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INTRODUCTION

Foreword

Please note: this manual is a self-training guide. We advise you to refer to the online help when you are using WinDev Mobile.

The aim of the tutorial is to help you discover WinDev Mobile, get to know the editors and teach you the WinDev Mobile basics. It does not cover all the features of WinDev Mobile.

This guide is intended for developers with experience of the standard WinDev and who know how to handle a Pocket PC. It only describes the concepts specifically for developing an application for Pocket PC.

If you are not familiar with the standard WinDev, we recommend you start by practising with the standard WinDev tutorial.

Note: You can call the PC SOFT sales department any time if you need the standard WinDev tutorial.

You should allow a few hours to follow this course and learn about WinDev Mobile: you’ll find it was worth it!

If you try to develop an application before practising, you will lose time, and much more than a few hours.

This tutorial is designed so you can approach it in two different ways:

• either you follow all the detailed exercises in each lesson (recommended method);

• or, if you are in a hurry and already have some experience, you can read through it without doing the examples, as all the exercises have screen shots. However, to get used to WinDev Mobile quickly, we recommend that you follow it step by step.

WinDev Mobile evolves all the time, so the screen shots in this guide may be different from what you see in the actual product.

The language aspect is only one of the many parts of development. Programming is a lot easier if all the development aspects are taken into account.
Overview of the tutorial

This tutorial has been designed for you to learn how to use WinDev Mobile gradually. When you follow it:

• you will discover the key concepts explained here informally; these are the concepts you need to learn and understand;
• you will be expected to perform tasks that demonstrate the concepts just explained.

You will find in the appendices page 129 a glossary of terms in this guide you might not understand.

As you progress through the tutorial, if you wish to take a closer look at a concept, or if you want more details about a programming function, use the online help (accessed directly via the editors or the guide).

The size of a lesson is not necessarily proportional to its relevance.

And don’t forget to take a look at the examples provided with WinDev Mobile: they are very instructive!

Some examples supplied with WinDev Mobile are not yet available in English version. Please visit our Web site (www.windev.com) on a regular bases to download available upgrades.

How to access online help

1. Press [F1] when in the code editor for specific help on a selected function.
2. The button in each window.
3. Via the editors, press the [F1] key.
4. In the editors, use the drop-down help menu (accessed by “?”) for the help contents or to search for specific information.

The guide

The guide contains over 150 wizards and many examples. It is accessed with the “saucer” ( ) and lets you get to know about WinDev Mobile features and even discover features you know little or nothing about!
Introduction

Legend of symbols

This symbol shows the duration of the lesson and its examples. Please note the actual time may vary with your level of experience.

An example is available to round off the lesson.

This symbol introduces a “Tip”. We advise you to read the text beside it.

This symbol introduces a "Warning". It is highly important to read the text beside it.

This symbol introduces a "Note". We advise you to read the text beside it.

This symbol gives the result of a "Test". We advise you to read the text beside it.

What is WinDev Mobile used for?

WinDev Mobile is an IDE (Integrated Development Environment) used to develop applications for many purposes:

- Stock management
- Inventories and traceability
- Adjustment and monitoring of machines on an assembly line
- Taking orders for fast processing in a temporary outlet (fairs, schools, stand, etc.)
- Customer data sheets
- Help with making snap decisions on a cell phone
- Checking the identity of visitors at an event: trade fair, product presentation, etc.
- Doctors or vets away from their surgeries
- Gathering information in temporary situations: trade fair, street polls, sports stadium, etc.
- Restoring leased heavy equipment (tools, vehicles, etc.) to a parking lot
- etc.

WinDev Mobile is a development tool which integrates all the tools required for an application life cycle.
Unlike other traditional programming languages, you don't need to find and add modules to be able to design, test and install an application.
The WinDev 5GL (5th Generation Language), W-Language, will surprise you by its simplicity: a few hours are all you need to get the hang of it, a week is usually all it takes to fully master its potential.

Note: In this guide, the term "Pocket PC" is used for all types of platform (Pocket PC, Smartphone, Psion, etc.). For special cases, the name of the platform involved is specifically mentioned.
Part 1
Discovering
WinDev Mobile

PC SOFT
LESSON 1.1. YOUR FIRST APPLICATION

This lesson will teach you

- How to create a window to use with Pocket PC.
- How to test the window.
- How to create the executable and setup programs for the application.
- How to install the window on a Pocket PC.

Estimated time: 1h

The "First step.WPP" project in the "\Tutorial\Answers\First step" directory corresponds to the full project with the answers to this lesson. Open it with the "? .. Tutorial .. First step" option.

You can follow this lesson without having to open the project.
Now down to work!

The first time you run WinDev Mobile, the following wizard opens:

This wizard will help you to set the WinDev Mobile environment.

- Answer the questions it asks.

All the WinDev Mobile wizards can be customized. You can illustrate their windows with your favorite images: stills, animated images, images from the catalog or ones you have imported (like snaps of your kids).

To customize a wizard, right-click with the mouse on the wizard image and select the image you want.

E.g.:

For more details, see the online help (keyword: “Wizards”).
**Running WinDev Mobile**

When WinDev Mobile starts, the following window displays:

![WinDev Mobile Window](image)

This window is used to access the most common functions when WinDev Mobile is run. For our first application, we are going to create a new project.
How to create a project

To create our first project:

- Select the option "Create a project". The project creation wizard opens. Note: You can also run the wizard with the option "File.. New.. Project".
- Click "Next".
- Select the platform your application is to run on.

You can use WinDev Mobile to develop applications different product families: Pocket PC, Smartphone, Psion, etc.

In each family, you can set:

- window size
- menu position
- title bar size
- the image used in test mode (simulator image). This enables you to test your application in an environment similar to that of your end-users.

The run platform is made up of all these characteristics.

The same application can be run on different platforms (such as Pocket PC and Smartphone).

However, we advise you to create an application per platform. Some characteristics can differ from one platform to another (screen size, menu management, keypad management, etc.).

For more details on creating a project for Smartphone, see the lesson "Application on Smartphone", page 36.
Optional step: Click the "Advanced" button. The following window displays:

To set the characteristics of platform the project is to run on, you can:
- automatically detect the characteristics of the personal wizard platform connected to the current workstation: Click "Detect".
- or specify all the platform characteristics manually.

Note: These characteristics can be modified later ("Platform" button in the project description window, option: "Project .. Project description").

Close the window, keep the selected "Pocket PC" option and click "Next".
Enter the project name "First step". This is the name the project file is saved by, with the extension "WPP". The project directory is initialized by default as "My Mobile Projects\First step".

Validate by clicking "Next".

Next you choose the appearance of your application by selecting a template. Select the "ActivOSX" template, for instance.

WinDev Mobile offers a wide selection of templates. These give your application a nice personal look.

Too often, applications built for Pocket PC all look alike: square window, white background, blue title bar, gray buttons, no image; a little dull, which is a pity because this is your first contact with your end-user!

With WinDev, you can select the template of your choice from dozens of models. Your windows, buttons and reports are all "dressed up" in a few seconds!

You can also create your own templates. This is an advanced feature of WinDev Mobile. For more details, see the online help (keyword: "Template").

Validate by clicking "Next" until you get to the screen entitled "Analysis used by the project".

The project is not to be linked to an analysis. Select the option "Don't use an analysis".

Click "Done" to validate
The following window displays:

Creating your first window
You are going to build the following window:

This window is neither more nor less than a timer.
You may think this is a pretty basic, but we do recommend you to build this window. You may well be surprised by how intuitive and easy it is to use the WinDev Mobile editor. Furthermore, this window will teach you some principles that are fundamental for the rest of this tutorial.
To create the window:

1. Select "Create window". The window creation wizard is displayed. Note: You can also run this wizard by clicking the button in the WinDev Mobile toolbar and selecting "Window".
2. Select "Blank window wizard".
   By default, this window uses the template selected when the project was created.
3. Click "OK". The new window creation wizard opens. Enter the information on the window (type, name, title, etc.).
4. Select the window type.

Two types of window can be created with WinDev Mobile:

- Maximized window: Window taking up the entire screen on the Pocket PC.
- Not maximized window: Window the user can resize and taking up only part of the screen on the Pocket PC.

Select "Maximized" and click "Next".
Select the elements in the window.

A maximized window can contain a range of elements:

- **Close/OK button**: to close or validate the window. This button is linked to a process to customize window closing.
- **Upper bar**: to display information, buttons, etc.
- **Vertical scroll bar**: displays automatically if the window is larger than the resolution the Pocket PC allows.
- **Tabs**: to display information in different panes. The user chooses the tab required.
- **Menu and toolbar**: to give the user quick access to a function of the application. In a Pocket PC application, this menu is at the bottom of the windows.

Keep the options selected by default ("Close" button) and click "Next".

**Resizeable window**

Elements that can be displayed in a resizeable window are:

- Upper bar: to display the window title, and buttons like Close and OK.
- Close/OK button: to close or validate the window.
  
  This button is linked to a process to customize window closing.
- Window frame.

A resizeable window can be moved from the base and resized.

For more details on windows and their characteristics, see the online help (keyword: "Window").

Enter the window name: "Timer".

The window name is used in programming to handle the window. It is also used to save the window on hard drive (with the extension "WPW"). The window title is automatically the same as the window name. Do not change it.
Validate the creation wizard ("Done" button). The new window appears in the window editor. 
Note: all the window characteristics specified in the wizard can be modified later in the description window ("Description" option in the popup menu).

Creating window controls

Creating image controls
To give the window a cheerful look, we are going to insert some images. You find these in the WinDev Mobile image catalog. The first control is a static image of a timer. The second is an image that will be animated when timing starts.

To create the first image control:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Enter the control name: "FixedImage".
4. Link an image to the control:
   • click the "Catalog" button;
   • check "80x80" if necessary;
   • enter "Timer" in the "Find" control and click the "Find" button;
   • select the image you want and validate;
   • validate the window asking how many image reports to use.
5. Select the "Centered" display mode ("Display mode" combo box).
6. Validate with "OK".

To create the second image control:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Enter the control name: "AnimatedImage".
4. Link an image to the control:
   • click the "Catalog" button and display the "Goodies" tab;
   • select the "Animations" option, click the animation you want and validate.
   The image will be animated automatically.
5. Select the "GUI" tab.
6. Uncheck the "Visible" option. The image will only be displayed when the timer is working.
7. Validate with "OK".

Note In WinDev Mobile, authorized image formats are: BMP, JPEG, GIF and ICO.

Creating edit controls
Now we create three edit controls to display information on the timer (start time, stop time and timed duration).
Part 1: Discovering WinDev Mobile

To create the first edit control:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the “Description” option.
3. Enter the control name: “StartTime”.
4. Enter the caption: “Start time:”. 
5. Select the “Time” type. This control will display the time the timer starts.
6. Select the “HH:MM:SS:CC” input mask and the “HHMMSSCC” return value. This format is used to calculate the timed duration by programming.
7. Select the “GUI” tab.
8. Select the “Display only” option. No data can be entered in this control.
9. Validate with “OK”.

You create the other two input controls in the same way. Only their names and captions are different:
• the second control is called “EndTime” and its caption is “End time:”; 
• the third control is called “Duration” and its caption is “Duration:”.

Creating the buttons

Now we create the buttons to start and stop the timer.

To create the start button:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the “Description” option.
3. Enter the caption “Start”.

Creating the buttons
4. Click the icon and enter the following code lines:

```plaintext
StartTime = Now()
AnimatedImage..Visible = True
TimerSys(CalcDuration, 10, 1)
```

To create the procedure to calculate the time that has elapsed:
1. Select the option "Insert .. New local procedure".
2. Enter the procedure name "CalcDuration" and validate.
3. Enter the following code lines:

```plaintext
PROCEDURE CalcDuration()
StartTime = Now()
EndTime = Now()
Duration = IntegerToTime(TimeDifference(...
                      StartTime, EndTime))
```

To create the timer stop button:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Enter the caption "Stop".
4. Click the icon and enter the following code lines:

```plaintext
EndTimerSys(1)
AnimatedImage..Visible = False
```

Development of the window is complete. Now we are going to test it.

**Window test**

WinDev Mobile has two types of test:
- test on the development workstation (in simulation mode). This test simulates a Pocket PC on the development workstation. It is mainly designed for using the debugger;
- test directly on the Pocket PC connected to the development workstation. This test simulates how the executable runs the application. The debugger is not available.

The performance of certain functions depends on the platform used (operating system, character string format etc.).
The test of a project or window in simulation mode may reveal differences compared with real use of the application on a Pocket PC. For these differences, see the online help (keyword: "Test, Differences between test mode and actual use").
Test in simulation mode

Now we test the window in simulation mode.

- Click the “GO” icon (or press [F9]). The window test runs. It is run by a simulator.

- Test the buttons and watch what changes in the window.

All developers know that program tests are a long and tiresome business. With WinDev Mobile, you test the window (or report) you are developing with ONE CLICK. It’s that quick and easy!

With WinDev Mobile you can customize the simulator you use to test in GO mode. This means you can choose the shape of the Pocket PC for your tests.

To customize the simulator, right-click on the simulator image and select one to use.

E.g.:

---

For more details, see the online help (keyword: “Simulator”).

- Close the window ("X" button in the title bar). The WinDev Mobile editor redisplay.
Test on Pocket PC
Now we shall test the window directly on Pocket PC. To do so, a Pocket PC must be plugged into the current workstation.

Before connecting a Pocket PC to a computer, we advise you to install the "ActiveSync" program on the PC. This software is used to synchronize data between a PC and a Pocket PC. ActiveSync is generally provided with the Pocket PC. It can also be downloaded from the internet. ActiveSync runs automatically when a Pocket PC is plugged into a PC.

To test the timer on the Pocket PC, click the arrow on the right of the "GO" icon. A popup window displays:

Click the option "Run Project Test (pocket)". You must define which window will display first (if you haven’t already done so). In our example, there is only one!
Part 1: Discovering WinDev Mobile

This window will be called "First project window".

Select our single window: "Timer" and validate.

- To run the application test on the Pocket PC or Smartphone connected to the PC, the project executable program must have been generated. If it hasn’t, the executable creation wizard will run automatically.
  Keep the default options: click "Done".
  *Copy files on Pocket PC* displays. Click "Done" again.

The window runs automatically on the Pocket PC:

- Test the buttons and watch what changes in the window.
- Close the window ("X" button in the title bar).

When the test is run on Pocket PC, you can unplug the Pocket PC from the PC and carry on using the application.
However, if you close the application (or window), the test can only be run if you plug the Pocket PC back into the PC.
To run the application on Pocket PC without it being plugged into the PC, you must create the application executable program (see “Creating the executable program”, page 32).
Window characteristics

All the characteristics of the window you defined when you created it can be modified in its description window.
E.g.:

![Window description settings](image)

Reminder: To open the window, select the "Description" option in the WinDev window popup menu (or double-click the WinDev window).

Changing the window type

Now let's see what changes when we change the window type.

- Select the "Description" option in the WinDev window popup menu. The window description displays.
- Display the "Details" and/or "Style" tab and change the window characteristics (resizeable window, title bar, "OK" button, status bar, etc.).
- Apply the description changes and view the modified window.

Tip
For help on a specific option, click the icon and the option you want.

Note
Controls can be anchored with WinDev Mobile. If they are, you can use the same window with different platforms.
Special window closing process
The "OK/Close" button in the title bar of a window is linked to a special process. This means you can customize window closing or validation. By default, this button closes the window automatically. Let's display a dialog box for when the window is closed.

- To display a dialog box when the window closes:
  1. Check the "Close" button is in the window title bar ("Style" tab in the description window).
  2. In the editor, display the "Close" button popup menu (right click) and select the "Button code" option. The "Before closing with OK/Close button" process displays.
  3. Enter the following code lines:

```
IF YesNo("Do you want to close this window?")...
   = False THEN
   ReturnToCapture()
END
```

- No: the window stays open
- Yes: the window closes automatically

4. Test the window and close it with the "X" button.

Tip
In the "Before closing with OK/Close button" process, the ResumeEdit function cancels window closing.

Creating the executable program
Create the executable program
Your window is now done. You were able to test it during its development. But what about creating the executable?

- To create the executable program from the WinDev Mobile environment:
  1. Click the option "Workshop .. Generate executable" or the icon.
  2. The executable program creation wizard is launched.
  3. Click the "Next" button.
  4. By default, the executable program will be created with the same name as the project.
  5. Click the button to pick an icon.
  6. Pick an icon among the ones offered (such as a timer).
5. Click the "Next" button several times until you get to the "Framework" plane.

Each W-Language function is linked to a WinDev Mobile library (".DLL" file). For the executable program to work properly, all the requisite libraries must be installed with it. The full set of WinDev Mobile libraries is also called a Framework.

To install the Framework, WinDev Mobile offers:

- the PC SOFT Framework: the WinDev Mobile Framework is installed in the Pocket PC "windows\PC SOFT\WD9.0" directory. The Framework is only copied to the Pocket PC when the application is first installed or updated. This option limits the amount of storage space used on the Pocket PC: all the WinDev Mobile applications use the same Framework.

- or a set of renamed DLLs (framework customized by the application): each WinDev Mobile DLL the application uses must be renamed (next wizard plane). These DLLs are installed in the executable directory. The DLLs are copied to the Pocket PC every time the application is installed. Each WinDev Mobile application uses its own set of DLLs.

6. Now click the "Done" button to start creating the executable program. The default parameters are automatically applied.

If you want to find out more about the other parameters available for creating an executable program, see the online help (keyword: "Executable").

Congratulations! You now can create standalone executable programs. These programs are compatible with all the versions of Windows for Pocket PC!
Testing the executable program on the Pocket PC connected to the development workstation

When you have finished creating the executable program, the wizard offers to copy it to the Pocket PC connected to the current workstation.

To copy the executable to the Pocket PC:
1. Select "Yes: Copy the executable to Pocket PC".
2. Specify the target directory on the Pocket PC.
3. Select "Launch the application on Pocket PC at the end of copy".
4. Select "Don’t copy PC SOFT Framework if already found on Pocket PC".
5. Validate ("Done" button).

Note

Copying the executable program to the Pocket PC can take some time (because of the PC SOFT Framework copied when an WinDev Mobile application was first installed). Future copies to Pocket PC will be quicker.

If an antivirus is installed on the development workstation, real-time protection of the file system may slow down the copy process quite a bit. To counter this, deactivate protection when copying the executable program.
As soon as the executable program is copied, the application is run automatically on Pocket PC. It can be run without the Pocket PC being plugged into the PC.

Distributing your application

WinDev Mobile simplifies the distribution of your application.
A wizard guides you through the installation procedure (menu choice "Workshop.. Create executable setup procedure").

The setup program (in MSI format) is generated in a directory which can be copied to a range of distribution media.
By default, the setup program is generated in the "Install" subdirectory of the application directory (on the development workstation).

To install your application, run the setup program (*.MSI file) on a PC:
- If the PC is connected to a Pocket PC, the application will be installed on the Pocket PC est immediately.
- If no Pocket PC is connected, the application will be installed the next time the PC and Pocket PC are synchronized.

The files required for the application are automatically installed in the specified setup directory.

When an application setup program is created, you can configure the application to run automatically at a given time.

The application can run:
- when the Pocket PC is started (after reset for instance)
- after the Pocket PC is synchronized (with ActiveSync)
- at the end of standby mode on the Pocket PC ("On/Off" button)

You can also configure the application to run automatically by programming with the functions AutoRunAdd et AutoRunDelete.
Lesson 1.2. Application on Smartphone

This lesson will teach you

• To create your first window to use with Smartphone.
• To test the window.
• To send an SMS.
• To manage the SIM card.

Estimated time: 40 min

The "SMS.WPP" project in the "\Tutorial\Answers\SMS" directory corresponds to the full project with the answers to this lesson. Open it with the "?.. Tutorial .. SMS".

You can follow this lesson without having to open the project.
Overview

We are now going to create an application to send an SMS. An SMS (Short Message Service) is a text message (of no more than 160 characters) sent on a cell phone.

To use SMS functions, the application must be installed:
• on a Pocket PC with phone access (such as GSM).
• and/or on a Smartphone.

How to send an SMS

To send an SMS with WinDev Mobile, enter the SMS description: its message, recipient number, etc. This information is in the SMS structure.

The SMS structure is as follows:

<table>
<thead>
<tr>
<th>Retry</th>
<th>Boolean (True by default)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indicates if the message should be sent regularly in case of non-reception.</td>
</tr>
<tr>
<td>Message</td>
<td>Character string containing the message to send (no more than 160 characters).</td>
</tr>
<tr>
<td>Number</td>
<td>Character string containing the correspondent’s number.</td>
</tr>
<tr>
<td>CountryPrefix</td>
<td>Character string containing the national prefix (1 by default for the United States).</td>
</tr>
<tr>
<td></td>
<td>If the correspondent’s number starts with &quot;0&quot; and a national prefix is specified, the prefix will replace the &quot;0&quot;.</td>
</tr>
<tr>
<td></td>
<td>If a national prefix is not specified, use the number in international format.</td>
</tr>
<tr>
<td></td>
<td>E.g.: 1612345678.</td>
</tr>
</tbody>
</table>

When the SMS is described, use the SMSSend function to send the SMS.
Part 1: Discovering WinDev Mobile

Creating the application

We are going to create an application with a single window. This window is used to enter the SMS text and the recipient’s number. There is a check box to define if the message should be sent regularly in case of non-reception.

Creating the project

To create the application:

1. Select the "File .. New .. Project" option. The project creation wizard opens.
2. Click "Next".
3. Select the platform the application is to run on: Windows mobile telephone.
4. Click "Next".
5. Specify the project name and description: "SMS" and "Project to send an SMS" for instance.
6. Validate by clicking "Next".
7. Select the project template, "BlueSky" for instance and click "Next".
8. This project will not have an analysis. Select the "Don't use an analysis" option and click "Next".
9. Validate by clicking "Done". The following window displays:

Now we create the window to send the SMS.
Creating the window

You are going to create the following window:

Compared to the "Timer" window created in previous lesson's project, you can see straight away that Smartphone windows are really small.

- To create the window:
  1. Select the option "Create a window". The window creation wizard displays.
     Note: You can also run this wizard by clicking the icon button in the WinDev toolbar and selecting "Window".
  2. Select "Blank window wizard".
     By default, this window uses the template selected when the project was created.
  3. Click "OK". The new window creation wizard opens.
  4. Keep the "Maximized" mode and click "Next".
  5. Keep the "With menu" option checked and click "Next".
  6. Enter the window name: "SMS" and title: "Sending an SMS".
  7. Validate ("Done" button). The new window appears in the window editor.

Note: The characteristics of a window for Smartphone and a window for Pocket PC are practically identical. We described them in the previous lesson.
Create the window controls

Creating edit controls
We're going to create two edit controls to enter the message and the number of the SMS recipient.

To create the first edit control:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Enter the name: "SMSMessage".
4. Enter the caption: "Message:"
5. Select the number of characters: "160 characters". The maximum length for an SMS is 160 characters.
6. Select the "General" tab.
7. Select the "Multiline text" option.
8. Select the "Details" tab.
9. Select the "Vertical scrollbar" option.
10. Select the "Style" tab and a style where the control caption is "overlapping".
11. Validate with "OK".

Note
To enter the text of the message, use the Smartphone keys.
For more details on Smartphone edit modes, see “Input mode”, page 88.

To create the second edit control:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Enter the name: "SMSNumber".
4. Enter the caption: "Number:"
5. Select the input mask: "Phone number".
Part 1: Discovering WinDev Mobile

6. Select the number of characters: "13 characters". The maximum length for a phone number is 13 characters.
7. Select the "Style" tab and a style where the control caption is "overlapping".
8. Validate with "OK".

Creating the check box
Now we create the check box to define if the SMS should be sent regularly in case of non-reception.

To create the check box:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Enter the name: "ReSend".
4. Enter the caption: "ReSend".
5. Enter the option: "Resend if not received".
6. Click the "Style" tab.
7. Select a style "No caption".
8. Validate with "OK".

Note
When you edit a numeric edit control or an edit control using an input mask consisting of digits only, the edit mode automatically changes to "123" mode: only the digits linked to the keys can be displayed.
For more details on Smartphone edit modes, see "Input mode", page 88.

Note
To check a check box option, give the option focus (with the joystick) and press the joystick to validate.
For more details on Smartphone edit modes, see "Input mode", page 88.
Part 1: Discovering WinDev Mobile

Describing menu items

By default, two menus are automatically created at the bottom of the window. The "Done" menu is used to close the application. We are going to add two subitems to send the described SMS and describe a new one.

To add subitems:
1. Click the menu on the right and press [Enter] to add a subitem.
2. Enter the caption "Sent" in the new subitem.
4. Press [Enter] again to add another subitem.
5. Enter the caption "New" and press [Enter] again to validate.
6. Select the "Sent" subitem and press [F2].
7. Enter the following code lines:

```
SMS.Message = SMSMessage
SMS.Number = SMSNumber
SMS.Retry = Resend
SendRes is boolean = SMSSend()
IF SendRes = False THEN
   Error(ErrorInfo(errMessage))
ELSE
   Info("SMS sent")
END
```

8. Go back to the window editor, select the "New" subitem and press [F2]. Enter the following code line:

```
SMSReset()
Reset()
```

Initializing the SMS structure
Sends the SMS
Error occurred?
Resets the SMS structure
Resets the window controls
Now let's test the way the window works.

**Testing the application**

As we have already seen, WinDev Mobile has more than one type of test:
- test on the development workstation (in simulation mode);
- test directly on the Pocket PC connected to the development workstation.

An SMS can only be sent from a Pocket PC with phone access (like GSM) or via a Smartphone. So it is not possible to test the application on the development workstation (in simulation mode). If you test on the development workstation, a W-Language error is generated when the "Sent" and "New" menu items are used.

To test the application, a device for managing SMS must be plugged into the development workstation.

- To test the SMS send application:
  1. Plug a Pocket PC with phone access or a Smartphone into the development workstation.
  2. Click the "Run project test (pocket)" icon (or select the option "Project .. Test mode .. Run Project test (pocket)").
  To run the application test on the Pocket PC or Smartphone, the project executable program must have been generated.
  3. If necessary, specify which window will be displayed first. Select the "SMS" window.
  4. If the project executable program has not been created, the executable program creation wizard opens.
  Keep the default options and click "Done".
  The plane "Copy the executable to Pocket PC" displays. Click "Done" again.

**Note**

When subitems are added to the menu, the digits "1" and "2" are automatically added beside the caption of each subitem. These give direct access to the subitem via the Smartphone keys.

Only two menus can be displayed at the same time on Smartphone. They are usually accessed by buttons just below the Smartphone screen. The menu items can be accessed by the Smartphone keys and/or joystick.
The application runs automatically on the Pocket PC:

Enhancing the application: SIM card management

Now we shall complete the window by enabling the user to retrieve a number from his/her personal directory (SIM card).

Adding the requisite elements

Creating the button control

We’re going to add a button to the window to display all the numbers in the SIM card (i.e. personal directory).

To press a button, give it the focus (with the joystick) and press the joystick to validate.

For more details on Smartphone edit modes, see “Input mode”, page 88.
To create the button:
1. Click the icon and drag the control to the window.
2. Right-click the control and select the "Description" option.
3. Delete the button caption.
4. Link an image to the control:
   • click the "Catalog" button
   • check "16x16" if necessary
   • enter "Arrow" in the "Find" control and click the "Find" button
   • select the image you want and validate
   • validate the window asking how many reports to use.
5. Validate with "OK".

Creating the second application window

Now we create the following window. This is used to display the information in the SIM card.

To create the window:
1. Click the button in the WinDev Mobile toolbar and select "Window".
2. Select "Blank window wizard". The new window creation wizard displays. By default, this window uses the template selected when the project was created.
3. Click "OK". The new window creation wizard starts.
4. Keep the "Maximized" mode and click "Next".
5. Keep the "With menu" option checked and click "Next".
6. Enter the window name: "SIMCard" and title: "SIM card".
7. Validate ("Done" button). The new window appears in the window editor.

To create the table:
1. Click the icon and drag the control to the window. The table creation wizard starts.
2. Keep the option "I want to fill the table myself" and click "Next".
3. Select the option "Table in display" and click "Next".
4. Specify the number of columns: "2" and enter the title of each column: "Name" and "Number".
   Click "Next".
5. Enter the name: "Directory".
6. Enter the title: "Directory:".
7. Validate ("Done" button).
   Adjust the size of the table if necessary.
8. Press [F2] and enter the following code lines in the "Initialization" process:

   ```plaintext
   Subscript is int
   FOR Subscript = 1 TO SIMNbContact()
     TableAdd(Directory, SIMRead(Subscript))
   END
   TableSort(Directory, "name")
   TableSelectPlus(Directory, 1)
   Adds each entry to the table
   Sorts the elements in the table by name
   Selects the 1st line
   
   To define the left-hand menu:
   1. Select the left-hand menu.
   2. Right-click the menu and select "Option description".
   3. Enter the caption: "OK".
   4. Click the icon and change the code for the following code line:

   Close("", Number)

   Retrieves the number and closes the window

   To define the right-hand menu:
   1. Select the right-hand menu.
   2. Right-click the menu and select "Option description".
   3. Enter the caption: "Cancel".
   4. Click the icon and enter the following code line:

   Close("", ")

   Closes the window without retrieving the number

   Opening the "SIMCard" window
   You have now finished developing your "SIMCard" window. Now we go back to the "SMS" window to enter the code for opening the "SIMCard" window.

   To open a "SIMCard" window by programming:
   1. Display the "SMS" window in the editor.
   2. Select the button you created before and press [F2].
3. Enter the following code line:

```vcl
SIMNumber = Open(SIMCard)
```

SIM card management is over. Now we can test our application.

**SIM card management test**

- To test SIM card management:
  1. If necessary, plug a Pocket PC with phone access or a Smartphone into the development workstation.
  2. Click the icon "Run Project Test (pocket)" (or select the option "Project .. Test mode .. Run Project Test (pocket)"). The application automatically runs on the Pocket PC.

![SIM card window](image)

3. Try and retrieve the phone number of someone you know.
Creating the executable program and distributing the application

You create the executable program and distribute the application for Smartphone in exactly the same way as for a Pocket PC application.
We described these features in the previous lesson.
Part 2
Database
LESSON 2.1. INTRODUCTION

This lesson will teach you

• The database formats managed by WinDev Mobile.

Estimated time: 10mn
Part 2: Database

Database format

A WinDev Mobile application can handle databases in the following formats:
- Hyper File Mobile, the integrated WinDev Mobile database.
- CE Database, the database system for Pocket PC.
- Oracle Lite, the Oracle database for Pocket PC.
- SQL Server CE, the SQL Server database for Pocket PC.
- etc.

Hyper File Mobile

Hyper File Mobile is the database format provided with WinDev Mobile. It is compatible with WinDev, WinDev Mobile and WebDev.

It is a freely distributable Relational DBMS.

It is in the same format as the standard WinDev and WebDev Hyper File (".WDD" file, data files, etc.).

However, a Pocket PC is small and its operating system is limited, so the following features are not supported by Hyper File Mobile:
- transactions
- log operations
- Hyper File replication
- file and record lock management
- management of files in Hyper File 5.5 format.

Note

You can however open and use an analysis using one of these features (replication, log operations, etc.). You can use the same analysis in a WinDev Mobile application and a standard WinDev application.

You can use the Hyper File Mobile format to:
- access records quickly
- optimize search time
- handle large databases
- synchronize Hyper File Mobile files on a Pocket PC and Hyper File files on a PC
- etc.

In short, you’ll find most of the Hyper File Mobile features in WinDev Mobile (file links, queries, filters, views, etc.).
Part 2: Database

For more details on using Hyper File Mobile data files with a WinDev Mobile application and a standard WinDev application, see the lesson “Application interaction”, page 79.

CE Database

CE Database is a format supported by Pocket PC.
A CE database is a "CDB" file. It can contain several data files (also called tables).

There are two types of CE databases:
• standard CE databases, the default ones for Pocket PC. They contain data files such as "Tasks", "Contacts", "Appointments", etc.
• other (custom) CE databases, corresponding to Access databases (".MDB" file) previously exported from a PC.

Note: When an Access database (".MDB" file) is copied to a Pocket PC (via the explorer), it is automatically converted into a CE database (".CDB" file).

A CE database can be used:
• from a WinDev Mobile application
• from a standard WinDev application

You do this with the W-Language cdbXXX functions.

NB: The structure of CE databases is not suited to processing large volumes of data, so we advise you to use Hyper File Mobile databases. What’s more, with Hyper File Mobile you have all the WinDev Mobile functions (RAD, files links, etc.).

Example

The "Pocket Notes", "Pocket Presence" and "Pocket Telephony" examples provided with WinDev Mobile use Hyper File Mobile files.

Test

When you test a WinDev Mobile application using Hyper File Mobile files, you use the ones on the PC workstation.

Example

The "Pocket Expense Account" and "Pocket Poll" provided with WinDev Mobile use CE databases.
Part 2: Database

For more details on using an application linked to a database in CE format, see the lesson “CE Database Files”, page 59.

For more details on using a CE database with a WinDev Mobile application and a standard WinDev application, see the lesson “Application interaction”, page 79.

Oracle Lite and SQL Server CE

These database formats are accessed via a Native Access. To use a Native Access, you need an extra WinDev Mobile module.

For more details, contact the PC SOFT sales department.
LESSON 2.2. HYPER FILE MOBILE FILES

This lesson will teach you

• To generate Full Application RAD.
• To manage data files.

Estimated time: 20mn

The "Product Catalog.WPP" project in the "\Tutorial\Answers\Product Catalog" directory corresponds to the full project with the answers to this lesson. Open it with the "? .. Tutorial .. Hyper File Mobile (with answers)".

You can follow this lesson without having to open the project.
Overview

In the previous lesson, you learnt about the Hyper File Mobile database format. And as a user of the standard WinDev, you are already familiar with the main characteristics of this format.
This lesson explains succinctly how to generate a full application by RAD for Pocket PC from a Hyper File Mobile analysis.

Generating a full application

To generate the application, we shall use an existing project.

- Open the "Product catalog.WPP" project in the "Tutorial\Exercises\Product catalog" subdirectory in the WinDev Mobile setup directory.
  Note: You can open the project directly by selecting the option "? .. Tutorial .. Hyper File Mobile (exercise)".

This project is linked to the analysis below:

We have deliberately chosen simple files for this exercise:
- a CUSTOMER file
- an ORDERS file
- an ORDERLINE file
- a PRODUCT file
Now we shall create the project’s windows and reports.

To generate the full application:
1. Select the option "Workshop .. Full Application RAD". The RAD wizard opens. Click "Next".
2. Keep the option "Procedural programming" and click "Next".
3. Keep the option "W-Language commands" and click "Next".
4. Choose a template et click "Next" several times until RAD generation starts.

The project graph is drawn automatically when the application has been generated. The full application is already operational.

As you can see, you create a full application by RAD in exactly the same way with WinDev Mobile as with standard WinDev. Yet another instance of the legendary simplicity of WinDev.

You can test the application:
• in simulation mode on the development workstation: select the option "Project .. Test mode .. Run Project Test (simulator)".
• directly on the Pocket PC connected to the current workstation: select the option "Project .. Test mode .. Run Project Test (pocket)".
Managing data files

Generating data files
When you call the W-Language function HCreate or HCreateIfNotFound, the data files (".FIC" extension), index files (".NDX" extension) and memo files (".MMO" extension) are created automatically.

In test mode ("GO" icon), these files are created on the development workstation (in the default executable program directory).
In real use on Pocket PC, these files are created on the Pocket PC (in the default executable program directory).
In all cases, this directory can be modified before the file is created with the HChangeDir and HSubstDir functions.

Note: You must use a specific file path format with Pocket PC. For more details, see “Managing directories in Windows for Pocket PC”, page 72.

Copying data files
Hyper File data files can be copied directly from a PC to a Pocket PC and vice versa (via the file explorer for instance).

Synchronizing data files
WinDev Mobile can be used to:
• synchronize data files on a PC with data files on a Pocket PC
• synchronize data files on a Pocket PC with data files on a PC

Synchronization takes place automatically via ActiveSync when the Pocket PC is plugged into the PC.
Synchronization parameters are set when the application setup program is created.
For more details on synchronization, see the online help (keyword: "WDSynchro").

WDMap and Pocket Map
WDMap is a utility to view and use a Hyper File Mobile data file on a PC when an application is being developed.
Pocket Map is a utility to view and use a Hyper File Mobile data file on a Pocket PC when an application is being tested or used. Pocket Map is provided with WinDev Mobile.
LESSON 2.3. CE DATABASE FILES

This lesson will teach you

• To add, modify and delete records.
• To browse records.
• To find records.
• To view records.

Estimated time: 1h

The project "Contact.WPP" project in the "\Tutorial\Answers\Contact" directory corresponds to the full project with the answers to this lesson. Open it with the "? .. Tutorial .. CE Database".
Overview

We have already described the CE database format in the lesson “Introduction”, page 51. Now we're going to use a WinDev Mobile application using the “Contacts” standard CE database.

- Open the "Contact" project in the "\Tutorial\Answers\Contact" directory.
  Note: You can open the project directly by selecting the option "? .. Tutorial .. CEDB".

This application consists of:
- a window listing all contacts, used to find a contact;
- a window giving the details of a contact.

Using a record

To use a record in a standard CE database, WinDev for Pocket PC offers you the CDB structure. There is a specific structure for each standard database ("Tasks", "Contacts" and "Appointments"). For instance, the cdbContact structure corresponds to the "Contacts" database.

Each variable in the structure corresponds the related file item in the database. For instance, the cdbContact structure contains the variables cdbContact.Name, cdbContact.City, cdbContact.Email, etc.

These variables make it easier to read, add and modify a record in a standard CE database.

Custom CE databases

You can create custom CE databases. As their contents are specific to each application, you cannot use them with a predefined structure.

To use the items in the databases, use the cdbCol and cdbWriteCol functions. For more details on these functions, see the online help (keywords: "cdbCol" et "cdbWriteCol").

Adding a record

To add a record to a standard CE database, you must:
- enter the variables of the structure corresponding to the database used;
- add the record to the database (cdbAdd function).

In the "Contacts" project, the code for adding a record to the "Contacts" CE database is in the "Validate" button in the "ContactForm" window.

- To view this code:
  1. Open the "ContactForm" window.
  2. Select the "Validate" button.
3. Display the button code ([F2]).

```c
// Retrieve new or modified data
cdbContact.Name = Name
cdbContact.FirstName= FirstName
cdbContact.CivilStatus = Title
...
```

```c
cdbAdd("",cdbContact)
```

**Note**

**Custom CE databases**

To add a record to a custom CE database, you must:
- enter the new record item values (cdbWriteCol function);
- add the record to the database (cdbAdd function).

**Modifying record**

To modify a record in a standard CE database, you must:
- point the record to modify (with the cdbRead, cdbReadSearch functions, for instance);
- modify the variables of the structure corresponding to the database used;
- save the record to the database used (cdbModify function).

You can also directly specify the number of the record to modify in the cdbModify function.

In the "Contacts" project, the code for modifying a record in the "Contacts" CE database is in the "Validate" button in the "ContactForm" window.

To view this code:
1. Open the "ContactForm" window.
2. Select the "Validate" button.
3. Display the button code ([F2]).

```c
// Retrieve new or modified data
cdbContact.Name = Name
cdbContact.FirstName= FirstName
cdbContact.CivilStatus = Title
...
```

```c
cdbModify("",cdbContact,RecNum)
```

**Note**

**Custom CE databases**

To modify a record in a custom CE database, you must:
- point the record to modify (with the cdbRead, cdbReadSearch functions, for instance);
- enter the values of the items to modify (cdbWriteCol function);
- save the record to the database used (cdbModify function).
Deleting a record
To delete a record from a standard CE database, you must:
• point the record to delete (with the cdbRead, cdbReadSearch functions, for instance);
• delete the record from the database used (cdbDelete function).
You can also directly specify the number of the record to delete in the cdbDelete function.
In the "Contacts" project, the code for deleting a record from the "Contacts" CE database is in the "Delete" button in the "ContactForm" window.

- To view this code:
  1. Open the "ContactForm" window.
  2. Select the "Delete" button.
  3. Display the button code ([F2]).

```c
// Delete contact from the database
cdbDelete("", cdbContact, RecNum)
```

Note
A record is deleted from a custom CE database in the same way as from a standard CE database.

File browse
When a data file hold several records, you may need to browse it (e.g., to display data in a table or process the records).

You browse a CE database file with the following functions:
• cdbReadLast: Points the last record in a file and reads it.
• cdbReadPrevious: Points the previous record in a file and reads it.
• cdbReadFirst: Points the first record in a file and reads it.
• cdbReadNext: Points the next record in a file and reads it.

To find out if the end of the file has been reached, use the cdbOut function.
For instance, the following code is used to browse records in the "Contacts" CE database (from first to last):

```c
// Reads the first record
cdbReadFirst("", cdbContact)
// Record out of file?
WHILE cdbOut("", cdbContact) = False
  // Process record
  ...
  cdbReadNext("", cdbContact)
END
```
Finding a record

A record search gives you access to a record without having to browse the entire file. For this, you specify search criteria.

The \texttt{cdbReadSeek} function is used to search for a record based on a given value.

In the "Contacts" project, the code for finding a record in the "Contacts" CE database is in the "Find" button in the "ContactForm" window ("Search" tab).

To view this code:
1. Open the "ContactList" window.
2. Select the "Find" tab pane.
3. Select the "Search" button.
4. Display the button code ([F2]).

```c
// Search for the contact whose name starts with
// the characters specified in "sName" control
cdbReadSeek("",cdbContact,CDB_CONTACT_DISPLAYEDNAME,...
   sName, cdbStartsWith+cdbFromIdentifier)
```

Viewing records

There are several ways to view records in a CE database. This is how you can do it:
- one by one: Each item in the record viewed is displayed in a different control (Form mode).
- in a set: All the records are displayed one after the other in a table (Table mode).

Viewing record items (form mode)

To view record items in a standard CE database, you must:
- read the record to view (e.g. \texttt{cdbRead} function);
- read the value of each variable in the structure of the database used;
- assign the value to a control.

In the "Contacts" project, the code for viewing a record is in the "Global declarations" process of the "ContactForm" window.
To view this code:
1. Open the "ContactForm" window.
2. Display the window code ([F2]).

```csharp
// Read the selected table contact
cdbRead("", cdbContact, RecNum)

// Read and assign the value of each variable
// in the structure
name = cdbContact.Name
FirstName = cdbContact.FirstName
Title = cdbContact.CivilStatus
```

**Custom CE databases**

To view a record in a custom CE database, you must:
- read the record to view (e.g. `cdbRead` function);
- read the value of each item (`cdbCol` function);
- assign the value to a control.

```csharp
// Read the first contact
cdbReadFirst("", cdbContact)

// Record outside the file?
WHILE cdbOut("", cdbContact) = False
    // Add the record found to the table
    TableAddLine(ContactTable, cdbContact.name + " " +
    cdbContact.FirstName + cdbContact.HomePhone +
    cdbContact.Email)
    // Read next record
cdbReadNext("", cdbContact)
END
```

**Viewing all records (table mode)**

To view all records in a standard CE database, you must:
- browse all the records in the database (e.g., `cdbReadFirst`, `cdbReadNext`, `cdbReadPrevious`
  functions).
- add each record found to a memory table (TableAddLine function);
  The structure variables are used to find the value of each item in a record.

In the "Contacts" project, the code for viewing all records is in the "Initialization" process of the "ContactList" window.

To view this code:
1. Open the "ContactList" window.
2. Display the window code ([F2]).
Custom CE databases

To view all records in a custom CE database, you must:

- browse all the records in the database (e.g., `cdbReadFirst`, `cdbReadNext`, `cdbReadPrevious` functions).
- add each record found to a table (`TableAddLine` function).

The `cdbCol` function is used to find the value of each item in a record.
Part 3

Specific features of Pocket PC
Lesson 3.1. Specific Formats

This lesson will teach you

• To manage character strings (UNICODE and ANSI).
• To manage directories in Windows for Pocket PC.
• Specific functions in Windows for Pocket PC.

Estimated time: 20 mn
Part 3: Specific features of Pocket PC

Managing character strings

The default format of character strings is not the same on a Pocket PC as on a PC.

On PC workstations, Windows applications usually handle character strings in ANSI format, whereas on Pocket PCs Windows applications for Pocket PC handle character strings in UNICODE format.

UNICODE format

UNICODE is used to represent a very large set of characters with 2 bytes for each letter. This format means that 65,536 characters can be encoded to represent all the characters of the 24 most common alphabets in a single set. Each character has a unique identifier, so characters from different alphabets can be used at the same time.

ANSI format

ANSI represents each character in one byte and can encode 256 characters in the Indo-European alphabets. This format can represent all alphabets, but only one at a time.

Using character strings in UNICODE format in Pocket PC

In most cases, character strings are handled by W-Language functions in the same way in WinDev Mobile and standard WinDev. WinDev Mobile automatically handles character strings in different formats in a way that is completely transparent for the developer and the user.

AnsiToUnicode and UnicodeToAnsi functions

These functions are useful for handling character strings between computers using different character string formats or for handling external files.

Buffer variable

In standard WinDev, a character string variable can contain both characters and binary data (e.g. an image).

In WinDev Mobile, binary data in a character string variable might be erroneous (e.g. due to faulty
conversion). We advise you to use a buffer variable to manage binary data.

Furthermore, with a buffer you can use the same code in a WinDev Mobile application and a standard WinDev application.

### Handling external files

Depending on the external file format, some conversions are required:

- **Before writing a character string to an external file:**
  - `fWrite` function:
    - ANSI: No conversion required
    - UNICODE: String converted before writing
      - `StringToUnicode` function
  - `fWriteLine` function:
    - ANSI: No conversion required
    - UNICODE: String converted automatically before writing
      - `StringToAnsi` function

- **After reading a character string in an external file:**
  - `fRead` function:
    - PC running Windows: Reading in ANSI format
      - Conversion to UNICODE possible with the `AnsiToUnicode` function
    - Pocket PC: Reading in UNICODE format
      - Conversion to ANSI possible with the `UnicodeToAnsi` function
  - `fReadLine` function:
    - PC running Windows: Reading in ANSI format
      - Conversion to UNICODE possible with the `AnsiToUnicode` function
    - Pocket PC: Reading in UNICODE format
      - Conversion to ANSI possible with the `UnicodeToAnsi` function

<table>
<thead>
<tr>
<th>String format</th>
<th>External ANSI file (fOpen function)</th>
<th>External UNICODE file (fOpen function with the foUnicode constant)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>fWrite</strong> function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSI</td>
<td>No conversion required</td>
<td>String converted before writing (AnsiToUnicode)</td>
</tr>
<tr>
<td>UNICODE</td>
<td>String converted before writing</td>
<td>No conversion required</td>
</tr>
<tr>
<td><strong>fWriteLine</strong> function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSI</td>
<td>No conversion required</td>
<td>String converted automatically before writing</td>
</tr>
<tr>
<td>UNICODE</td>
<td>String converted automatically</td>
<td>No conversion required</td>
</tr>
</tbody>
</table>
Transmission between computers using different character string formats

When character strings are transmitted between computers using a different character string format, some conversions are required:

<table>
<thead>
<tr>
<th>Format of character strings on the current workstation</th>
<th>Write (sWrite or SocketWrite)</th>
<th>Read (sRead or SocketRead)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI (e.g. PC running Windows XP)</td>
<td>The character string / message is in ANSI format</td>
<td>No conversion required</td>
</tr>
<tr>
<td>UNICODE (e.g. Pocket PC running Windows CE)</td>
<td>The character string / message is in UNICODE format</td>
<td>Conversion required (AnsiToUnicode)</td>
</tr>
</tbody>
</table>

Managing directories in Windows for Pocket PC

Directories are managed in different ways on a PC and on a Pocket PC.
On a PC workstation, paths are like this: "C:\MyDocuments\MyFile.txt". But on a Pocket PC, paths are like this: "\MyDocuments\MyFile.txt". There is not just one treeview and there is no drive path.

Handling a file by programming

When a file is handled by programming (e.g., TreeAdd, fCreate, dSaveBMPImage, HSubstDir, functions, etc.), you must use the following formats:

- "\<FileName>.<Extension>" (if the file is at the root of the Pocket PC)
- "\<DirectoryName>\<FileName>.<Extension>" (if the file is in the "MyImages" directory)

For example:

```c
fOpen("\Poll.txt")
// the file is at the root of the Pocket PC

TreeInsert(TVRecipe, "Recipes" + TAB + "Desserts", ...
  "Tarts", "\MyImages\CollapsedImg.BMP", ...
  "\MyImages\ExpandedImg.BMP")
// the files are in the "MyImages" directory

dSaveImageGif(PictureImage, fExeDir() + "\Image.GIF")
// the file is in the application
// execution directory
```
Part 3: Specific features of Pocket PC

Current directory
The concept of current directory does not exist in Windows for Pocket PC (because of the limited operating system). This is why WinDev Mobile does not have functions to handle current directories (e.g. fCurrentDir).

File picker
In Pocket PC, the file picker is used to select files which are only in:
- the "My Documents" directory or one of its immediate subdirectories.
- a directory at the root of a storage card.

The fSelect function is used to select a file which is only in one of these directories.

Now practise using the file picker:
- Open the "File picker.WPP" project in the "Tutorial\Answers\File picker" subdirectory in the WinDev Mobile setup directory.
  Note: You can open this project directly with the option "? .. Tutorial .. File picker".
- Open the "Selection.WPW" window ("File .. Open").
  The following window displays:

This window is used to select a file in the "My Documents" directory or one of its immediate subdirectories.
Part 3: Specific features of Pocket PC

Test in simulation mode

In test mode (simulation on the development workstation), when you call the fSelect function, the Windows file picker for PC displays a path in PC format.

Now we test the "File picker" window in simulation mode on the development workstation:
- Click the "GO" icon (or press [F9]). The window test runs and the window displays in a simulator.
Select a directory in "My Documents" (in the combo box) and click "Select a file in this directory". The Windows file picker for PC displays a list of files on the current computer:

If you select a file, its path will be in PC format:

Close the window. Now we test it directly on the Pocket PC.
Test on Pocket PC

Now we test the window directly on Pocket PC. For this, a Pocket PC must be plugged into the current computer.

- Click the "Test project (pocket)" icon (or select the option "Project .. Test mode .. Test project (pocket)"). The window automatically opens on the Pocket PC:

- Select a directory in "My Documents" (in the combo box) and click "Select a file in this directory". The Windows file picker for Pocket PC displays a list of files on the current computer:
Part 3: Specific features of Pocket PC

If you select a file, its path will be in Pocket PC format:

![File Selection window](image)

**Note**

If you select the "My documents" directory directly in the "Selection" window, the Pocket PC file picker will list all the files in the "My documents" directory and its immediate subdirectories. In this case, the file picker "Folder" option corresponds to "All folders".

- Close the window.

**File explorer**

The Windows file explorer for Pocket PC is not as limited as the file picker. It can browse all the directories on the Pocket PC.
Storage card

Many Pocket PCs are equipped with one or more storage cards. These increase Pocket PC storage capacity.

You can install a complete WinDev Mobile application on a storage card and/or handle files stored on one.

To handle a file on a storage card by programming, use the format: "<CardName><DirectoryName><FileName>.<Extension>".

For example:

```c
fOpen("\MyCard\MyFiles\Commercial.txt")
```

Pocket PC storage space and run speed

The storage space and application run speed on a Pocket PC are a greatly restricted compared to a standard PC.

This is a factor to remember when you create a WinDev Mobile application!

Don’t overload the application with superfluous files, limit the number of windows, clean your data files, etc.

Platform the project runs on

To find out which platform the WinDev Mobile application runs on, use the `SysWindowsVersion` function with the `SysPlatformVersion` constant.
LEÇON 3.2. APPLICATION INTERACTION

This lesson will teach you

- To share data between a WinDev Mobile application and a standard WinDev application
- Access the Pocket PC via a standard WinDev application.

Estimated time: 15mn
Sharing data between two applications

A WinDev Mobile application can share data with a standard WinDev application. You can use:
• a standard WinDev application that can handle the whole database.
• a WinDev Mobile application that can handle all or part of the database.

When two applications share data, the data files can be managed in two different ways:
• Handling the same data files:
  Both applications use the same data files. These are on the PC. The WinDev Mobile application accesses them via Wi-Fi, infrared, GPRS, etc. The HSubstDir is used to specify which data directory to use.

For example: application for taking orders in a restaurant. New orders are automatically sent to the database on the PC.
• **Copying data files to Pocket PC:**
  All or part of the data files are copied to each Pocket PC beforehand. Each application handles its own files. To integrate the modifications made by each application, the data files must be synchronized (automatically or otherwise).

For example: application for taking street polls. The replies will only be available in the standard WinDev application once the data files have been synchronized.

## Handling the data files

For the WinDev Mobile application to access the data files on the PC:

- the Pocket PCs must have network access (Ethernet, Wi-Fi, etc.);
- the data on the PC must be read/write accessible via a UNC path (the directory used must be shared).

Data can then be used (add, modify and delete) with Hyper File functions.

---

**Example**

<table>
<thead>
<tr>
<th>Databases in Hyper File format</th>
</tr>
</thead>
<tbody>
<tr>
<td>(on a Pocket PC and PC)</td>
</tr>
<tr>
<td>The “Multiuser tasks” example provided with WinDev Mobile consists of a project run on Pocket PC and a project run on PC. Both examples use the data files on the PC.</td>
</tr>
</tbody>
</table>
Copying Pocket PC data files

To update the data files on the PC with the new data from the Pocket PCs, the files must be synchronized.

If the data files are in Hyper File format, just plug the Pocket PCs into the PC one by one. Automatic Hyper File synchronization by ActiveSync does the rest. For more details on this synchronization, see “Synchronizing data files”, page 58.

If the data files are not in Hyper File format, synchronization between the WinDev Mobile application and the standard WinDev application must be programmed. For more details on this type of synchronization, see the examples provided with WinDev Mobile.

Accessing a Pocket PC

Pocket PC access functions (starting with "ce") give access to Pocket PCs from a standard WinDev application.

These functions can only be used in a standard WinDev application when a Pocket PC is plugged into the current computer.
These functions are mainly used to:

- handle files on a Pocket PC (copy them, find out their size, list the files in a directory, etc.);
- retrieve information on a Pocket PC (battery charge level, type of processor, Windows version used, etc.);
- manage a Pocket PC registry (create or delete a key, modify a key value, test the existence of a key, etc.).
LEÇON 3.3. SHARING WINDEV ELEMENTS

This lesson will teach you

• To import standard WinDev windows to a WinDev Mobile project.
• To share code.

Estimated time: 10mn

The "Import Pocket PC.WPP" project in the \Tutorial\Answers\Pocket PC Import directory corresponds to the full project with the answers to this lesson. Open it with the "?.. Tutorial .. Pocket PC Import (with answers)".

You can follow this lesson without having to open the project.
Part 3: Specific features of Pocket PC

Importing a standard WinDev window

You can use the same WinDev elements (analysis, reports, queries, etc.) in a standard WinDev application and a WinDev Mobile application. However, the windows don’t have the same format in standard WinDev (“.WDW” file) and WinDev Mobile (“.WPW” file). They differ in size, characteristics, specific features, user approach, etc. WinDev Mobile enables you to import a standard WinDev window to a WinDev Mobile project.

How to import a WinDev window

We’re going to import the following WinDev:

![Customer Form](image)

- To import this window to a WinDev Mobile project:
  1. Open the “Pocket PC Import.WPP” project in the “Tutorial\Exercises\Pocket PC Import” subdirectory of the WinDev Mobile setup directory.
    
    Note: You can open this project directly with the option “? .. Tutorial .. Pocket PC Import (exercise example)”.
  2. Select the “File .. Import .. WinDev elements” option.
  3. Select the “Form_Customer.WDW” window (in the “Tutorial\Exercises\PC Import” subdirectory) and validate. This window opens automatically in WinDev Mobile.
  4. As a Pocket PC screen is smaller than a PC monitor screen, the size of the imported window and its controls must be adjusted.
  5. Save the window (“File .. Save” option or [Ctrl]+[S]).
WinDev Mobile offers to add the new element to the current project. Accept. The window opens automatically in the editor. It corresponds to the "Form_Customer.WDW" file.

Operations performed during import
When a window is imported:
• controls which don’t exist in WinDev Mobile are automatically deleted (toolbar, HTML, ActiveX, etc.);
• the list of errors found (such as functions which don’t exist in WinDev Mobile) is displayed in the Kouglof.

Sharing code
WinDev Mobile has two ways to share code:
• multi-product code input
• the InPocketMode function

Multi-product code input
The code editor is used to enter the equivalent of a WinDev Mobile code in standard WinDev or WebDev. This code is entered in the same place in the code editor. There are tabs to select the platform corresponding to the current code.
The code corresponding to the platform is automatically run.

There is the same feature in WinDev 9 and WebDev 9, so it is very easy to create multi-product
components.

**InPocketMode function**

The InPocketMode function is used to share code between a WinDev for Pocket PC application and a standard WinDev application.

In compilation, functions not used in Pocket PC are just mentioned in the Kouglof.

The InPocketMode function is used at run-time to prevent these functions from running so that no error will be generated.

For instance, the following code is shared by a WinDev Mobile application and a standard WinDev application.

```plaintext
MyFileParam is string
// Code run from WinDev Mobile application?
IF InPocketMode() = True THEN
    // WinDev Mobile application
    MyFileParam = "\My Files\Param.INI"
ELSE
    // Standard WinDev application
    MyFileParam = fCurrentDir() + "\Param.INI"
END
```

In compilation, an error appears in the Kouglof to indicate that the fCurrentDir function is forbidden in Pocket PC. But no execution error will be generated when the application is used on a Pocket PC: the fCurrentDir function will never be called.

**Note**

The InPocketMode function is used like this to share sets of procedures, classes, components, etc. between a WinDev for Pocket PC application and a standard WinDev application.

**Test**

In test mode, the InPocketMode function always returns True.

The InPocketMode function only returns False when it is called from a standard WinDev application.
LEÇON 3.4. INPUT MODE

This lesson will teach you

- The input modes available on Pocket PC and Smartphone.

Estimated time: 10mn
Editing on Pocket PC

For users of your applications to edit on Pocket PC, they need to use its keypad (also called SIP - Software Input Panel).

The keypad is used to:

- display a miniature keypad in the lower part of the screen. The user clicks the keypad with a stylus to enter information. For example:

- automatically detect words edited on the screen with the stylus ("Transcriber" method). For example:

- automatically detect letters edited in a certain alphabet ("Letter recognition" method). For example:

- automatically detect blocks of words edited in a certain alphabet ("Block recognition" method). For example:

Note: Other types of keypad may also be available.

With WinDev Mobile, you can manage this keypad simply by programming (SIPList, SIPMode and
Part 3: Specific features of Pocket PC

SIPVisible functions).

Note
The icon representing the Pocket PC keypad (e.g. icon) are used to manage the keypad completely.

Note
The option "Activate keypad in edit" ("Details" tab of the edit control description window) is used to display the keypad automatically when the control is in edit.

Editing on Smartphone

Smartphones have several default edit modes:

- "abc" and "ABC" modes: to edit in lower or upper case.
  For instance, in this mode, you have to press "5" twice to edit the letter "k".
- "123" mode: to edit digits.
- "T9" mode (intuitive edit patented by AOL): so as not to have to press a key several times to obtain a letter.
  For instance, hitting "43556" automatically writes "hello".
  To choose different words corresponding to the same key sequence, pressing "0" will scroll the alternatives.
  For instance, "92837" can be used for the words "water" and "waves".

The edit modes are changed by sustained pressure on the * key. Brief pressures to change the case.

The current edit mode is shown in the top right corner of the Smartphone:

- • icon for "abc" mode
- • icon for "ABC" mode
- • icon for "123" mode
- • icon for "T9" mode
Part 4
Communication

PC SOFT

DEVELOP
10 TIMES FASTER
LESSON 4.1. INTRODUCTION

This lesson will teach you

• Communicating with WinDev Mobile.

Estimated time: 10mn
Communicating with WinDev Mobile

WinDev Mobile communication tools really keep you in touch!
RPC, TAPI, network, socket, FTP, Email, HTTP, SOAP, .NET, etc. All these standards are supported by WinDev Mobile.

WinDev Mobile can be used for communication between two Pocket PCs, a Pocket PC and a Smartphone, a Pocket PC and a PC, etc.
These "dialogs" are operated by infrared, Wi-Fi, network card, etc. and are completely transparent.

We just don’t have space here to discuss all the possibilities offered by WinDev Mobile. We shall just take a look at email management (see the lesson on page 98).

For the other communication modes, we shall briefly explain the main differences compared to standard WinDev.

FTP

FTP (File Transfer Protocol) is a standard protocol used to transfer files from one site to another. It is used to exchange files via TCP/IP, Internet, Wi-Fi or ActiveSync.
There are several thousand file servers which can be accessed by FTP on the internet. They use shareware or freeware available to the public.
WinDev Mobile provides W-Language functions to manage files on an FTP server from your applications (FTPxxx functions).
Remote access (RPC on Hyper File Mobile)

Remote access is used to look up a Hyper File Mobile database via internet/intranet or via STN (Switched Telephone Network).

To cut down the number of exchanges via the network, functions where the database is not directly involved are executed locally. This means the Hyper File library (WP90HF.DLL) and the analysis description (".WDD" file) must be on each Pocket PC.

Data are exchanged by Remote Protocol Call (RPC) using the functions of the communication library WD90COM.DLL (on the server workstation) and WP90COM.DLL (on the client workstation).

Data can be exchanged by any of the following:
- Wi-Fi
- ActiveSync
- GPRS
- network card

Socket management

WinDev Mobile provides functions for advanced socket management (SocketXXX).

A socket is a communication resource applications use to communicate between machines without needing to bother about the type of network.

This mode can be used to establish communication between workstations linked via the internet.

With WinDev Mobile, you can create a socket using the infrared port (SocketCreateInfraRed and SocketConnectInfraRed functions).
Data can be exchanged by any of the following:

- Wi-Fi
- Infrared
- ActiveSync.
- GPRS.
- Network card

**Web services (SOAP, J2EE, .NET)**

The Microsoft .NET and Sun J2EE server platforms allow you to export their components as XML Web services.

An XML Web service is usually defined as an application which can be accessed via standard internet protocols. Web services enable interaction between several computers connected to the internet.

Web services can be used to run procedures and processes on a Web server (.Net or J2EE) from a remote Pocket PC.

**Note**

In a WinDev Mobile application, procedures and processes are run via Wi-Fi, GPRS or ActiveSync.
Part 4: Communication

Sending an SMS

With WinDev Mobile, you can send an SMS (Short Message Service) using the W-Language SMS functions.

An SMS is a text message (of no more than 160 characters) sent on a cell phone.

For more details on sending an SMS, see the lesson "Application on Smartphone", page 36.

Summary

The table below shows the communication modes available for each WinDev Mobile feature.

<table>
<thead>
<tr>
<th></th>
<th>Remote access (RPC on Hyper File)</th>
<th>Email</th>
<th>FTP</th>
<th>HTTP</th>
<th>Telephony</th>
<th>SOAP J2EE.NET</th>
<th>Socket</th>
<th>SMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActiveSync</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Network card</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>GPRS</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Infrared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smartphone or phone access (GSM)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wi-Fi</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Lesson 4.2. Email Management

This lesson will teach you

• To send and receive emails.

Estimated time: 5mn
Overview

W-Language has all the programming functions for receiving and sending emails, and WinDev Mobile enables you to obtain all the characteristics of an email:

- sender
- recipients
- date sent
- subject
- message
- attachments
- etc.

WinDev Mobile uses two methods for managing emails:

- **POP3 and SMTP** protocols (most common) which are email management protocols supported by all Internet Service Providers. They enable you to dialog directly with the server your ISP makes available.
- "CEMAPI" API: this is a management mode for using Pocket Outlook to send and receive emails.

Email management via the POP3/SMTP protocol

POP3 and SMTP are email management protocols supported by all Internet Service Providers. You use them to dialog directly with the email server provided by your ISP.

The POP3 protocol is used to receive emails.
The SMTP protocol is used to send emails.

**Note**

Sending and receiving emails via the POP3/SMTP protocol is the same in WinDev Mobile as in standard WinDev.
The Pocket PC only needs to be plugged into a PC if it doesn't have an Ethernet card or GPRS modem.
Email management via "CEMAPI"

CEMAPI is an email management API most Pocket applications use to send and receive emails (usually Pocket Outlook). CEMAPI simplifies email management by the host. When an email has been read, it is automatically loaded in the local messages box and deleted from the host server.

All the characteristics required for email management (POP3 and SMTP protocols, remote access, etc.) are grouped together in the "User account".

User account

A user account defined in Pocket Outlook is required to manage emails with CEMAPI. By default, Pocket Outlook manages the "ActiveSync" user account. Other user accounts can be used but must be defined.

"ActiveSync" user account

"ActiveSync" is the default user account.
Other user account

To use a user account that is not "ActiveSync", all you do is describe it.

Sending and receiving emails via the CEMAPI protocol in WinDev Mobile is the same process as via SIMPLE MAPI in standard WinDev. The only difference is:

- "ActiveSync" user account: in WinDev Mobile, you must configure email synchronization with ActiveSync.
- Other user account: in WinDev Mobile, you must synchronize the emails with the email server.
Part 5
FAQ
QUESTIONS & ANSWERS

This lesson will teach you

- The answers to your questions.

Estimated time: 1hr
Controls, windows

Question How do I change a window type?

You can create two types of window in WinDev Mobile:

- Full-screen window: A full-screen window takes up the entire screen on a Pocket PC.
- Resizeable window: A resizeable window can be resized by the user so it only takes up part of the screen.

To change the window type:

1. Right-click the window and select the "Description" option.
2. Display the "Details" tab.
3. Select the new window type.

Note The "Style" tab can also be used to change the window type.

Question How do I change the type of "OK/Close" button in the title bar?

The "OK/Close" in the title bar of WinDev windows is used to close or validate the current window. By default, it automatically closes the window.

The button type can be changed:

- in the button popup menu:
- in the "Style" tab of the window description.
- by programming (WinSystemButton function).

Note The "OK/Close" button is not available in windows on a Smartphone platform.
**Question** How do I display the keyboard on a Pocket PC?

For users of your applications to input data, they need the Pocket PC keyboard (also called SIP for Software Input Panel).

To display the Pocket PC keyboard:
- select the option "Activate keyboard in edit" ("Details" tab of the edit control description window). This automatically displays the current keyboard when the control is in edit mode;
- or program the `SIPVisible` function;
- or, on the Pocket PC itself, click this icon.

**Question** How do I display all the menus in a window?

In edit mode, when the window is not wide enough to display all the menus, this icon displays . It is used to display all the menus.

In run-time mode, only the menus that fit into the window are visible.

**Question** How do I duplicate a window control by programming?

We may still be far from cloning humans, but WinDev Mobile can clone controls. Use `ControlClone` to duplicate a control in a window or report.

The control is duplicated with the same characteristics, but with a different name.

**Question** How do I delete a window control by programming?

Use `ControlDelete` to delete a control from window or report.

**Question** How do I work window planes?

Window planes are used to arrange controls in "layers" so screens are not overcrowded and the number of separate windows is kept down.

To link a control to a plane:
1. Right-click the control.
2. Select the option "Associate to plane".
3. Choose the number of the plane to link the control to.

Use the [Page Up] and [Page Down] keys to go from one plane to another in the editor. The number of the current plane is displayed:
- in the status bar (bottom right)
• in the opening window of the current window (top right)

Tip To avoid duplicating a control in a window, you can link it to "none". The control is then visible in all planes.

Only controls in the current plane and controls belonging to no plane are visible in the window editor and at run-time.

You can also use the Plane property to:
• identify and modify the current plane in a window;
• identify and modify the plane linked to a control.

**Question** How do I display the progress of an operation?

You use the ProgressBar or Message functions to display the progress of an operation in a window's status bar (see the online help about these functions).

Mostly progress is displayed by a progress bar.

For this you use a progress bar control ("Insert .. Control .. Progress Bar").

In the initialization code of the progress bar control:

1. Initialize the minimum value of the progress bar:
   
   ```
   ProgressBarName..MinValue = MinimumValue
   ```

2. Initialize the maximum value of the progress bar:
   
   ```
   ProgressBarName..MaxValue = MaximumValue
   ```

In the process code, increment the progress bar at each step of the process:

```
ProgressBarName ++
// or ProgressBarName = ProgressBarName + 1
```

**Question** How do I make a button invisible?

A button can be made invisible by programming. Use the syntax:

```
ButtonName..Visible = False
```

Set the value to "True" to make it visible.

This syntax can also be applied to any type of control or group of controls.
Part 5: FAQ

Question

How do I change the color of a caption?

Caption colors are defined as part of the control style. ("Select style" option of the contextual menu).

But you can modify the caption color by programming. The syntax is as follows:

```
// Color the caption red
CaptionName..Color = iLightRed

// Change caption background color to green
CaptionName..BrushColor = iLightGreen

// Restore original color (as defined in the style)
CaptionName..Color = iDefaultColor
```

Note: This syntax applies to all types of controls.

The RGB function is used to define a color based on the values of the Red, Green and Blue components.

```
<ColorCode> = RGB(<red>,<green>,<blue>)
```

You can also change the colors of rows, columns and cells in a Table control. The syntax is as follows:

```
// Change a column color
ColumnName..Color = <ColorCode>

// Change a row color
TableName[Subscript]..Color = <ColorCode>

// Change a cell color
ColumnName[Subscript]..Color = <ColorCode>

// or
// TableName[Subscript, ColumnIndex]..Color = <ColorCode>
```

Question

How do I link a window to an option in my main menu?

Use the Open function to link a window to a menu item. Enter the following code in the menu item’s click code:

```
Open(MYWINDOW)
```

Note: To link a report to a menu item, use iPrintReport:

```
iPrintReport(MyReport)
```
Part 5: FAQ

A popup menu can be added:
- to a window;
- to a control.

For a window:
1. Right-click the window and select the "Description" option.
2. Click the "Detail" tab and select "Popup menu".

For a control:
1. Right-click the control and select the "Description" option.
2. Click the "GUI" tab and select "Popup menu".

The `PopupMenu` property allows you to retrieve or modify the control or window popup menu by programming.

How do I create a popup menu?

How do I pass parameters to a window?

The way to pass parameters to a window is similar to passing them to a procedure.

In the global declaration code of the window, enter the following W-Language code syntax:

```
PROCEDURE WindowName(pParamName1, pParamName2, ...)
```

When the window is opened with the `Open` function, pass the parameters after the window name, e.g.:

```
Open(WindowName, Param1Value, Param2Value, ...)
```

If you initialize a parameter when declaring the window, it becomes optional:

```
// pParamName2 is optional parameter
PROCEDURE WindowName(pParamName1, pParamName2 = "Test")
```

Note: It is better to pass parameters to a window than to declare global variables in the project.

How do I transform a check box into a radio button?

The menu item "Control.. Swap.. Radio button / Check box" switches the two types of controls.

Note: This operation also applies to a list box and a combo box with table.

How do I pass parameters to an executable via a command line?

Use `CommandLine` in the project initialization code.
See the online help for more details on this function (keyword: "CommandLine").

Tip You can simulate passing command line parameters to your program in test mode. Go to the editor: click the option "Project .. Test Mode .. Command Line" and enter the command line parameters.

**Part 5: FAQ**

**Question** How do I group controls so I can modify their properties by programming?

As follows:
1. Select several controls with the mouse.
2. In the editor menu, select the option "Control .. Groups .. Associate selection".
3. Enter the name of the group and validate.

Control groups can be used in both windows and reports.

The controls will be linked to this group. You can then modify their properties with the following syntax:

```
GroupName..<PropertyName> = Value
```

**Warning** Only properties common to all controls can be modified.

**Question** How do I align controls?

There are several ways to align controls:
- rulers
- interface checker
- real-time interface checker
- alignment tools

Rulers are activated by pressing [Ctrl] and [R] together. On them you set tabulation marks or "markers" which you can move by clicking the ruler at the point you want. Then when you move controls in the window (or report), they will be "magnetized" when they come near the markers and "snap" to them.

The real-time interface checker is automatically activated when a control is created or moved. Temporary rulers are used to align a selected control with the others in the window.

The interface checker can be activated by the "Control .. Alignment .. Interface checker" option. This wizard gives advice on how to align controls in a window.

The alignment tools can be accessed via the WinDev editor menu or the toolbar.
Via the WinDev toolbar, click [ ].
Via the WinDev menu, select the option "Control .. Alignment" and choose an action.
Part 5: FAQ

After practising a few minutes, you’ll soon realize what a good thing proper alignment is!

Question  How do I make my buttons all the same size?

- First select the button you want as a reference for the size (height and width).
- Select "Same width, same height" in the alignment tools ("Control .. Alignment" option).

Question  How do I set up an image as the background for a window?

In the window:
  1. Right-click and select the "Description" option.
  2. Select the "Image" tab.

You can then choose an image and set its display mode.

Environment

Question  How do I display or hide the WinDev pane and the Kouglof?

To display or hide the Kouglof alone, press [Ctrl] and [Q] together.
Why [Ctrl]+[Q]? They are easier for your fingers to reach; you’d have to stretch a lot if it were [Ctrl]+[K]!
It may look like magic, but it isn’t!

Question  How do I display the element the current process is part of?

To view the element related to the current process, click the icon. The window with the element is displayed and the control is automatically selected.

Question  How do I print source code?

The current source code can be printed by directly clicking the icon in the editor toolbar or by selecting "File .. Print documentation".

Question  How do I print analysis documentation?

Analysis documentation can be printed by directly clicking the icon in the editor toolbar or by selecting "File .. Print documentation".
### Part 5: FAQ

**Question** How do I print the full project documentation?

The full project documentation can be printed by selecting "Project .. Print project documentation".

**Question** How do I create a template?

This operation requires several steps. For more details, see the online help (keyword: “Template”). But don’t forget that WinDev is supplied with a lot of ready-made templates!

**Question** How do I find and/or replace a variable in a code?

The find and replace functions for source code can be accessed from the WinDev menu ("Edit .. Find" or "Edit .. Replace") or in the Kouglof (click ![Kouglof Icon](image)):

![Find and Replace Dialog](image)

You can access the find function at any time by pressing [Ctrl] + [F].
A project task list can be consulted and updated in real time in the Kouglof.

- To view the task list, click the ⌨ icon in the Kouglof.
- To add a new task, right-click the task list and select "New task".

This task list is linked to the current project. When working in a team, all the developers can consult and update it.

**Question** How do I find out the list of project elements?

Projet elements are: windows, reports, queries, and so on.

- To view project elements, click "Project .. List of project elements".

**Question** How do I view and change the browsing order in window controls?

Control browsing order is defined by the order of their creation in the window.
The [F5] function key is used to view the current order.

- To change the browsing order:
  1. Select the option "Window .. Browsing order .. Edit".
  2. When the window displays, change the control entry order.

The menu item "Window .. Browsing order .. Automatic" automatically defines the order based on how the controls are located and aligned in the window. Browsing starts in the top left corner of the window.

**Question** How do I enable or disable automatic data preview (live data)?

Use the menu item "Display .. Options .. View Data" to enable or disable this feature.
Question: How do I add a language to a project?

In the WinDev menu, click the option "Project .. Project description", then select the "Languages" tab. When the window displays, check the new languages you want to support.

Question: How do I modify WinDev Mobile options?

The environment settings in the editor (directory, language, login, etc.) can be modified via the option "Tools .. WinDev Mobile Options").

The window display settings (click, magnetism, etc.) can be modified via the option "Display .. Options .. Modify options".

Miscellaneous

Question: How do I get screenshots?

Integrate the Kouglof supercontrol "Print the displayed window" into your window. You don’t even need to enter any source code!

To get a Pocket PC (or Smartphone) screenshot, use the "WDCapture" utility ("Tools .. WDCapture - Screenshot").

Question: What processors do WinDev Mobile applications work with?

Applications generated by WinDev Mobile only work on Pocket PCs (equipped with ARM, XScale, Samsung and ARM-compatible processors). They do not work on Windows PCs.

Question: How do I read and write to a .INI file?

Use the INIRead and INIWrite functions to read and write .INI files. See the online help for the
WinDev Mobile supports images in BMP, JPEG, GIF and ICO formats.

WinDev Mobile has a set of functions to compress and decompress data. Their names start with the word "Zip".

For more information, see the example "Pocket Zip" provided with WinDev Mobile or the online help (keyword: "Zip").

Use the RegistryQueryValue and RegistrySetValue functions to read and write in the registry.

See the online help for the detailed syntax of these and other registry management functions (keyword: "Registry, W-Language functions").

Be sure to backup your registry database before you make any modification so you can restore it in case of a problem.

You can also work with the Pocket PC registry via a standard WinDev application (ceRegistryXXX functions).

The supplier and name of the application must be specified when the setup program is created. This information is displayed in the uninstall panel on the Pocket PC.

To uninstall an application:
1. Click the "Start" menu.
2. Select "Settings".
3. Select "System Remove programs".
4. Select your application and click "Remove".

Question: What image formats are supported in WinDev Mobile?

WinDev Mobile supports images in BMP, JPEG, GIF and ICO formats.

Question: I'd like to compress data, can I do this with WinDev Mobile?

WinDev Mobile has a set of functions to compress and decompress data. Their names start with the word "Zip".

For more information, see the example "Pocket Zip" provided with WinDev Mobile or the online help (keyword: "Zip").

Question: How can I read and write in the registry?

Use the RegistryQueryValue and RegistrySetValue functions to read and write in the registry.

See the online help for the detailed syntax of these and other registry management functions (keyword: "Registry, W-Language functions").

Question: How do I uninstall an application developed with WinDev Mobile?

The supplier and name of the application must be specified when the setup program is created. This information is displayed in the uninstall panel on the Pocket PC.

To uninstall an application:
1. Click the "Start" menu.
2. Select "Settings".
3. Select "System Remove programs".
4. Select your application and click "Remove".
Question How do I create an executable program?

Your project’s executable program can be created by clicking the option "Project .. Generate executable".

Question How do I install an application?

Once you have created the executable program ("Project .. Generate executable"), the EXE directory in your project directory will have all the elements needed to run your application.

To prepare for setup:

1. Select the option "Project .. Create setup procedure". The setup program creation wizard opens.
2. Follow the instructions on screen.

Question How do I link an icon to an executable program?

When you create the executable program, you can define an icon linked to it. The icon must be in ICO format.

Note A catalog of predefined icons is supplied with WinDev Mobile. It can be accessed when you select the icon.

Managing files and drives

Question How do I manage Pocket PC files via a standard WinDev application?

Pocket PC access functions (functions starting with "ce") are used to handle files on a Pocket PC (copy them, find out their size, list the files in a directory, etc.);

These functions can only be used in a standard WinDev application when a Pocket PC is plugged into the current computer.

For a detailed description of these functions, see the online help (keyword: "Pocket, Pocket PC access functions").
Part 5: FAQ

**Question:** How do I list all the files in a directory?

Use the `fDir` function with the `FRFile` constant to list all the files in a directory. For more advanced use, `fListFile` can retrieve the list of files in a directory or several adjacent directories. See the online help for this function (keyword: "fListFile").

**Note:** You can also list all the files in a Pocket PC directory via a standard WinDev application (`ceDir` and `ceListFile` functions).

**Question:** How do I copy a file?

Use the `fCopyFile` function to copy a file. See the online help for this function (keyword: "fCopyFile").

**Note:** You can also copy Pocket PC files via a standard WinDev application (`ceCopyFile` function).

**Question:** How do I create a directory?

Use the `fMakeDir` function to create a directory. See the online help for the detailed syntax of this function (keyword: "fMakeDir").

**Note:** You can also create a Pocket PC directory via a standard WinDev application (`ceMakeDir` function).

**Question:** How do I read a text file?

In one of two ways:

1. Use the `fOpen`, `fReadLine`, `fClose` functions. E.g.:

   ```
   FileLine is string
   FileNumber is int
   FileNumber = fOpen("\My Documents\MYFILE.TXT", ..., FORread)
   IF FileNumber <>- 1 THEN
       FileLine = fReadLine(FileNumber)
   ```
### Tables

**Question** How do I modify the search key of a browsing table?

The search key of a browsing table is the item used as a sort criterion for the rows in the table.

- To modify the search key of a browsing table:
  1. Right-click the browsing table and select "Description".
  2. Click the "Content" tab.
  3. Select the file item to be used as search key in the "Stored item" combo box.

**Question** How do I modify an item stored in a browsing table?

An item stored in a browsing table corresponds to the retrieved value of the row selected in the table.

- To modify the item stored in a browsing table:
  1. Right-click the browsing table and select "Description".
  2. Click the "Content" tab.
  3. In the "Stored item" combo box, select the file item that can be retrieved.

**Tip** An item stored in a table can be used to link two browsing tables in cascade.
Hyper File Mobile

**Question** Are the Hyper File and Hyper File Mobile file formats compatible?

Yes, the Hyper File and Hyper File Mobile formats are identical. Hyper File and Hyper File Mobile data files are interchangeable in WinDev Mobile and standard WinDev.

However, a Pocket PC is small and its operating system is limited, so the following features are not supported by Hyper File Mobile:

- transactions
- log operations
- Hyper File replication
- file and record lock management
- management of files in Hyper File 5.5 format.

**Question** How can I disable an integrity constraint?

Integrity constraints are defined in the analysis when creating links between files. Each constraint has a name. By default, all constraints are enabled.

Use the `HSetIntegrity` function to disable a constraint. You can use this function before and after some specific processes or in the initialization code of your windows or projects.

See the online help for more details on this function (keyword: "Integrity").

**Question** How do I manage the NULL value?

To manage the NULL value in files, there are:

- In the data model editor:
  - a "NULL supported" option in the file description. This option is used to specify whether the file supports the NULL value. If so, the NULL value can be managed in the file items.
  - a "Default NULL value" option for each file item. This option is used to define the null value as the default value for the item.
Part 5: FAQ

• Two programmed properties:

**NULL**

To:

• define the NULL value as default for a file item in its dynamic description

• link the NULL value to a file item or not

**NullSupported**

To:

• define the NULL value management mode for a file in its dynamic description

• find the NULL value management mode of a file

For more details, see the online help (keyword: "NULL").

**Question** How do I manage a duplicate error when writing in a file?

The write functions (HAdd and HModify) return an error status in the form of a boolean (True or False). If the function returns the value "False", the write operation is canceled. The **HErrorDuplicates** function returns "True" if a duplicate error occurs.

Code example:

```c
IF NOT HModify(CUSTOMER) THEN
  IF HErrorDuplicates() THEN
    Error("Cannot modify CUSTOMER",...
    "Duplicate error")
  END
END
```

**Question** How do I manage an integrity error when writing or deleting in a file?

The write functions (HAdd and HModify) or the delete function (HDelete) return an error status in the form of a boolean (True or False). If the function returns the value "False", the write or delete operation is canceled. The **HErrorIntegrity** function returns "True" if an integrity error occurs.

Code example:

```c
IF NOT HDelete(CUSTOMER) THEN
  IF HErrorIntegrity() THEN
    Error("Cannot delete CUSTOMER",...
    "Integrity error")
  END
END
```
Question: How do I fill a Treeview control using a file?

Examples of code filling a Treeview control with the data from a file:

**Algorithm:**

```
// Read file
HreadFirst(FileName, KeyName)
WHILE NOT HOut()
    // Add to Treeview
    TreeAdd(TreeControlName, Root+TAB+Branch+TAB+Leaf)
    HReadNext(FileName, KeyName)
END
```

**Example 1:** Loading companies by city:

```
// Read file
HreadFirst(COMPANY, CITY)
WHILE NOT HOut()
    // Add to Treeview
    TreeAdd(TreeControl, Company.CITY+TAB+Company.CompName)
    HReadNext(COMPANY, CITY)
END
```

**Example 2:** Loading customer names by initials (datebook type organization):

```
// Read file
HReadFirst(CUSTOMER, CUSTNAME)
WHILE NOT HOut()
    // Add to Treeview
    TreeAdd(TreeControl, Left(Customer.CustName, 1)+TAB+...
            Customer.CustName)
    HReadNext(CUSTOMER, CUSTNAME)
END
```

**Example 3:** With a shorter syntax (using the operator FOR ALL):

```
// Read file
FOR ALL CUSTOMER ON CUSTNAME
    // Add to Treeview
    TreeAdd(TreeControl, Left(Customer.CustName, 1)+TAB+...
            Customer.CustName)
END
```

Question: How do I manage a composite key when running a search operation?

Start a search with HFilter or HReadSeek.

```
HReadSeek(File, COMPOSITEKEY, (1,"A"))
HFilter(FILE, COMPOSITEKEY, (1,"A"), (5,"S"))
```
CE Database

**Question** How do I handle the information in the default applications on a Pocket PC (contacts, notes, etc.)?

Default applications on a Pocket PC (contact, appointments, tasks, etc.) use databases in CE database format.

To use handle information in these applications, use the CE database functions (starting with "cdb") and the standard database structure.

For details of the functions and structure, see the online help (keywords: "Database (Pocket PC), W-Language Functions" and "Database (Pocket PC), Standard database structure").

**Note** CE databases can be handled via a standard WinDev application and a WinDev Mobile application.

**Question** How do I create a CE database?

You cannot create a CE database directly. To have a CE database on a Pocket PC, you must export an Access database (".MDB" files) from a PC workstation.

When an Access database (".MDB" file) is copied to a Pocket PC (via the explorer), it is automatically converted into a CE database (".CDB" file).

This is called a custom CE database.

**Question** What is a CE database used for?

A CE database is mainly used to:

- handle data managed by standard Pocket PC applications;
- retrieve and manage an Access database on a PC.

For any other purpose, we advise you to use Hyper File Mobile databases.
Queries

**Question** How do I optimize the speed of a query?

Optimizing a query works on this basis: a wizard ascertains the composite keys to be modified and/or added into the project analysis.

To optimize the speed of the current query, select the option "Query .. Optimize query". The query optimization window opens and shows all the modifications that can be made to the analysis.

**NB**: Adding a lot of composite keys to an analysis increases the size of the index files and may slow down access to data files.

**Note**: This option is only available provided that:
- the "Live Data" option is enabled ("Project .. Project description", "Live Data" option). For more details, see the online help (keyword: "Live Data").
- the data files are in the project test directory ("Project .. Project description", "Files" option). For more details, see the online help (keyword: "Testing, Project").

**Question** How do I add or modify a condition in a query?

- To add or modify a condition in a query:
  1. Select and open the query to modify.
  2. Right-click the query and select "Query description".
  3. Select the item where a condition has to be modified.
  4. Click the "Selection condition" button and select the option "Modify the condition".

**Reminder**: When defining a condition, you can refer to a value (constant of the query) or a parameter (value passed as parameter when calling the query).

**Question** How do I add or modify a sort in a query?

- To add or modify a sort in a query:
  1. Select and open the query to modify.
  2. Right-click the query and select "Query description".
  3. Right-click the required item, select "Sort" and the operation to run.

**Reminder**: If you click the red arrow, you change the sort order.
Printing

**Question** How can I use a WinDev Mobile application to print with?

Print operations via a Pocket PC are in PCL format. They can be done in a PCL file or directly on a PCL printer.

To format the information to print:
- create a report with the WinDev Mobile report editor;
- or use the W-Language print functions.

For more details on printing, see the online help (keywords: "Report (Report editor)" and "Print").

**Question** What is the PCL standard?

PCL (Printer Control Language) is a standard enabling a Pocket PC to send commands to a printer which supports it. This standard was developed by Hewlett Packard.

A PCL file is a binary file containing all the commands sent, such as those required for defining print areas.

**Question** Why is the font on the printout not the same as the one in my report?

The result of a Pocket PC print operation largely depends on the options of the printer used (images, line, font management, etc.).

To limit the resources required for printing, WinDev Mobile uses the printer's fonts. The printer automatically selects the font closest to the specified criteria. Check what fonts your printer has, and their size and options.

Ports

**Question** How do I read a barcode?

There are two ways to read a barcode:

1. If you’re using a barcode reader that is interfaced directly with the keypad, you won’t have to write any code in WinDev Mobile. When the barcode is read, the value is returned directly to the keypad as if you had entered the code; you just need to be located in an edit control.

2. If you’re using a barcode reader connected to a serial port, you will need to use the commands for serial port support. Use `sOpen`, `sRead`, `sWrite`, `sClose`, etc. to dialog with a serial port.
**Question** How do I read data sent by a magnetic card reader?

Proceed exactly the same way as for barcode readers.

**Question** How do I manage a serial port?

- Use the W-Language functions `sOpen`, `sRead`, `sWrite`, `sClose`, etc.

See the online help for the syntax of these functions (keyword: "Serial port").

**Question** How do I manage a parallel port?

The functions used to manage parallel ports are the same those for serial ports.

- Use the W-Language functions `sOpen`, `sRead`, `sWrite`, `sClose`, etc.

See the online help for the syntax of these functions (keyword: "Parallel port").

**Question** How do I manage an infrared port?

The functions used to manage infrared ports are the same those for serial ports.

- Use the W-Language functions `sOpen`, `sRead`, `sWrite`, `sClose`, etc.

See the online help for the syntax of these functions (keyword: "Infrared port").
CONCLUSION

The tutorial is now over!

This course has discussed a variety of subjects, but not all the features of WinDev Mobile, far from it!
You are now familiar with the main concepts.
We recommend you to spend another day exploring the range of WinDev Mobile menu choices for each of the modules.

You can also try out the examples provided with WinDev Mobile: some are simple and only address one topic, while others are more complex (such as the sales management application). These examples illustrate various aspects of WinDev Mobile. Reading the source code is another good way to learn.

It would take too much room to discuss all the possible topics (there are hundreds, even thousands of them!). WinDev Mobile offers numerous other features which have not been mentioned or detailed in this tutorial:
- user groupware
- socket functions, HTTP, telecommunication
- template creation
- nested reports, queries with parameters
- etc

For more on all these features, see the online help.

We wish you great development experiences with WinDev Mobile!
## APPENDIX

### Glossary of the main terms

A short vocabulary reminder.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Window</strong></td>
<td>A window is also called a dialog box. We use both terms and hope the purists won’t mind. A window may also be called a screen.</td>
</tr>
<tr>
<td><strong>Button</strong></td>
<td>A button (text or graphical) is an area materialized by a ‘rectangle’ you click to start an action. In toolbars, they are called icons rather than buttons. A button is also called a &quot;control&quot;.</td>
</tr>
<tr>
<td><strong>Project</strong></td>
<td>A &quot;project&quot; is a set of windows, reports, etc. A project may use an &quot;analysis&quot; built with the data model editor.</td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
<td>An &quot;analysis&quot; is a set of files (or tables) created to build a database.</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>An &quot;application&quot; is a set of programs more or less linked together for a particular purpose.</td>
</tr>
<tr>
<td><strong>Control / Item</strong></td>
<td>We use the term &quot;control&quot; for fields on screen, and &quot;items&quot; for data fields. So we say the &quot;NAME&quot; control when it is located in the window, but the &quot;NAME&quot; item when it is part of a file; there can also be a &quot;NAME&quot; program variable.</td>
</tr>
<tr>
<td><strong>Table</strong></td>
<td>A table is a control used to display the contents of a file or a memory zone as an array. A table is also called a &quot;data sheet&quot;.</td>
</tr>
<tr>
<td><strong>Combo box / Scrolling list box</strong></td>
<td>The term &quot;combo box&quot; corresponds to a &quot;scrolling list&quot;.</td>
</tr>
<tr>
<td><strong>Scrollbar / Scroll box</strong></td>
<td>A &quot;scrollbar&quot; is also called 'scroll box'.</td>
</tr>
<tr>
<td><strong>Radio button / Check box</strong></td>
<td>A &quot;radio button&quot; is sometimes also called an &quot;check box&quot;.</td>
</tr>
<tr>
<td><strong>File</strong></td>
<td>A &quot;file&quot; is sometimes called a &quot;table&quot;. We use &quot;table&quot; for an object used to view the contents of a file or memory zone in a table format.</td>
</tr>
<tr>
<td><strong>Record</strong></td>
<td>A &quot;record&quot; is sometimes called a row. It holds several items from a file.</td>
</tr>
<tr>
<td><strong>Item</strong></td>
<td>An &quot;item&quot; is a zone belonging to a record.</td>
</tr>
<tr>
<td><strong>SQL Language</strong></td>
<td>&quot;SQL&quot; is a language for working with file data. It is both a query language and a language used to update files (add, modify, delete). This language can be used in the query editor or in programming. However, knowledge of SQL is not required for using the query editor.</td>
</tr>
</tbody>
</table>