that a special pop up menu comes up:

and can choose the operation you want.

Filter Mark

If you have a filter specified for a panel, a special fitter mark (letter 'F') will appear in the title of the panel:
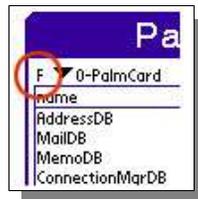
You can tap on it. It will clear the filter and reload the panel list.

7.Panel Views

Every panel can be set up to show different information. In other words, every panel supports several views.

You can change the view in the left panel through the 'Left' menu, and the view in the right panel through the 'Right' menu.

Here you can see the Main Screen with the left panel set up for the 'Programs' view and the right panel set up for the 'Files' view:

View 'Databases'

This view shows the list of databases in your Palm Memory.

You can use the Filter for this view. If the Filter is used, you will not see all of the databases, but only those of them which are relevant to the filter.

View 'Programs'

This view shows the list of installed programs in your Palm Memory.

In Palm OS, programs can have several databases. All of them have the same Creator ID. If you choose 'Parameters' from the context menu you will see all the databases related to the selected program.

You can use Filter for this view. If Filter is used, you will see not all the programs, but only those of them which are relevant to the filter.

View 'Files'

This view shows the contents of an external memory card.

You can see the files and folders in the list.

Double tapping a folder opens it, so you can easily browse through the file system.

If the active folder has a parent folder, the list has a special '..' item at the top. Double Tapping that item opens the parent folder.

This view as available only for devices which support the so-called VFS (Virtual File System)

You can use Filter for this view. If Filter is used, you will see not all the programs, but only those of them which are relevant to the filter.

View 'Information'

This view can only be applied to the Right Panel.

This view shows brief information about the item or items selected in the left panel.

If no items are selected, the view shows information about the memory card.

View 'None'

This view can only be applied to the Right Panel.

When it is selected it actually closes the Right Panel, so you can have the Left Panel occupy the whole screen. In that mode the Left Panel has one more extra column.

8. Working with ZIP files

Palm Commander can create and modify ZIP files on the memory stick.

Note, that Palm Commander provides partial support for ZIP files. In current version the only compression method supported is so called 'inflation' (compression type 8) This is the most common used compression method. Encrypted ZIP files are not supported. Multi-file ZIP files are not supported.

To create new empty ZIP file simply choose 'Create zip file' context menu and enter the name for the file.

Once you created a ZIP file you can open the file simply by double-taping on the name. Palm Commander will show the contents of the ZIP file and you will see "zip:/" prefix in the title of the panel.

While you have ZIP file open you can drag-and-drop files and databases between the panels. Palm Commander will automatically compress and uncompress files.

If you drag-and-drop databases between ZIP panel and panel in the 'Databases' or 'Programs' views Palm Commander performs import/export conversion on-fly. Note that no extra temporary files created on the memory stick.

You also can drag-and-drop the whole folders into/from ZIP files. Palm Commander will automatically create all needed folders.

9.Filter

You can set up a filter for 'Databases' and 'Programs' views.
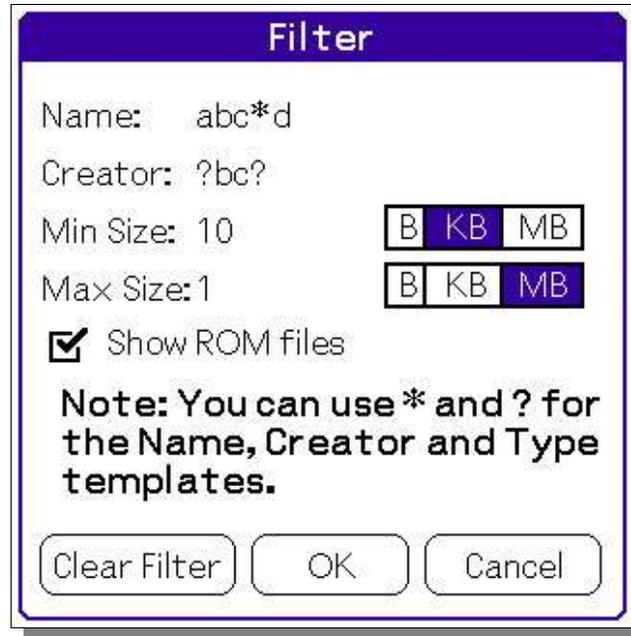
The filter dialog allows you to specify templates for the Name, Creator and Type. (Field Type is available only for Databases, because all programs have type 'appl')

In a template you can use two wildcard characters: '*' and '?'.

? - means "any single character"

* - means "any number of characters"

For example, the template "abc*d" will show databases: "abcd", "abc1d", "abcxzd", but not "abc" or " bcd". Template "abc?d" will show "abczd" and "abcxd", but not "abcd" or "abcxzd".

You can also specify whether you want to see databases and programs located in ROM. ROM (Read Only Memory) is the part of memory which is not erasable. It has databases and programs which the manufacturer of you PDA put there.

10.Changing attributes of databases and files

Palm Commander allows you to change attributes for databases and files.

You can change attributes for the group of databases or files. To do so, simply select group of lines in the panel and select item 'Attributes' from the context menu.

You will see the Attributes dialog:

Note that the lists of available attributes for databases and files are different.

There are three possible states for each attribute:

1. Empty box – means that all selected files do not have this attribute.

2. Market box – means that all selected files do have this attribute.

3. '-' sign – means that this attribute is set up for some of the selected files.

You can now change attributes as you want and tap OK. Palm Commander will change attributes if needed for every selected file.

Note that if you left some attributes in the '-' state, Palm Commander will not change them.

11.System Info

You can see the System Information report if you select th e "Tools/System Info" menu:

This report shows a lot of information about your PDA. It has several sections:

1. System Information
   Common system information, including Serial Number (if available), Sync Name and so on.

2. Battery
   Information about the battery.

3. Display
   Parameters of the display.
   Note: resolution of the display is shown correctly only if Palm Commander supports the high-resolution API for your PDA. Otherwise, 160x160 is shown.

4. Memory
   All the detailed information about system memory.

12.Preferences Editor

Palm OS has a special system database for system and application parameters.

Palm Commander has an editor for this database, the Preferences Editor. You can start it from the menu "Tools/Preferences Editor".

Note: Changing system or application preferences can cause your PDA to crash. Do not change any preferences unless you know exactly what you are doing.

In the top of the form you can choose what type of preferences you wont to see: "saved" or "unsaved".

The "saved" preferences database contains preferences that are backed up during a HotSync operation. There is one "saved" preferences database that all applications use. This database contains all system-wide preferences as well as application-specific preferences.

The "unsaved" preferences database contains application-specific preferences that are not to be backed up during a HotSync operation. There is one "unsaved" preferences database that all application use.

After that you can choose a creator ID. This is the unique ID of the program. For example, Palm Commander has creator ID: "PCMM".

The Special creator ID "psys" is used for the system preferences.

Once you have selected a creator ID, you will see the list of all the preference ID's in the list on the left.

(In Palm OS, preferences have just a numeric ID. In Windows registry, parameters have symbolic names.)

There are no types for the Palm OS preferences, so a preference with length 4 could represent text of for letters, an integer number of four bytes or a date/time entry. Since there is no way to deduce what type of preference is used by the program, Palm Commander shows all possible interpretations for the preference. So, if length is 1, 2 or 4 bytes, the "Integer" entry field will appear, so you can easily change the integer value. If the length is 4, the data/time field also appears.

For a preference any length you can click the 'Edit ASCII/Binary" button and activate the ASCII/Binary Editor.
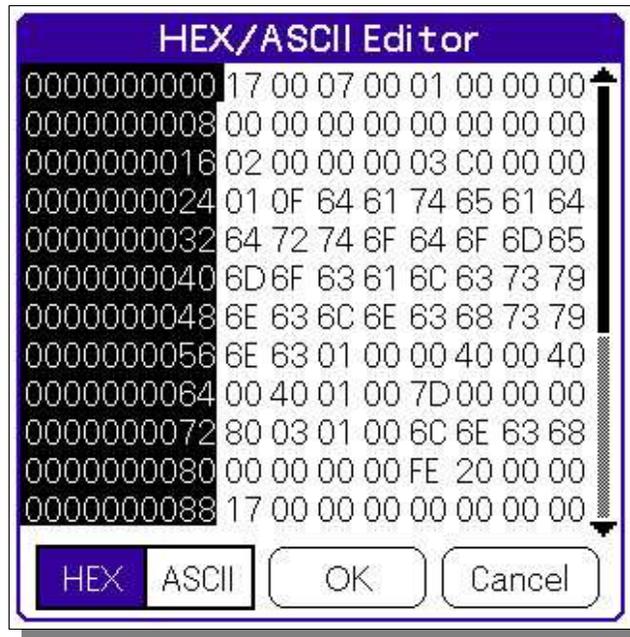
In the editor you can see and change the contents of the preference in ASCII(Text) or HEX (Hexadecimal) form.

13. Program Compression

Palm Commander has a special module which can compress and decompress Programs in the Palm memory.

The way it is implemented is really simple and effective. Once you compress some programs, Palm Commander decompresses them when you start them. No special action are required from you. Every time when you start one of the compressed programs, Palm Commander checks if the program exists in uncompressed form; if yes, it start it, if not it decompresses it and deletes the current uncompressed program. As a result, at any moment, you have only one uncompressed program, the one you used last.

Decompressing usually takes only a few seconds, even on slow devices.

Note: unfortunately not all programs can work properly with Palm Commander Program Compression. Some of them should be uncompressed all the time. If program does not work properly after compression simply decompress it.

You also have to decompress a program before you install a new version. Otherwise, the old, compressed version will be used again.

You can open the Program Compression form from the "Tools/Program Compression" menu.
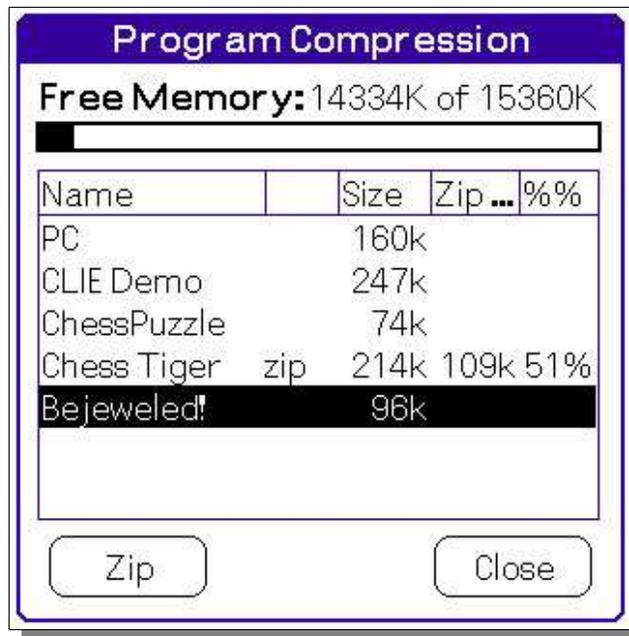
In the list, select the program you want to compress and tap the "Zip" button.

When compression is done you will see the new size of the program and percent of compression.

You can recognize the state of a compressed program in your Application Manager. All the compressed programs have a letter 'Z' on the icon.

You can also compress Palm Commander itself! It will reduce the memory used by for program in half.

14.Backup

The backup feature allows you to backup and restore your handheld's data via an easy-to-use interface.

Note: The backup feature requires VFS (Virtual File System) support. Most of the handhelds that provide a memory stick slot do support VFS.

You can specify up to 8 backup profiles, each of them having a different list of databases to be backed up and a different schedule for automatic backup.

Backup procedure copies databases from the main memory to the external memory card. If for some reasons the main device memory is emptied, (for example after a so-called Hard Reset) you can restore all the information from the backup file.

The backup file is actually a regular ZIP file. Every backup session creates a new ZIP file. You can configure how many such ZIP files you want to keep for every profile.

Backup setup

You can open the Backup dialog from the "Tools/Backup" menu:
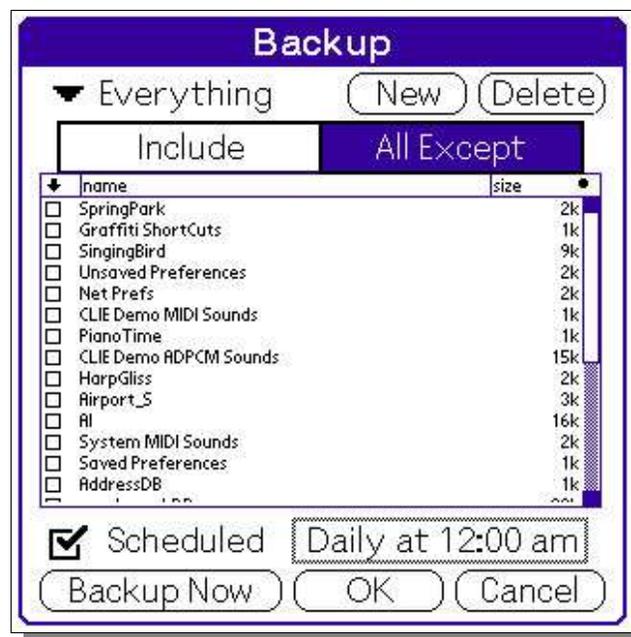
First of all, you have to create a new profile. Tap the 'New' button and enter the name for the backup profile. For example, 'Everything' is a good name for the total backup profile.

Once you have created a profile, you can configure which databases should be backed up. You have two options:

1. 'Include' will allow you to mark some specific databases, and only those ones will be backed up in the profile.

2. 'All Except' will backup all the files except the ones you mark in the list.

If you want to back everything up, simply choose the 'All Except' option and do not mark any of the databases.

The context menu allows you to 'Select All', "Unselect All' or 'Invert Selection'.

Set up automatic backup

To configure automatic backup, check the 'Scheduled' box. By default, all backups are configured for daily backup at midnight. If you want to change it, tap the 'Daily at 12:00 am' area. The schedule setup dialog will come up.

Note: To use automatic backup you have to keep Palm Commander uncompressed in the main memory. If you are using the Program Compression feature, please check that Palm Commander is not compressed.

You can configure a daily or an hourly backup. You can also specify on which days of the week backups should be done. By default, all days are turned on.

When you change the schedule parameters, you can immediately see the time of the next backup.

Backup alarm

When the time for scheduled backup comes, you will see the Backup Alarm dialog.

If you are doing something with your PDA at this time, you can choose one of the options:

1. 'Backup Now'. It will start the backup procedure immediately.

2. 'After 5 min' Program will wait 5 minutes and show the Backup Alarm dialog again.

3. 'After 30 min' Program will wait 30 minutes and show the Backup Alarm dialog again.

4. 'Skip this backup' Program will reschedule the backup as if the backup was done. You

will be returned to the interrupted application immediately.

The dialog has an automatic timer. If you do not make your decision in 16 seconds, the backup procedure will start automatically.

Backup Files

The backup procedure starts by backing up Palm Commander itself. It is needed in case you lose all the information in main memory. The program copies itself into the PALM/Launcher folder on your memory stick. That makes it possible to start the program form the standard application manager. You can find the program in the 'Card' category in the application manager.

After that, the ZLib compression library is saved. It is needed for all compress/uncompress operations. The library is copied to the main backup folder 'PALM/BACKUP'.

All backup archives are located in the main backup folder 'PALM/BACKUP' All archives are ZIP files and have the ".zip" extension. The name of the most recent archive is the name of the corresponding backup profile. Older versions of the same archive have a "_?" suffix, where '?' is the number of the archive. For example "everything_1.zip", "everything_2.zip" and so on.

Restoring

There are two ways to restore backed up databases. First of all, since all archives are regular ZIP files, you can open them as ZIP files and simply drag-n-drop to main memory.

Secondly, you can use the special Restore dialog in the "Tools/Restore" menu.

In the drop-down list you can see all available archives with information about the time of the backup. The list is sorted by time. The most recent archive is listed first.

Once you select one of them, you can see the list of all the databases inside the archive.

Tap the 'Restore' button and all the marked databases will be restored.

The context menu allows you to 'Select All', ''Unselect All' or 'Invert Selection'.

If during the restoration process some protected files were restored, Palm Commander will reset the device after the restoration process. This is necessary because changing protected databases can cause the system to crash.

15.Password Protection

This feature was implemented specifically for one of our customers. He was configuring several Handheld Barcode Scanners (SPT1800) for other people. He used Palm Commander to set up a button launcher and configure all the needed applications. The problem was: he did not want to give all the power of the Palm Commander to the users. So we implemented password protection. Once you set up the password, it will be asked every time somebody starts Palm Commander.

You can open the Password Protection form from the "Options/Password Protection" menu:

The only way to reset the password is to reinstall Palm Commander. You need to know the activation code to accomplish that.

16.Button Launcher

The Palm Commander Button Launcher allows you to assign up to 9 programs to the four standard hard buttons on your PDA. The program will be started based on the number of times you push the hard button. To start the first program you just push the button once, to start the second one – twice, and so on.

You can open the Button Launcher configuration form from the "Options/Button Launcher" menu:

You can see four configuration tabs, one for every hard button. You can use the hard buttons to select the corresponding tab.

For every button you can choose up to four programs. Just use drop-down lists for every "click".

At the bottom of the form you can choose a Timeout. This value will be used on the Start Form.

Usually 1-2 seconds is enough time for most people. However, at first set up it to 3-5 seconds, Later, when you get used to the launcher, you can reduce the value.

Once you have finished configuring the Button Launcher, tap "OK". The configuration form will be closed; from that point on, the Button Launcher can be used.

Now every time you press a hard button, a special Start Form will start up:

On the form you will see all four programs you have configured for the button. Also, the timer will be started and you will see the "timeout" bar at the bottom of the form.

If you do nothing, then when timeout expires, the first program will be started. ("Memo Pad" in our example).

If you push the same hard button again, next program will be selected and the timer will be restarted.

Actually, the process is much simpler in reality. Just try it and you will see how easy it is.

And of course, you can just tap the button on the Start Form to start the program you want. Also you can use PageUp and PageDown hard buttons for selecting rows. And finally if your device has a numeric keyboard you can just use buttons for '1' to '9'.

17.Fonts

You can change the font used by Palm Commander.

Select "Options/Fonts" menu item:
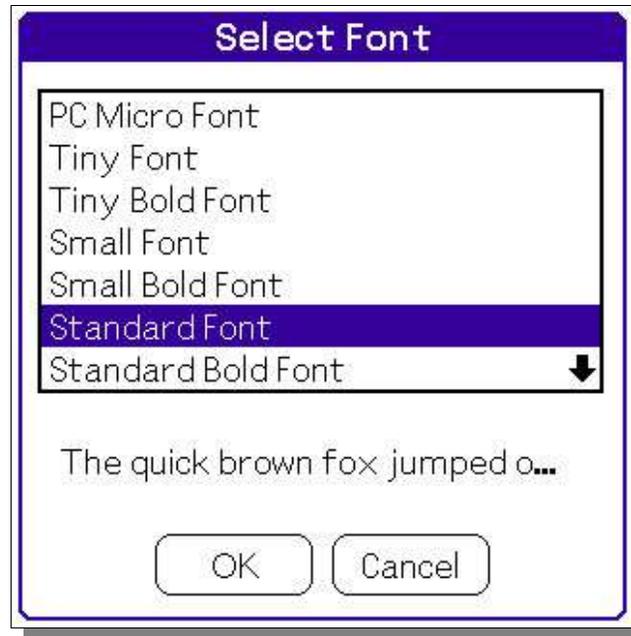
In addition to the standard system fonts, Palm Commander has one more, specifically designed for low-resolution screens: the PC Micro Font. Try this font if you have a 160x160 display.

Palm Commander also supports downloadable fonts. You can find many fonts available on the Internet.

NOTE: The font database should have type 'Font' and the font binary image in the first record. Both low-resolution and high-resolution fonts are supported

Once you install such a file on your PDA you can choose it in the Select Font dialog.

Palm Commander comes with a set of tiny fonts. All of them could be used on a PDA with High-Density Display Palm API support. (Sony CLIE with Palm OS 3 or 4 DOES NOT SUPPORT the API.)

18.Colors

You can also change the colors used by Palm Commander.

Select "Options/Colors" menu item:

19.Options

Select 'Options/Options' menu item:
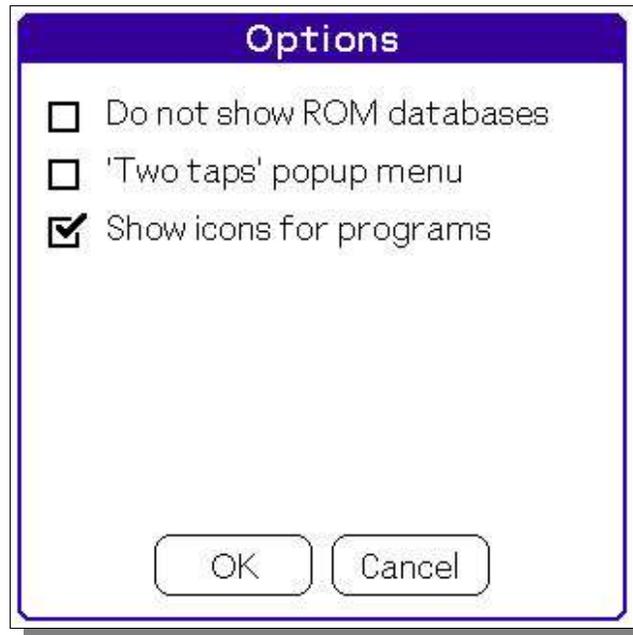
Do not show ROM databases

This option allows you to eliminate all ROM databases from the Databases and Programs views.

If this option is unselected you can use filters to filter ROM databases out. In that case you will see the filter mark ('F') at the top of the panel.

'Two taps' popup menu

This options changes behavior of the pop up menus. If the option is not selected you can invoke the menu and select the option with one move of the stylus. If the option is selected you have to tap the option separately.

Show icons for programs

This option allows you to hide icons on the Programs View.

20. Benchmark Test

Palm Commander has a built-in benchmark test. It allows you to see how fast your device is in comparison to other devices.

The Benchmark test can be activated from the "Tools/Benchmark" menu.

To start the test just tap "Start" on the Benchmark form.

Palm Commander will run several tests for your PDA. During the display test you will see many graphical objects on you screen (lines, rectangles and so on).

When all the tests are finished you will see the result form:
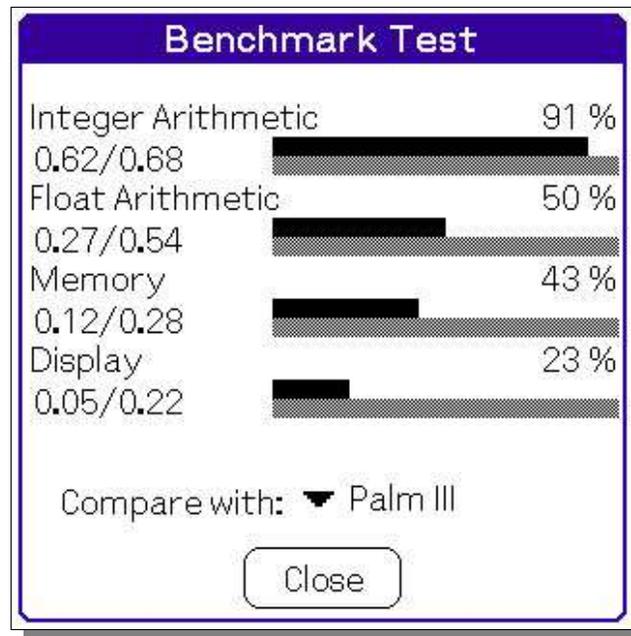
In the drop-down list you can select a Palm OS PDA to compare results with.

NOTE: In every line the first number and the black bar represent your PDA and the second number (after '/') and grey bar represent PDA you selected for comparison.

You can see all the available results on the Palm Commander website:
http:www.PalmCommnader.com/benchmarks.html

Benchmark Algorithms

Here you can see real pieces of code. So you can just copy the code to your program and reproduce the numbers we publish here.

Integer Arithmetic

For integer arithmetic we calculate primes up to 1000.

The result is the number of times we can do it in one second.

```
double TestArithmetic()
{
```

```
#define N_TESTS 3
    int i;
    UInt32 seria[ N_TESTS ];
    double result;
    for( i = 0; i < N_TESTS; i++ )
    {
        UInt32 stop, start = TimGetTicks();
        UInt32 n, d;
        UInt16 np = 0;
        for( n = 3; n <= 1000; n++ )
        {
            int perfect = 1;
            for( d = 2; d <= n / 2; d++ )
            {
                if( ( n % d ) == 0 ) { perfect = 0; break; }
            }
            if( perfect != 0 ) np++;
        }
        stop = TimGetTicks();
        seria[i] = stop - start;
    }
    result = 0.;
    for( i = 0; i < N_TESTS; i++ ) result += seria[i];
    result /= N_TESTS;
    if( result <= 0. ) result = 1;
    result = SysTicksPerSecond() / result;
    return Round( result );
#undef N_TESTS
}
```

Float Arithmetic

For float arithmetic we calculate PI as:

$$\int_0^1 \frac{4}{(1+x^2)}\, dx$$

The result is the number of times we can do it in one second.

```
double TestFloatArithmetic()
{
#define N_TESTS 3
    double result, m = 0.;
    int i;
    UInt32 seria[ N_TESTS ];
    for( i = 0; i < N_TESTS; i++ )
    {
        UInt32 stop, start = TimGetTicks();
        double prevs = 0., delta;

        for( delta = 1.; 1 ; delta /= 2. )
        {
            double s = 0.;
            double x;
            for( x = delta; x <= 1.; x += delta )
            {
                s = s + ( 4. / ( 1. + x * x ) ) * delta;
            }
            if( s - prevs < 0.001 )  break;
            prevs = s;
        }
        stop = TimGetTicks();
```

```
            seria[i] = stop - start;
    }
    result = 0;
    for( i = 0; i < N_TESTS; i++ ) result += seria[i];
    result /= N_TESTS;
    if( result <= 0 ) result = 1;
    result = SysTicksPerSecond() / result;
    return Round( result );
#undef N_TESTS
}
```

Memory

For the memory test we just do MemSet, MemMove and MemCmp calls.

The result is the number of times we can do it in one second.

```
double TestMemory()
{
#define N_TESTS 3
#define CHUNK_SIZE  1024
    double result, m = 0.;
    int i;
    UInt32 seria[ N_TESTS ];
    for( i = 0; i < N_TESTS; i++ )
    {
        UInt32 stop, start = TimGetTicks();
        MemPtr buf = MemPtrNew( CHUNK_SIZE );
        MemPtr buf1 = MemPtrNew( CHUNK_SIZE );
        if( buf != 0 && buf1 != 0 )
        {
            int n;
            for( n = 0; n < 1024; n++ )
            {
                MemSet( buf, CHUNK_SIZE, n );
                MemMove( buf1, buf, CHUNK_SIZE );
                MemCmp( buf, buf1, CHUNK_SIZE );
            }
            MemPtrFree( buf );
            MemPtrFree( buf1 );
        }
        else
        {
            if( buf ) MemPtrFree( buf );
            if( buf1 ) MemPtrFree( buf1 );
            FrmCustomAlert
            (
                AlertWarning,
                "Not enough memory for test",
                "",
                ""
            );
            return 0.;
        }
        stop = TimGetTicks();
        seria[i] = stop - start;
    }
    result = 0;
    for( i = 0; i < N_TESTS; i++ ) result += seria[i];
    result /= N_TESTS;
    if( result <= 0. ) result = 1;
    result = SysTicksPerSecond() / result;
    return Round( result );
```

```
#undef CHUNK_SIZE
#undef N_TESTS
}
```

Display

And finally, for the display test we just do a lot of drawing.

The result is the number of times we can do it in one second.

```
double TestDisplay()
{
    double result;
    UInt32 stop, start;
    UInt32 width = 160, height = 160, depth = 1;
    Boolean enableColor = false;
    RectangleType rect, win;
    int i;
    if( !PalmOS_2 )
        WinScreenMode
        (
            winScreenModeGet, &width,
            &height, &depth, &enableColor
        );

    win.topLeft.x = 0;
    win.topLeft.y = 0;
    win.extent.x = width;
    win.extent.y = height;
    WinEraseRectangle( &win, 0 );
    start = TimGetTicks();
    for( i = 0; i < 512; i++ )
    {
        Coord x = SysRandom( 0 ) % ( width - 1 ) - 20;
        Coord y = SysRandom( 0 ) % ( height - 1 );
        WinDrawChars( "Display Test", 12, x, y );
    }
    FntSetFont( 0 );
    for( i = 0; i < 512; i++ )
    {
        Coord x1, x2, y1, y2;
        x1 = SysRandom( 0 ) % ( width );
        x2 = SysRandom( 0 ) % ( width );
        y1 = SysRandom( 0 ) % ( height );
        y2 = SysRandom( 0 ) % ( height );
        if( i & 1 )
            WinDrawLine( x1, y1, x2, y2);
        else
            WinInvertLine( x1, y1, x2, y2);
    }

    for( i = 0; i < 512; i++ )
    {
        rect.topLeft.x = SysRandom( 0 ) % ( width - 1 );
        rect.topLeft.y = SysRandom( 0 ) % ( height - 1 );
        rect.extent.x = SysRandom( 0 ) % ( width - rect.topLeft.x );
        rect.extent.y = SysRandom( 0 ) % ( height - rect.topLeft.y );
        if( i & 1 )
            WinFillRectangle( &rect, 0 );
        else
            WinInvertRectangle( &rect, 0 );
    }
    stop = TimGetTicks();
```

```
    result = stop - start;
    if( result <= 0. ) result = 1;
    result = SysTicksPerSecond() / result;
    return Round( result );
}
```

21.Platform Specific Features

Sony CLIE

Full screen mode

If your PDA supports Sony CLIE Virtual Silkscreen API you can change the screen mode by tapping the resize button on the status area:

Palm Commander will change its size automatically:

High Resolution API

Palm Commander supports Sony High Resolution API (320x320, 320x480).

No special actions are required to activate this feature, Palm Commander automatically recognizes and activates the Sony High Resolution API.

Jog Dial

You can use the Jog Dial button for selecting multiple lines in the list and also for invoking the Operation menu at the and of drag-and-drop move.

Handspring Treo

Jog Dial

You can use the Jog Dial button for selecting multiple lines in the list and also for invoking the Operation menu at the and of drag-and-drop move.

AlphaSmart Dana

Wide Screen

Palm Commander supports Dana 560x160 wide screen. Both panels always have three columns on the Dana screen: