WMS RF (eVB) Installation Guide

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WMS RF (eVB) Installation Guide

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Revision History

Ver	Date	By	Description
1	10 Mar 2003	NJ	Initial Release
2	07 May 2003	NJ	Changed database configuration file format to support multiple sites without requiring multiple IP addresses (original version 1.0 implementation).
3	07 Nov 2005	NJ	Revised to include new virtual directory naming conventions. Covers WMS_ASP.DLL version 2.3.38.
4	30 Nov 2005	NJ	Renamed document from "WMS ASP Technical Guide" to "WMS RF (eVB) Installation Guide". Combine installation instructions on both ASP and Pocket PC ends.
5	04 Jan 2006	NJ	1. Added section about Embedded Visual Basic Runtime and Pocket PC 2003, and note about Windows Mobile 5 devices. 2. Added section to describe alternative font support for Alternate Language Files.
5a	16 Jan 2008	NJ	No new functions added. This revision has been produced to clarify specific topics and to implement some consistency in the samples used. 1. Added new notes about Windows Mobile 5 devices regarding Embedded Visual Basic Runtime and multi-language support (due to obsolescence of Pocket Access). 2. Added new notes about differences between ActiveSync 4 and ActiveSync 3.8. 3. Standardised settings used for examples in WMS_ASP.INI settings.

This document describes how to install the programs for the WMS RF module of the CRISTAL Warehouse Management System.

This document describes the installation for the Embedded Visual Basic (eVB) version of the Pocket PC program.

For documentation on installing the program on the Symbol PDT 8100 scanner, please refer to the “Symbol PDT Installation Guide” document.

WMS RF (EVB) INSTALLATION GUIDE

1. INTRODUCTION

The WMS RF module of the CRISTAL Warehouse Management System comprises 2 components:

- Active Server Page (ASP) component to be installed on a Microsoft Internet Information Server (IIS) PC
- Embedded Visual Basic (eVB) program to be installed on an RF (802.11b/g wireless LAN) capable Pocket PC device.

During operation, the Pocket PC device sends HTTP requests to the IIS server.

The IIS server processes these HTTP requests, and retrieves data from or updates data into the WMS database stored on the Microsoft SQL Server (MSSQL) PC.

When the retrieved data is ready, the IIS machine will convert the data into XML format and return this result to the Pocket PC via HTTP. Similarly, when a database update is completed, the IIS machine will return the update status back to the Pocket PC via HTTP.

Typically, the IIS server would be running on a separate machine from the MSSQL server. However, it is also possible to have both IIS server and MSSQL server running on the same physical PC.

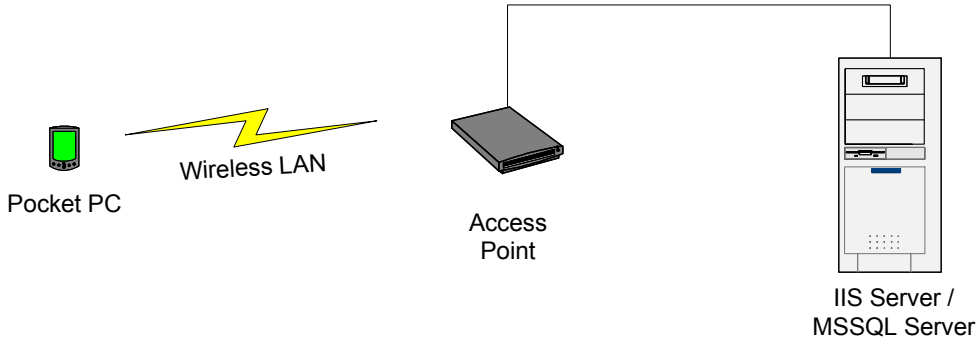


Figure 1: One PC Setup (IIS and MSSQL server on same machine)

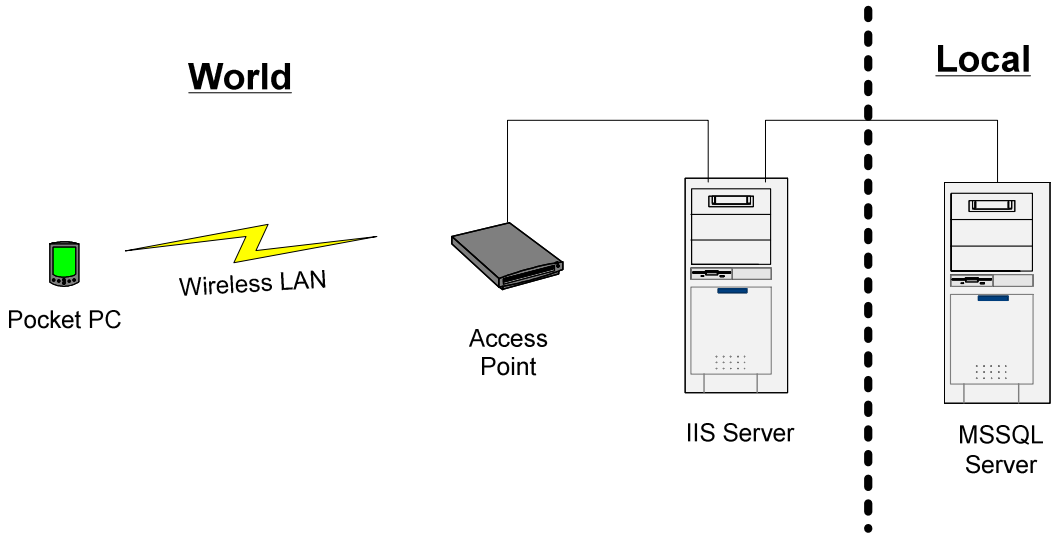


Figure 2: Two PC Setup (IIS and MSSQL servers on different machines)

The Pocket PC itself must be configured as a network client on an 802.11b/g network, and the Pocket PC must be able to access the web services provided by the IIS server machine.

It is not necessary for the Pocket PC to access the MSSQL database server.

However, the IIS server must be able to access the MSSQL server.

2. IIS SERVER INSTALLATION

On the IIS server PC, we need to perform the following:

1. Install Microsoft Internet Information Server service
2. Install CRISTAL Solutions' WMS_ASP.DLL dynamic link library. This is a Visual Basic 6 (VB6) program that the IIS machine runs to access the WMS database on the MSSQL server machine.
3. Creating IIS virtual directories
4. Install MSSQL client connectivity drivers from the “Microsoft SQL Server 2000 Installation CDROM”
5. Editing WMS_ASP.INI configuration file

Installing IIS Service

The IIS Service is installed from the Windows **Control Panel** "Add or Remove Programs" applet:

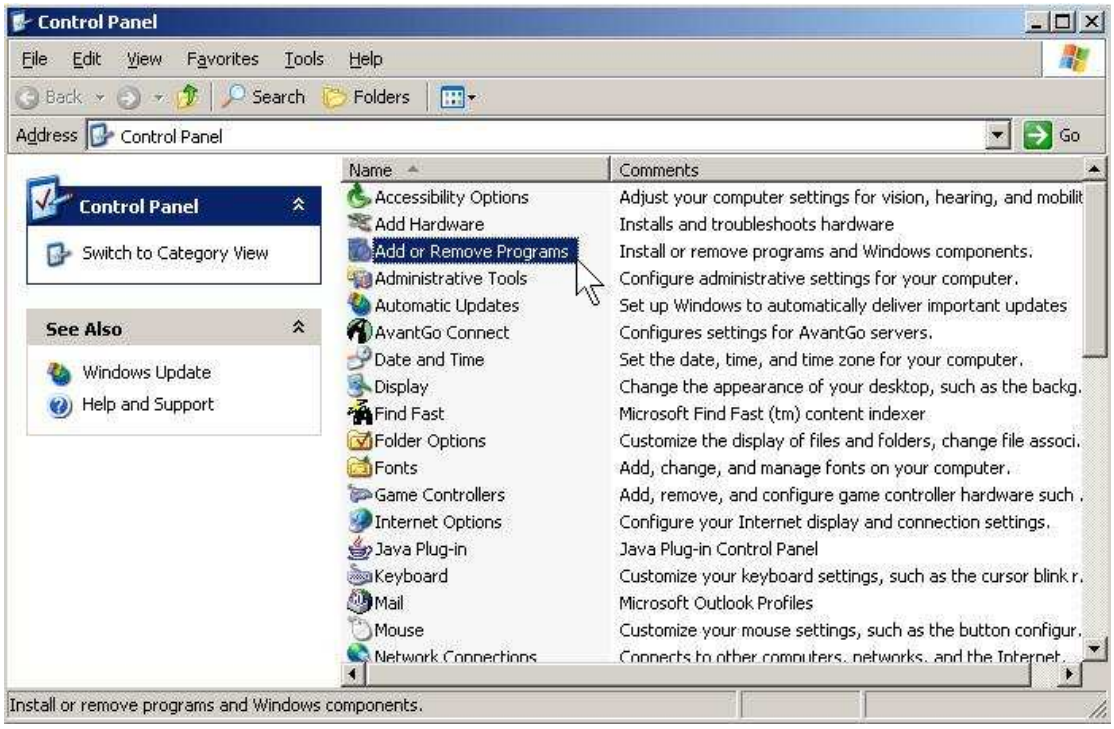


Figure 3: Control Panel "Add or Remove Programs"

In the **Add or Remove Programs** dialog window, click the "Add/Remove Windows Components" button:

Figure 4: Add or Remove Programs Dialog Window

Tick the checkbox for the "Internet Information Services (IIS)" component:

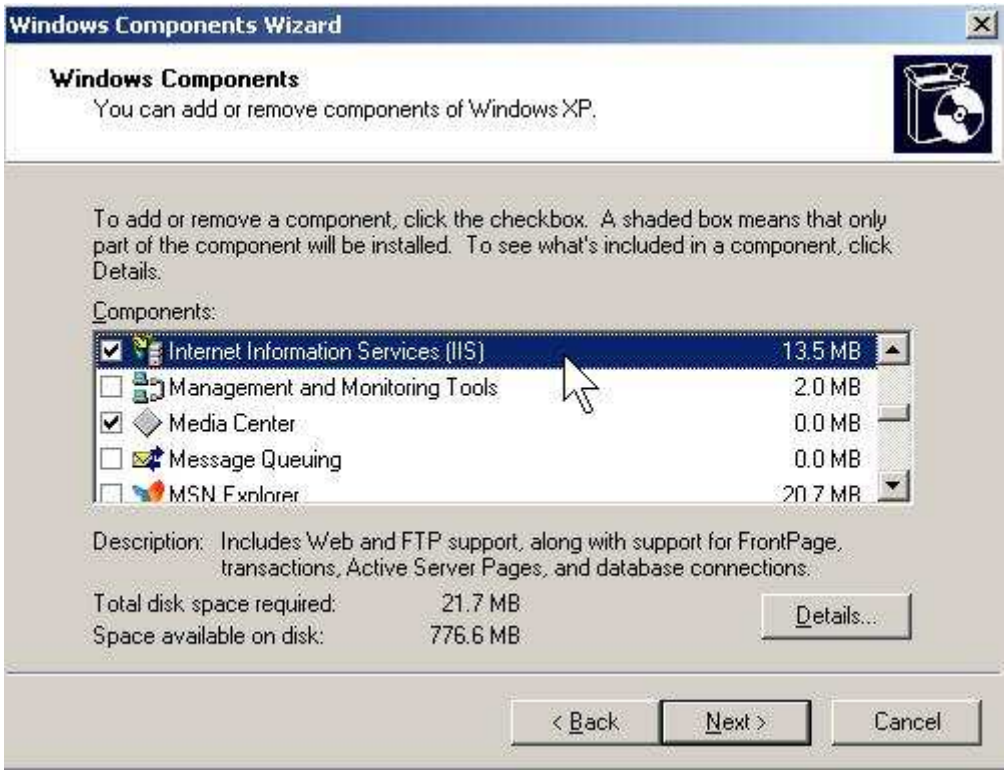


Figure 5: Windows Components Wizard

Alternatively, you can click the "Details…" button and install only selected web services. For the WMS RF application, it is necessary to install "Common Files", "Internet Information Services Snap-In" and the "World Wide Web Service":

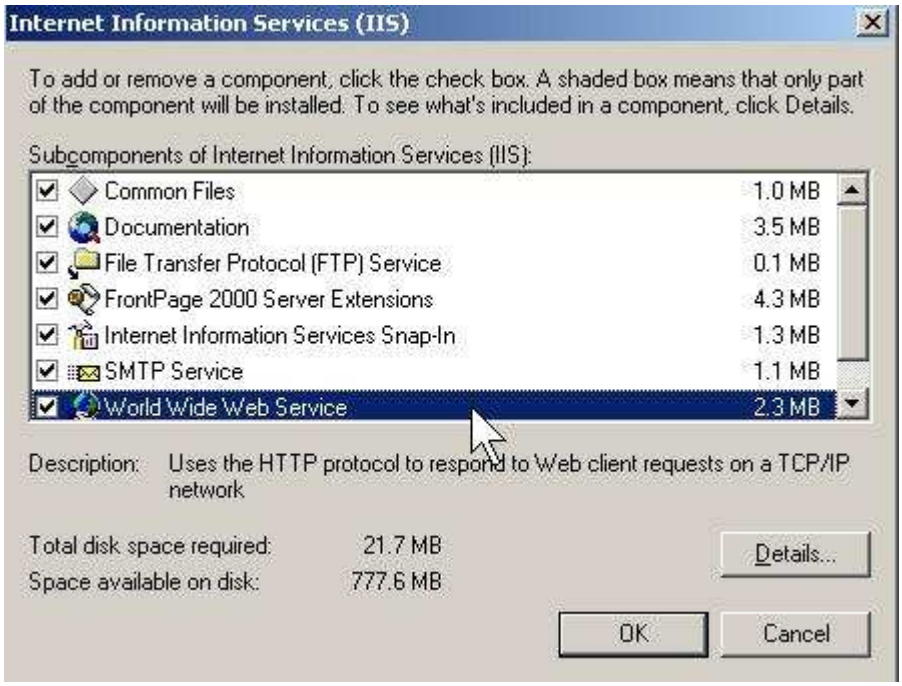


Figure 6: Internet Information Services Components

Upon completing the wizard, the PC will be configured as an IIS web server.

Note that you can run the IIS service on a Windows 2000 Advanced Server or a Windows 2000/XP Professional machine.

Installing WMS_ASP.DLL

Run the SETUP.EXE file of the WMS_ASP.DLL Setup Deployment Package on the web server machine.

By default, the Setup package will install all files under the "C:\Program Files\CRISTAL WMS ASP DLL" directory. The destination directory can however be changed to a different location during Setup.

If the defaults are kept, Setup will install the files as follows:

Directory	File Name	Description
C:\Program Files\ CRISTAL WMS ASP DLL	WMS_ASP.DLL	Main Visual Basic 6 program.
	WMS_ASP.INI	Configuration file for WMS_ASP.DLL. The configurations in this file specify the database login information.
C:\Program Files\ CRISTAL WMS ASP DLL\ wms_asp	HTTP_WMS_ASP.ASP	This is the ASP file called by the WMS RF program on the Pocket PC device.
	DEBUG_WMS_ASP.ASP	This is an ASP file provided for debugging purposes.

Table 1: WMS_ASP.DLL Program Files

Creating IIS Virtual Directory

Although the WMS_ASP.DLL Setup Package creates the directory "C:\Program Files\CRISTAL WMS ASP DLL\wms_asp" and installs the 2 ASP files ("http_wms_asp.asp" and "debug_wms_asp.asp") in it, the Setup program cannot create the IIS virtual directory automatically. The mapping of the IIS virtual directory to a physical directory must be accomplished manually.

On the IIS server, click the Windows **Control Panel** "Administrative Tools" option:

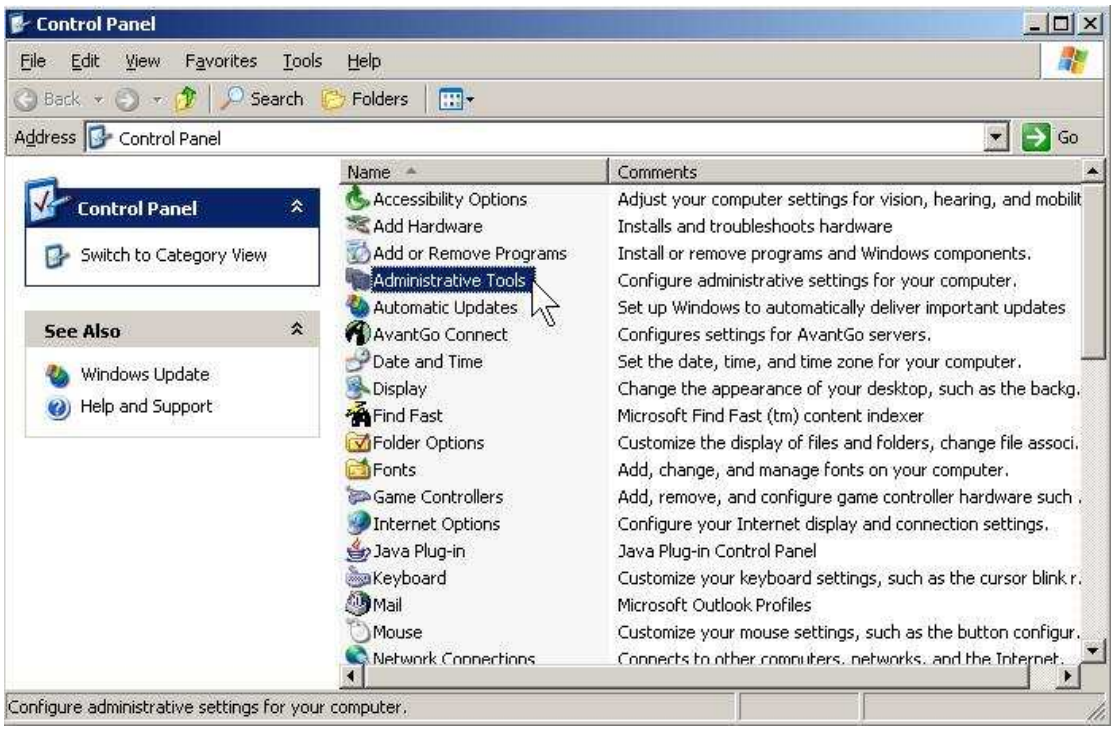


Figure 7: Control Panel "Administrative Tools"

Run the "Internet Information Services" option:

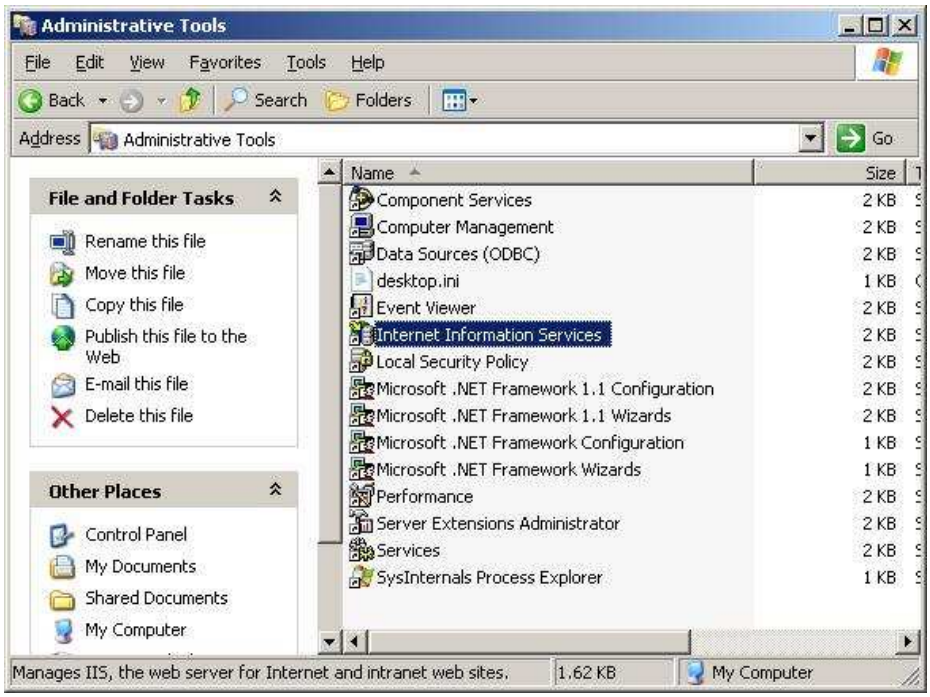


Figure 8: Internet Information Services

The IIS virtual directory to be created is called "wms_asp" in this document. However, you can give any name you like for the virtual directory. If you choose to use a different name for the virtual directory, you must use the new name when you configure the Pocket PC in the second half of this installation.

To create the "wms_asp" virtual directory, right click on the "Web Sites", "Default Web Site" node, and select **New | Virtual Directory…** :

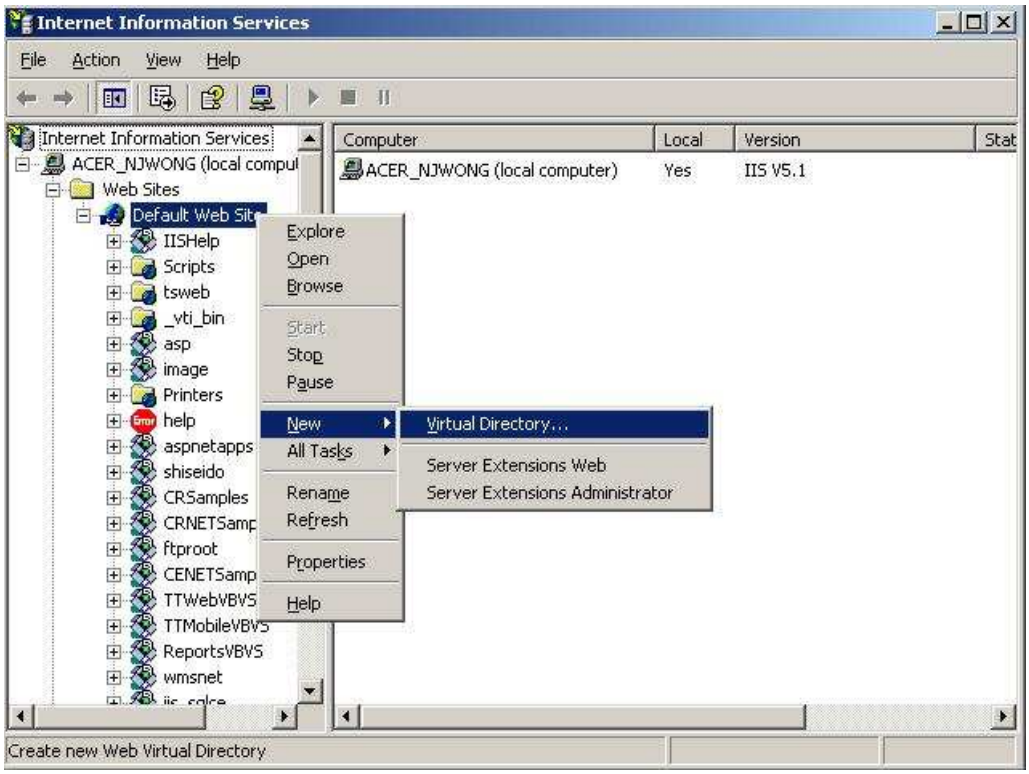


Figure 9: IIS - New Virtual Directory

The "Virtual Directory Creation Wizard" will now be started. Use this wizard to create the "wms_asp" virtual directory, and point this virtual directory to the physical directory "C:\Program Files\CRISTAL WMS ASP DLL\wms_asp".

The "C:\Program Files\CRISTAL WMS ASP DLL\wms_asp" directory is the directory where the "http_wms_asp.asp" and "debug_wms_asp.asp" files are located: If you have installed these ASP files in another directory, you must point the "wms_asp" virtual directory there instead.

Figure 10: Virtual Directory Creation Wizard - 1

Figure 11: Virtual Directory Creation Wizard - 2

Figure 12: Virtual Directory Creation Wizard - 3

For security purposes, you should not enable "Write" or "Browse" permissions.

However, you can enable the "Browse" privileges for debugging and testing whether your IIS web server is configured and running correctly.

Enabling the "Browse" permission allows you to use Pocket Internet Explorer on the Pocket PC device to test whether the Pocket PC device is able to access the web server. If your IIS web server is configured correctly, you will be able to see a directory listing of the 2 ASP files ("http_wms_asp.asp" and "debug_wms_asp.asp") in the "wms_asp" virtual directory.

Figure 13: Virtual Directory Creation Wizard - 4

Once the "wms_asp" virtual directory is created, you should be able to see the 2 files "http_wms_asp.asp" and "debug_wms_asp.asp" listed in the Internet Information Services program:

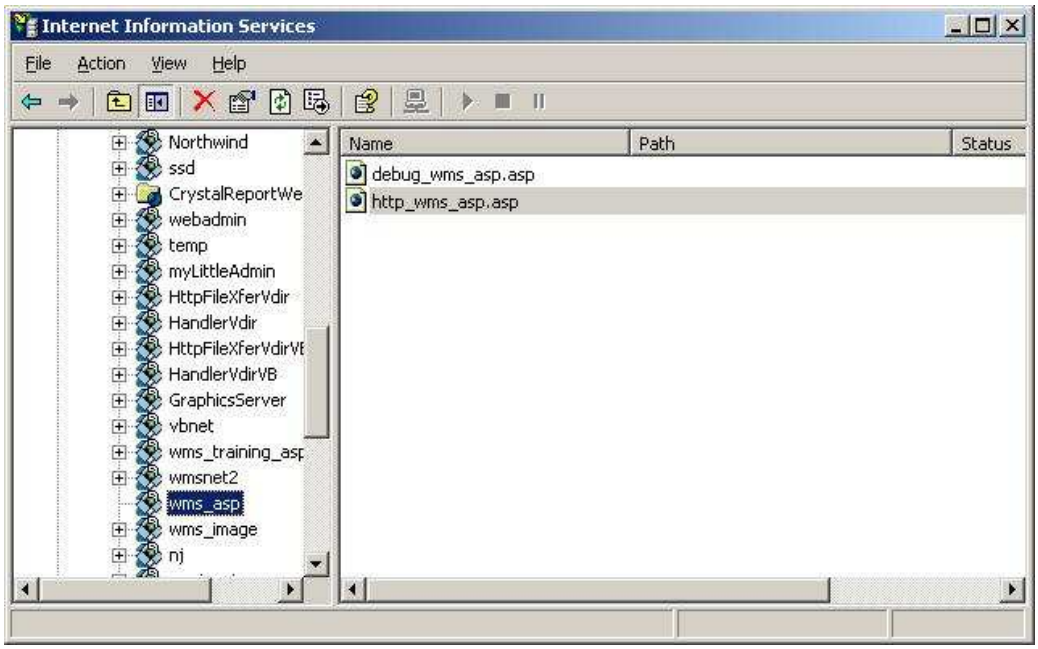


Figure 14: "wms_asp" virtual directory created

Installing MSSQL Database Drivers

If the IIS server is running on the same machine as the MSSQL server, you can skip this step. This is because the MSSQL database drivers would have already been installed together with the MSSQL Server installation.

If IIS Server is not running on the same machine as MSSQL Server, the IIS server will not have the MSSQL database drivers installed. Because the WMS_ASP.DLL program needs to access the WMS database, you will need to install the MSSQL database drivers on the machine.

The MSSQL database drivers are not installed by the SETUP.EXE program for the WMS_ASP.DLL program. Instead, they must be installed from the “Microsoft SQL Server 2000 Installation CDROM”:

Navigating the setup menus to install just the database drivers from the MSSQL 2000 CDROM is not very straightforward. As such, the following screen captures have been produced to guide you on doing this:

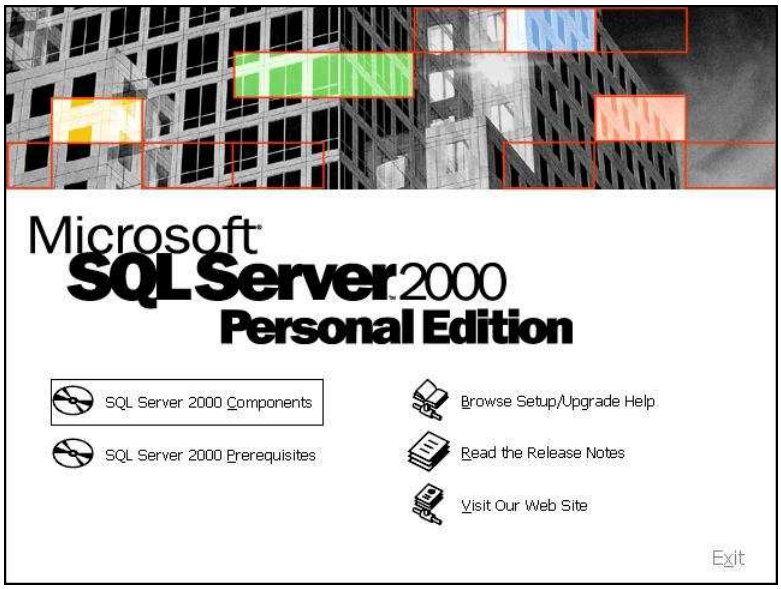


Figure 15: MSSQL - SQL Server 2000 Components

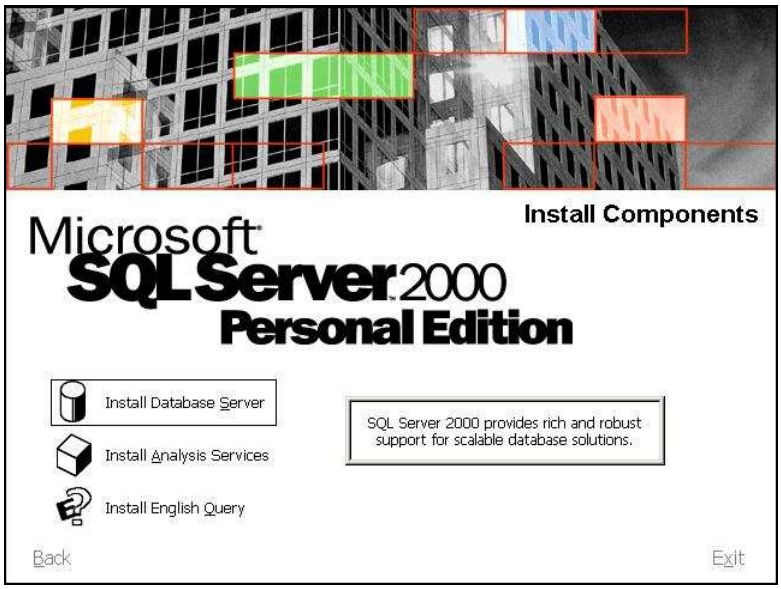


Figure 16: MSSQL - Install Database Server

We need to select the "**Install Database Server**" option even though we are only installing database drivers and not a database server.

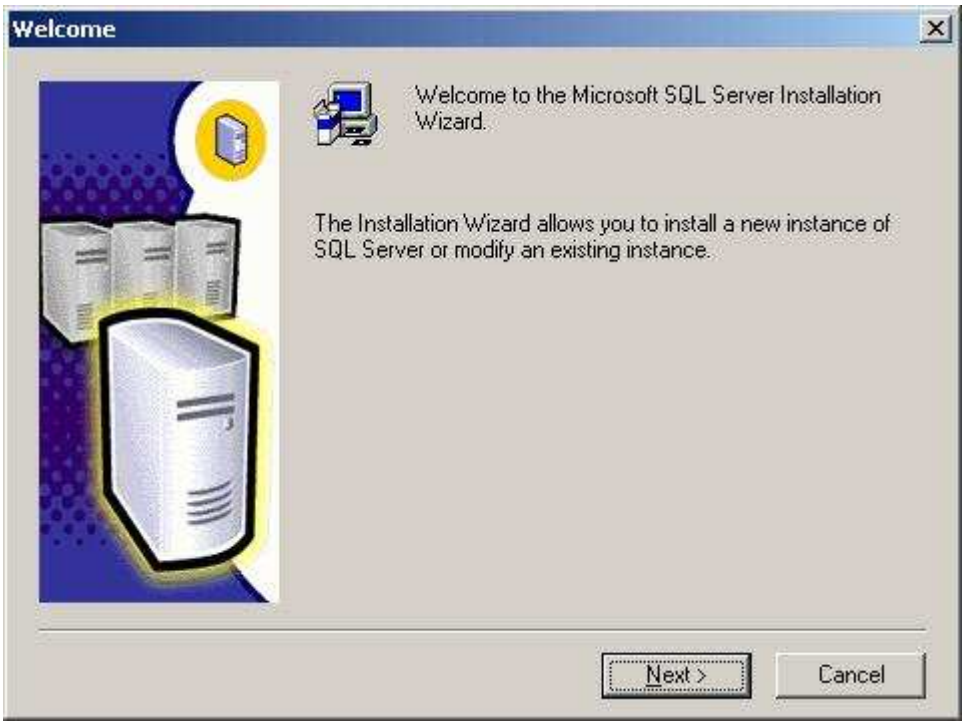


Figure 17: MSSQL - Setup Wizard 1

Figure 18: MSSQL - Setup Wizard 2

At the "Computer Name" step, select the "Local Computer" option.

Figure 19: MSSQL - Setup Wizard 3

Select the "**Create a new instance of SQL Server, or install Client Tools**" option. When you click the "Next" button, the wizard will display several software registration screens. After you have answered the questions on these software registration screens, the following screen will be displayed:

Figure 20: MSSQL – Setup Wizard 4

At the "Installation Definition" page, you can choose either the "**Client Tools Only**" or "**Connectivity Only**" options.

If you just want to install the database drivers, choose the "**Connectivity Only**" option. This is the recommended option.

If you want to install both the database drivers as well as tools like Query Analyzer and Enterprise Manager, select the "**Client Tools Only**" option.

The WMS_ASP.INI File

The WMS_ASP.INI file is used to store the MSSQL login information to all the database instances that are to be accessed by the WMS RF programs.

The WMS_ASP.INI file ***must*** always be located in the same directory where the WMS_ASP.DLL file has been installed (default is "C:\Program Files\CRISTAL WMS ASP DLL").

The WMS_ASP.INI file must be edited manually. It is actually composed of multiple sections in the following format:

```
[database_instance1]
SERVER       = server_name
DATABASE     = database_instance1_name
USER ID      = db_instance1_login_id
PASSWORD     = login_id_password

[database_instance2]
SERVER       = server_name
DATABASE     = database_instance2_name
USER ID      = db_instance2_login_id
PASSWORD     = login_id_password
     :
```

Example:

```
[CRISTALWMS]
SERVER       = 192.168.0.120
DATABASE     = CRISTALWMS
USER ID      = WAREHOUSEDBO
PASSWORD     = SECRET120

[CRISTALWMS_TRAINING]
SERVER       = 192.168.0.130
DATABASE     = CRISTALWMS_TRAINING
USER ID      = WAREHOUSEDBO_TRAINING
PASSWORD     = SECRET130
```

Table 2: WMS_ASP.INI File

3. POCKET PC INSTALLATION

Warning

- The Embedded Visual Basic (EVB) version of the WMS RF program does not run properly on Windows Mobile 5 (and higher) devices. The EVB version of the WMS RF program described in this section only runs properly on devices with the Pocket PC 2003 (or earlier) operating systems.
- For devices running Pocket PC 2003, Windows Mobile 5 (and higher), the Embedded Visual Basic Runtime must be downloaded separately from Microsoft's web site and installed prior to running any of the WMS RF programs described in this section. This runtime is not required if the device is running Pocket PC 2002 or earlier. The EVB runtime can be downloaded from the following web site:

  http://msdn.microsoft.com/mobility/windowsmobile/downloads/evb.aspx

- If the EVB Runtime is not installed on the Pocket PC 2003/Windows Mobile 5 (or higher) device, the following error messages will be displayed on the device when you try to run any of the WMS RF EVB programs:

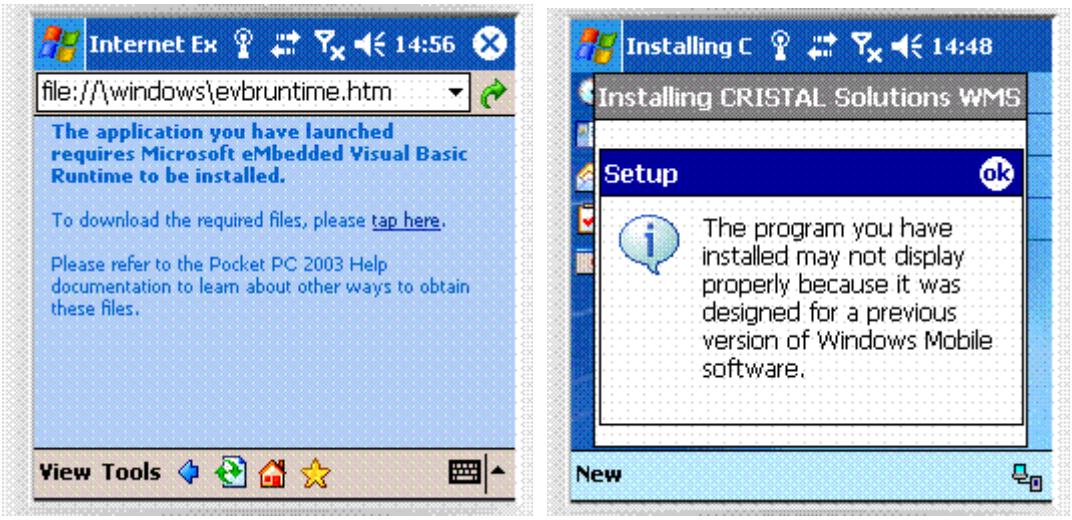


Figure 21: EVB Runtime Error Messages

- When Microsoft released the Windows Mobile 5 operating system, they dropped support for the Microsoft Access database, which was available previously in Pocket PC 2002/2003 as Pocket Access. Without Pocket Access database support, the multi-language capability of the WMS RF (EVB) program will not work.

  Thus, if your Pocket PC is running Windows Mobile 5 (or higher), the WMS RF (EVB) program can only support English characters. For non-English languages, you must use older devices running Pocket PC 2002/2003.

  The new .NET Compact Framework version of the WMS RF program will have multi-language support. This new version will be released in 2Q 2008.

Introduction

For the Pocket PC devices, we need to perform the following:

1. Install ActiveSync on a desktop PC to sync with the Pocket PC device
2. Establish a Partnership between the desktop PC and the Pocket PC device
3. Install CRISTAL Solutions WMS RF Embedded Visual Basic program on the device.
4. Configure the "wmsHost.cfg" file.

5. Create optional language file "wmsLang.cdb" (does not work with Windows Mobile 5 (and higher) devices. See warning above).
6. Configure system settings for RF operation.

Note that this document does not describe how to configure the wireless LAN network settings on the Pocket PC device. This is because every hardware manufacturer has their own method of configuring their RF network card, and it is simply impossible to cover them all.

Please refer to the manual that comes with the Pocket PC to configure the hardware settings of the Pocket PC (e.g. network card settings, barcode scanner settings, date/time settings, backlight/power settings etc).

Installing ActiveSync

ActiveSync is a program that must be installed on the desktop PC that is used for synchronising with the Pocket PC device. As you can only install programs into the Pocket PC device via ActiveSync, ActiveSync is the first program that must be installed on a desktop PC.

The Microsoft ActiveSync software can be downloaded from the Microsoft web site. Note that if your devices are running the Pocket PC 2003/2002 operating systems, you should install only version 3.8 of ActiveSync.

You can download ActiveSync 3.8 from this web site:

http://www.microsoft.com/windowsmobile/activesync/default.mspx

Note that the version 4.x series of ActiveSync are meant for devices running the new Windows Mobile 5.0 operating system only.

Warning:

- **Pocket PC 2002/2003 devices**

  ActiveSync 4.x does not provide the "**Backup/Restore**" menu option, and also do not allow allow synchronising via wireless LAN (802.11b/g). Therefore, if you only have Pocket PC 2002/2003 devices, it is strongly recommended that you do not install ActiveSync 4.x, and to instead, always use only ActiveSync 3.8.

- **Windows Mobile 5 (and higher) devices**

  Windows Mobile 5 (and higher) devices will only work with ActiveSync 4.x. The devices will not work with ActiveSync 3.8.

  Note that ActiveSync 4.x does not allow synchronising via wireless LAN (802.11b/g). Wireless LAN synchronising is available under ActiveSync 3.8.

Establish Partnership

After ActiveSync has been installed, connect the serial or USB cable from the desktop PC to the device.

ActiveSync will prompt you to establish a Standard or Guest Partnership:

Figure 22: ActiveSync Partnership

You can establish either form of partnership. However, if you establish a Standard partnership, the partnership settings will be saved on both the desktop PC and the Pocket PC device. When you synchronise these devices again in future, ActiveSync will automatically retrieve and use the saved Standard partnership settings created previously, and will not prompt the above dialog window again.

If the device has not been established with a Standard partnership to the desktop PC, the above dialog box will always be prompted when you sync the device.

CRISTAL WMS RF Installation

With ActiveSync connected, run the **Setup.exe** program of the CRISTAL WMS RF Deployment Package on the desktop PC:

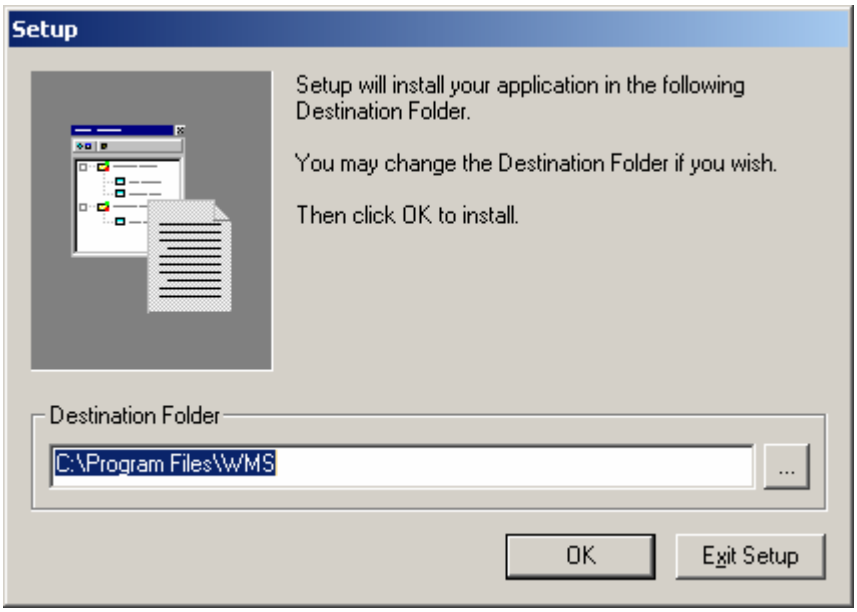


Figure 23: CRISTAL WMS RF Setup

The "Destination Folder" indicated here specifies a location on the desktop PC. Files for the Pocket PC will be extracted from the deployment package and deposited in the "Destination Folder" location before they are copied into the Pocket PC device.

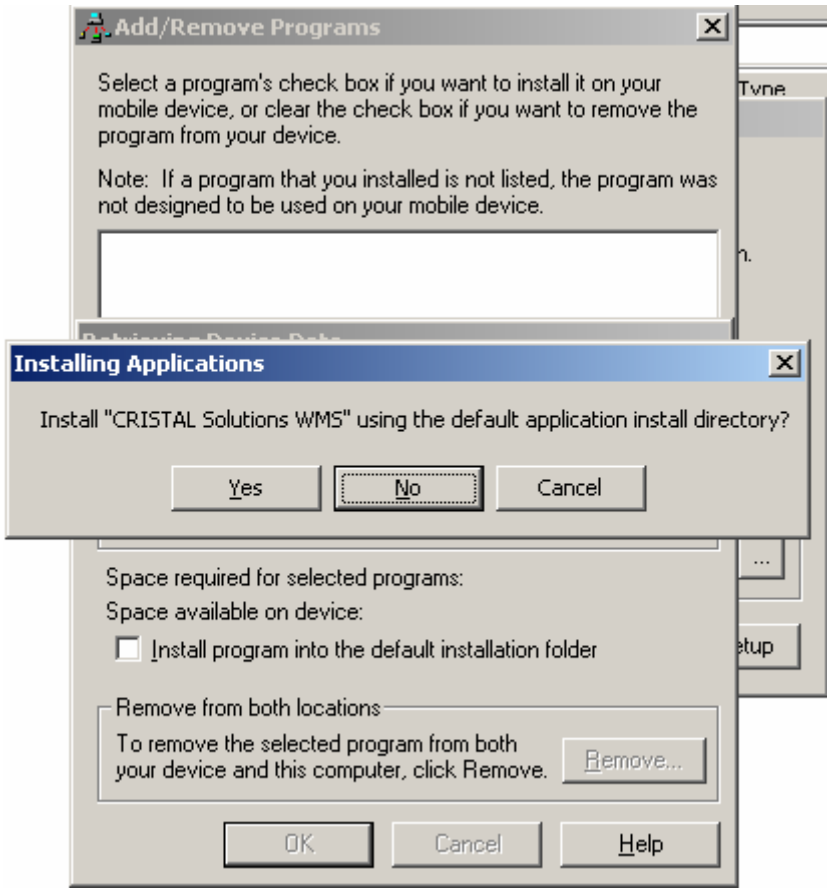


Figure 24: Default Application Install Directory

On the second screen, the program is prompting you to choose the directory on the Pocket PC device where the program files will be installed.

1. If you answer "Yes", the application files will be installed into the "\Program Files\WMS" directory.
2. If you answer "No", the program will prompt you for the storage media the application files will be installed to.

For Pocket PC 2002/2003 devices, these devices do not use non-volatile Flash memory. These devices have only volative RAM memory. If the device was not charged, and the battery is completely drained, all files that have been installed into the “\Program Files\WMS” directory will be lost.

Because of this problem, it is recommended that you answer “No” and have the program installed into a compact flash memory card.

For Windows Mobile 5 (and higher) devices, these devices have non-volative Flash memory. The device contents are not lost when the battery is drained. As such, there is no problem installing programs into the “\Program Files\WMS” directory.

In the “Select Destination Media” dialog, at the “Save In” prompt, choose “Main Memory” if you have a Windows Mobile 5 device. If you have a Pocket PC 2002/2003 device, select an external flash memory card instead.

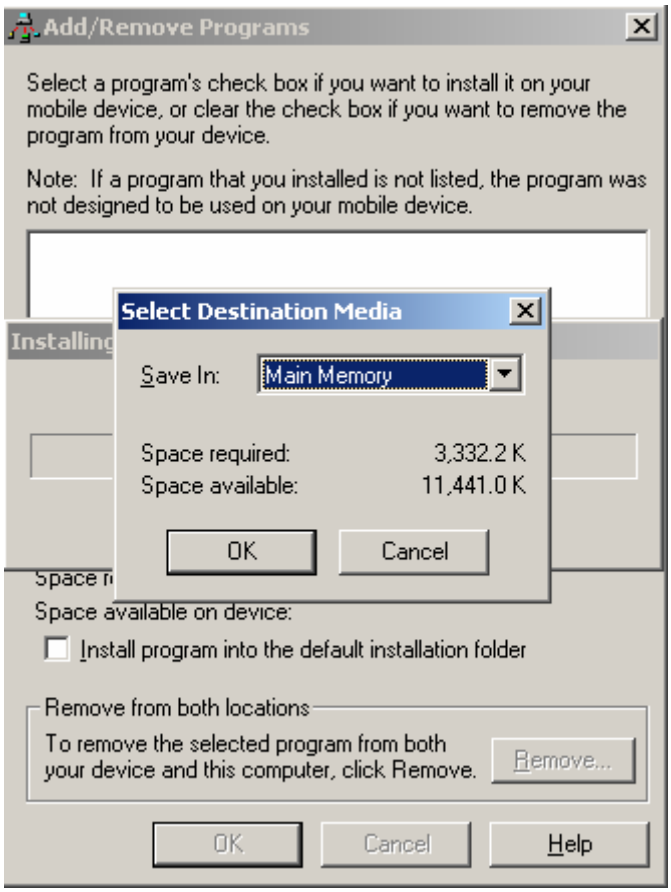


Figure 25: Select Destination Media

Figure 26: Change Destination Media to Flash Memory

Choosing "Main Memory" means installing programs to the "\Program Files\WMS" directory.

For the "Storage Card2" (this will have a different name for different devices) destination in the above example, this means that the program files will be installed into the "\Storage Card2\CRISTAL Solutions WMS" directory.

(Note: When Pocket PC programs are installed in the "\Program Files" directory, the sub-directory created does not include the software vendor's name. Hence the directory name of "\Program Files\WMS".

When the Pocket PC program is installed into a non-"\Program Files" directory, the sub-directory created will always include the vendor's name. Hence the directory "\Storage Card2\CRISTAL Solutions WMS".)

After the WMS RF program files have been copied into the Pocket PC, the desktop PC will display the following message.

Figure 27: Application Downloading Complete

Click OK to dismiss the message.

On the Pocket PC, the device will prompt messages like the following. Simply answer "**Yes To All**" at this prompt.

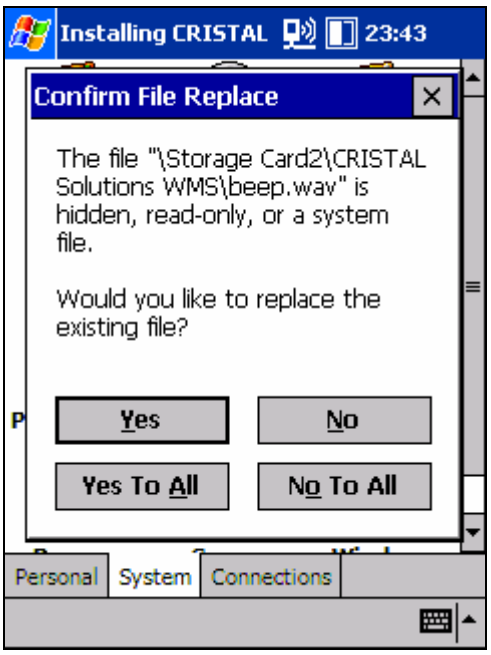


Figure 28: Answer "Yes To All" in Confirm File Replace prompt

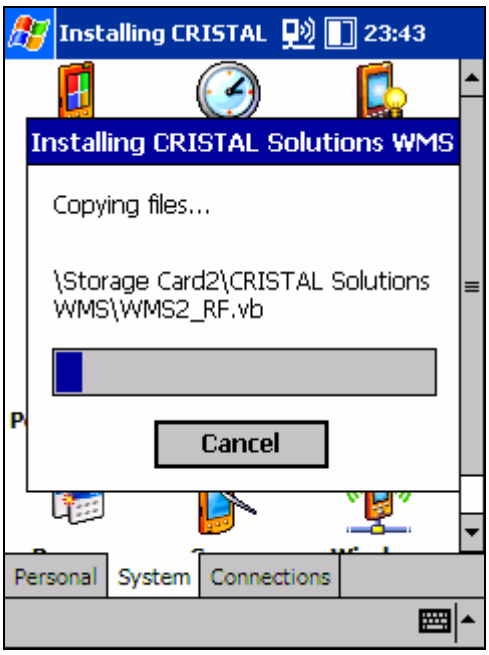


Figure 29: Application Files copied to Pocket PC

You can explore all the directories on the Pocket PC from the desktop PC by clicking the "**Explore**" button on the ActiveSync window:

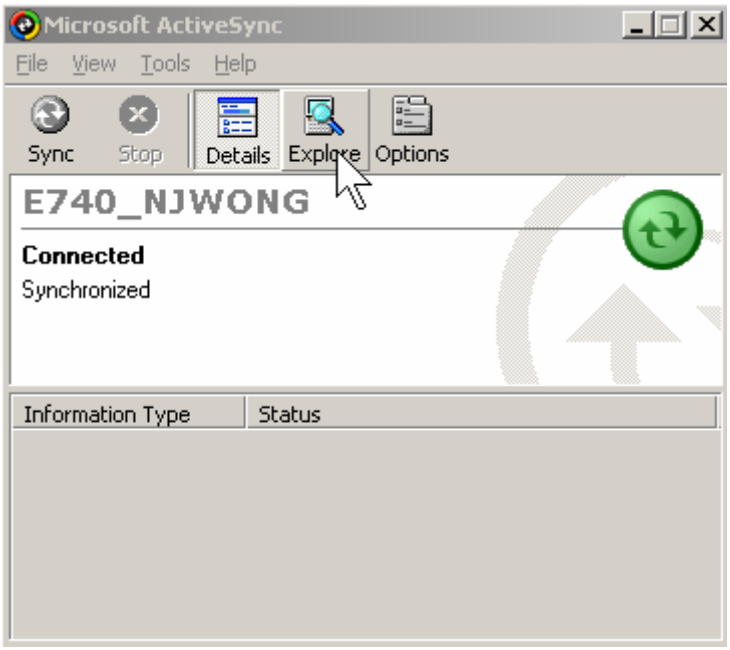


Figure 30: ActiveSync "Explore" button

If you explore the “\Program Files\WMS” (or "\Storage Card2\CRISTAL Solutions WMS") directory, you will find that the following files have been created by the CRISTAL WMS RF Setup Deployment Package:

Filename	Description
WMS2_RF.vb	WMS RF Embedded Visual Basic program.

Filename	Description
WMS_Launcher.exe	Launcher program to activate the "WMS2_RF.vb" file.
wmsHost.cfg	Configuration file used by the WMS RF program indicating the network address of the IIS server and the location of the ASP pages.
COMHTMLControl.dll	ActiveX control used by the WMS RF program.
beep.wav	Sound file used by the WMS RF program.
gong.wav	Sound file used by the WMS RF program.
CRiSTALrf.bmp	Bitmap picture used by the WMS RF program as its wallpaper.
cfg_editor.vb	Configuration Editor program to edit the "wmsHost.cfg" configuration file.
cfg_launcher.exe	Launcher program to activate the "cfg_editor.vb" file.
cfg_editor.ini	Configuration file used by the Configuration Editor program.

Table 3: WMS RF Pocket PC Program Files

Editing the "wmsHost.cfg" File

The WMS RF setup program installs 2 new menu options on the **Start** menu of the Pocket PC:

Figure 31: Pocket PC Start Menu with WMS Options

1. The **WMS** menu option will run the WMS RF program. But because the "wmsHost.cfg" file has not been configured, the program will not be able to access the WMS database. The program will timeout and abort.
2. The **WMS Config** menu option will run the Configuration Editor program to edit the "wmsHost.cfg" file.

Tap the **WMS Config** button to run the Configuration Editor program.

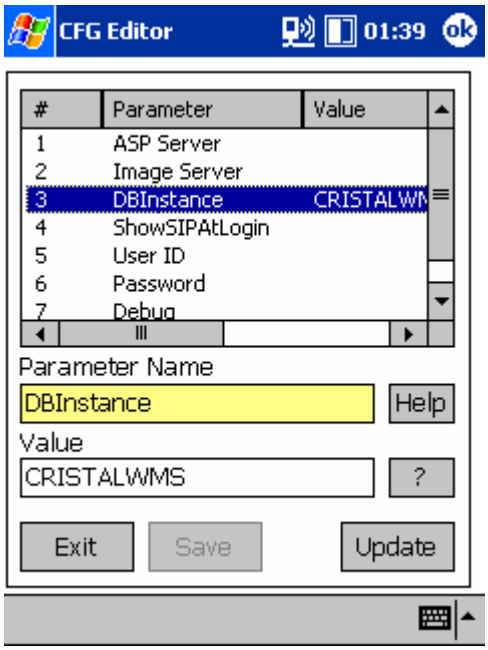


Figure 32: Configuration Editor Screen

To edit a parameter, tap the parameter name in the grid. The parameter and its current value will be indicated in the "Parameter Name" and "Value" text boxes.

Tap the **Help** button to view info about the selected parameter.

Tap the **?** button to display choices (if available) for the selected parameter.

To change the value of a parameter, edit its value in the "Value" text box directly. Then tap the **Update** button to update the changed value into the grid.

When you tap the **Save** button (this button is only enabled after you modified a parameter), the program will write the newly updated values into the "wmsHost.cfg" file.

Tap the **Exit** button to leave the program.

The purpose of each parameter is presented in the following table. Note that the most important parameters are the "ASP Server" and "DBInstance" parameters.

Parameter	Description	Example
ASP Server	This specifies the full URL of the web directory on the IIS server where the "http_wms_asp.asp" and "debug_wms_asp.asp" files are located. This parameter is **mandatory**.	**http://192.168.0.120/wms_asp** (This means the IIS server has network address 192.168.0.120. The directory containing the "http_wms_asp.asp" file has been mapped to the virtual directory "wms_asp".)
DBInstance	This does not specify the name of the database instance where the WMS database is located. Instead, it specifies the section name inside the "WMS_ASP.INI" file located in the same directory as the WMS_ASP.DLL program file on the IIS server. This section inside the "WMS_ASP.INI" file will dictate the actual database instance the WMS database is located in. This parameter is **mandatory**.	**CRISTALWMS** (This means that we are to look at the "**[CRISTALWMS]**" section inside the WMS_ASP.INI file. Inside the [CRISTALWMS] section, the "SERVER" parameter will indicate the network address of the MSSQL server, while the "DATABASE" parameter will indicate the database name.)
Image Server	This specifies the full URL of the web directory on the IIS server where product image files (used in PRODUCT_MASTER records) are located. This parameter is optional.	**http://192.168.0.120/wms_image**
ShowSIPAtLogin	If set to TRUE, the Windows "Soft Input Panel" (SIP) – which is the onscreen keyboard (or input panel) – will be displayed when the WMS RF program is started and the cursor is at the "Login" prompt.	**FALSE** (As most Pocket PC barcode scanners include a physical keyboard, this parameter can

Parameter	Description	Example
	If set to FALSE, the SIP is not displayed during startup. FALSE is the default setting if this parameter is not specified. This parameter is optional.	typically be set to FALSE. It is useful to set this to TRUE if the Pocket PC terminal does not have a physical keyboard, and users must always rely on the SIP for data entry.
User ID	If specified, the name here will automatically be filled into the "User ID" text box when the WMS RF program is started. This parameter is optional.	
Password	If specified, the text here will automatically be filled into the "Password" text box when the WMS RF program is started. However, as the password is stored in **clear text**, it is advisable that this parameter not be used. This parameter is optional.	
Debug	If set to TRUE, programs will exhibit special behaviour (e.g. auto-default of text boxes) during execution. This is chiefly used for debugging and testing. If set to FALSE, programs will behave normally. FALSE is the default setting if this parameter is not specified. This parameter is optional.	**FALSE**

Table 4: wmsHost.cfg Parameters

After the "wmsHost.cfg" has been properly setup, you may want to remove the **WMS Config** icon from the Pocket PC's **Start** menu.

Figure 33: Start | Settings Menu Option

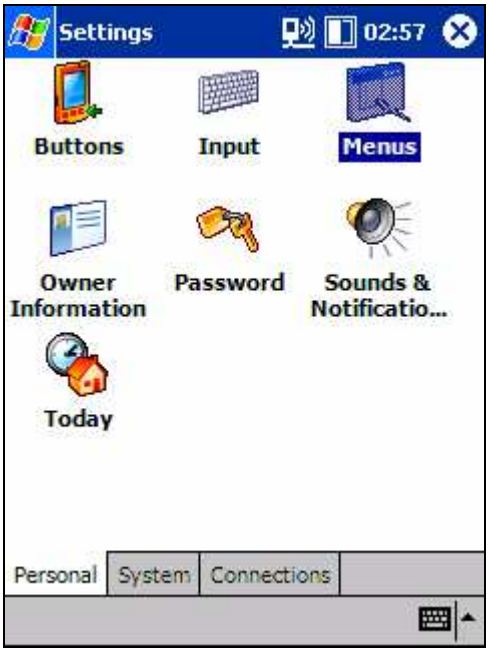


Figure 34: Settings | Menu - 1

Tap the **Start | Settings | Menus** option on the Pocket PC.

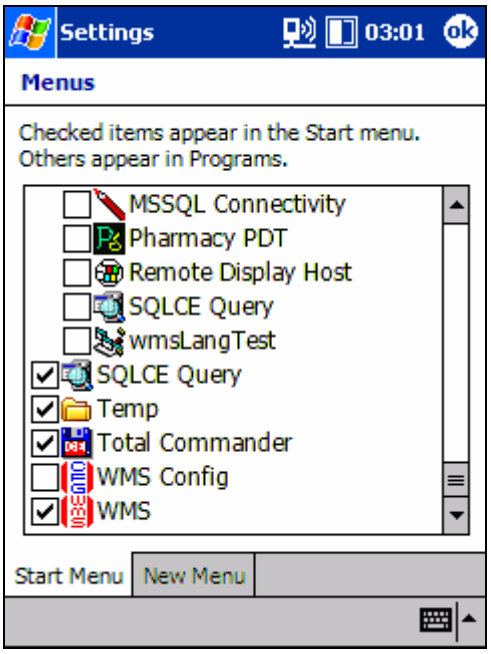


Figure 35: Settings | Menu - 2

Scroll to the bottom of the list, and uncheck the tick against the **WMS Config** menu option.

Tap the **OK** button to save the changes.

Figure 36: Start Menu without WMS Config option

The **WMS Config** menu option will no longer appear in the **Start** menu.

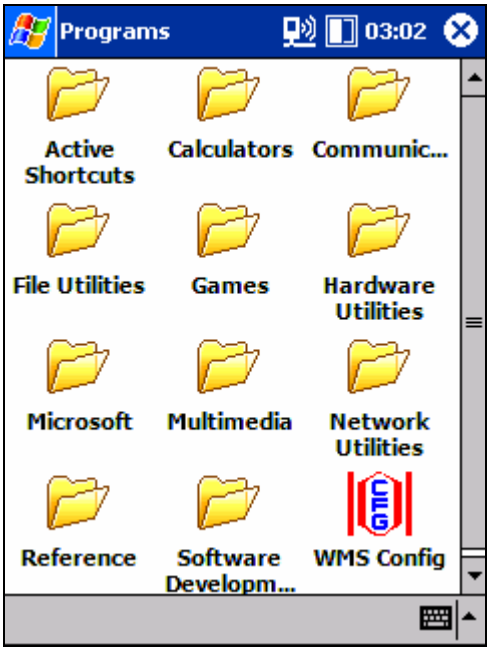


Figure 37: WMS Config option in Programs group

Instead the **WMS Config** option can now be accessed from the **Start | Programs** program group.

Configuring "RF" System Settings

The behaviour of the WMS RF Pocket PC program is also controlled by some parameters in the System Configuration panel.

On the Desktop WMS program, open the **Administration | System | System Configuration** program.

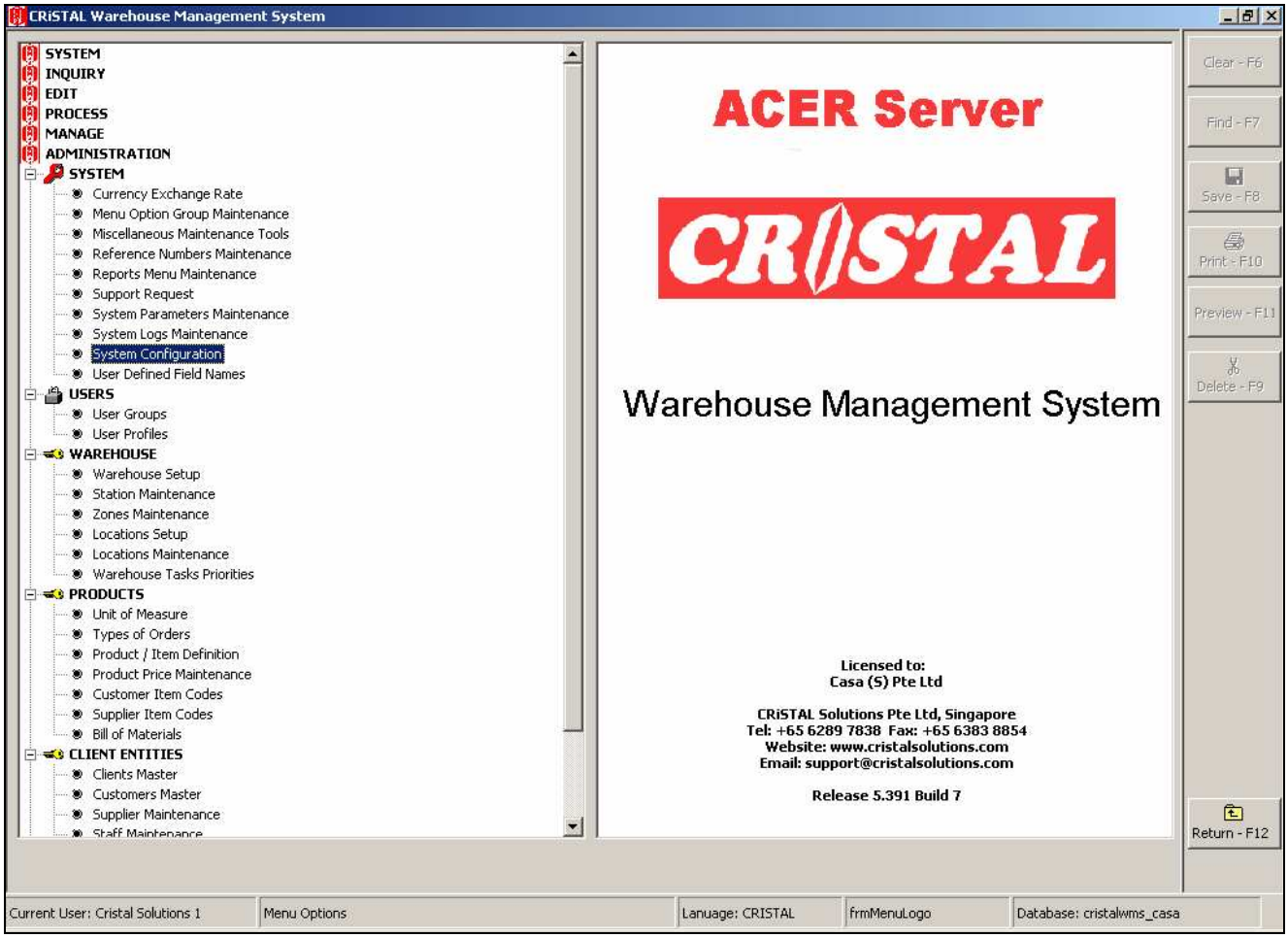


Figure 38: System Configuration program

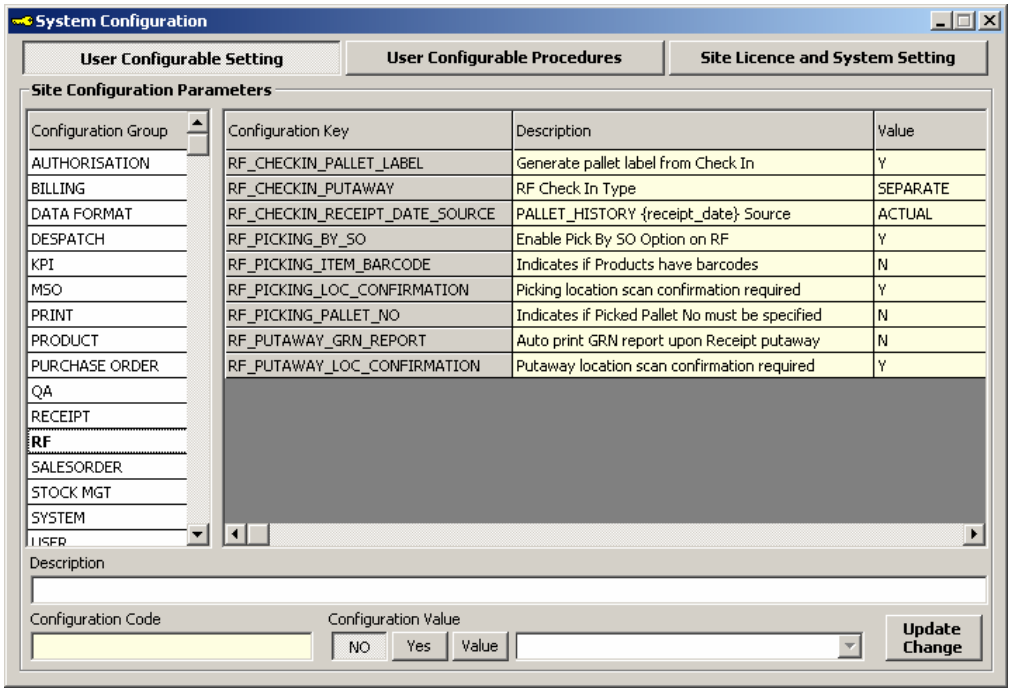


Figure 39: "RF" Configuration Group

All parameters with names starting with "RF_" and belonging to the "RF" Configuration Group are used by the WMS RF Pocket PC program.

1. **RF_CHECKIN_PALLET_LABEL**

   This parameter determines whether a Pallet Label is automatically printed via the PQServer module when goods are checked in.

   Valid values are "Y" (Pallet Label is printed) or "N" (Pallet Label is not printed).

   The default setting is "Y" if this parameter is not specified.

2. **RF_CHECKIN_PUTAWAY**

   This parameter defines how Check In and Putaway functions are performed at the warehouse.

   Valid values are "DIRECT" and "SEPARATE".

   In single storied warehouses, the Check In and Putaway functions can be combined into one entry screen program. Because the warehouse is only on one storey, the warehouse operator can easily move the goods DIRECTLY from the Unloading Bay to the Storage Area. One program can serve both check in and putaway functions. For such warehouses, we configure this parameter with "DIRECT".

   "DIRECT" is also the default setting if this parameter is not specified.

   In multi-storied warehouses, the Check In is done on the Unloading Bay on the ground floor. The goods are however stored on the 2nd, 3rd, 4th etc stories. Operators are stationed on each floor to perform the putaway for pallets destined for that floor.

   In this setup, we configure the parameter as 'SEPARATE". This is because the receiving party at the Unloading Bay runs a Check In entry screen program, while the putaway operators on the 2nd, 3rd etc stories run a separate Putaway entry screen program.

3. **RF_CHECKIN_RECEIPT_DATE_SOURCE**

   This parameter determines what date will be stored in the {receipt_date} field of the stock record when new stock is received and checked in. This affects the age of the goods in the warehouse.

   Valid values are "DOCUMENTS", "ACTUAL", and "MASTER".

   If "DOCUMENTS", the program will use the Receipt Date recorded in the receipt documents. Note that as documents can be backdated or post-dated, we can mark incoming goods as having arrived earlier or later than the actual receipt date.

   "DOCUMENTS" is the default setting if this parameter is not specified.

   If "ACTUAL", the program will use the system date instead.

   If "MASTER", the program will use the Receipt Date recorded in the Receipt Header document instead of the Receipt Detail documents.

4. **RF_PICKING_BY_SO**

   This parameter determines whether the "Pick By Sales Order" entry screen is enabled. In the "Pick By Sales Order" program, warehouse operators are required to pick the items of each Sales Order separately. This is not as efficient as the "Pick By Task" program, which allows operators to batch pick one product for several sales orders in one go.

   Valid values are "Y" ("Pick By Sales Order" is enabled) or "N" (not enabled).

   The default setting is "Y" if this parameter is not specified.

5. **RF_PICKING_ITEM_BARCODE**

This parameter is used to indicate if products contain barcodes. If the warehouse goods are barcoded, during picking, the program can prompt the picker to scan the item barcode to confirm that the picker has picked the correct item.

However, if the goods are not barcoded, it will be very difficult for operators to type in Item or SKU numbers to confirm that the picker has picked the correct item. For these cases, the program will simply prompt the user to confirm the quantity picked only.

Valid values for this parameter are "Y" (products have barcodes, and must be scanned during picking as a validation check) or "N" (products have no barcodes.)

The default setting is "Y" if this parameter is not specified.

6. RF_PICKING_LOC_CONFIRMATION

This parameter determines whether the warehouse operator must scan (or input) the storage location as a confirmation check during picking.

Valid values are "Y" (location confirmation required) or "N" (not required).

The default setting is "Y" if this parameter is not specified.

7. RF_PICKING_PALLET_NO

This parameter determines whether pickers need to specify the Pallet Number they are picking from, or just the Storage Location.

Valid values are "Y" (pickers must specify the Pallet Number) or "N" (pickers only need to specify the picking location).

The default setting is "Y" if this parameter is not specified.

In CRISTAL WMS, goods are recorded at the pallet level (every pallet has a pallet number). For Picking, it is necessary for the operator to tell the system which pallet the operator is picking an item from.

If the Pallet Number is not specified, the system will randomly choose a pallet at the pick location as the pallet that was picked from.

8. RF_PUTAWAY_GRN_REPORT

This parameter determines whether the Goods Receipt Note is automatically printed via the PQServer module when the last pallet of a receipt has been putaway.

Valid values are "Y" (GRN printed) or "N" (GRN not printed).

The default setting is "Y" if this parameter is not specified.

9. RF_PUTAWAY_LOC_CONFIRMATION

This parameter determines whether the warehouse operator must scan (or input) the storage location as a confirmation check during putaway.

Valid values are "Y" (location confirmation required) or "N" (not required).

The default setting is "Y" if this parameter is not specified.

4. USING NON-ENGLISH LANGUAGES

Warning

When Microsoft released the Windows Mobile 5 operating system, they dropped support for the Microsoft Access database, which was available in Pocket PC 2002/2003 under the name Pocket Access. Without Pocket Access database support, the Non-English language capability will not work.

Thus, if your Pocket PC is running Windows Mobile 5 (or higher):

THIS ENTIRE CHAPTER IS NOT APPLICABLE

For this chapter, the WMS RF program (EVB version) must be running on devices with the Pocket PC 2002/2003 operating system.

The new .NET Compact Framework version of the WMS RF program will have multi-language support. This new version will be released in 2Q 2008.

Alternate Language Files

By default, the captions on command buttons, labels, grids etc in the WMS RF program are in English.

The WMS RF program can however display these captions in an alternate language in a similar manner as the desktop version.

To provide alternate languages, a special Pocket Access database file with the name of "wmsLang.cdb" must be copied into the WMS application files directory on the Pocket PC.

Also, if a special font must be used, the font file must be copied into the "\Windows\Fonts" directory.

"wmsLang.cdb" / "wmsLang.mdb" Files

Due to the special way that the Pocket PC system operates, the "wmsLang.cdb" Pocket Access file has a "CDB" extension only when it is on the device. If the file is copied out of the device to a desktop PC, the file will be automatically assigned an "MDB" extension (ie. "wmsLang.mdb" – the MDB signifies a Microsoft Access format file) on the desktop PC.

For installation and distribution purposes, only the Microsoft Access version of the file (ie. "wmsLang.mdb") is provided. Users will need to manually copy the "wmsLang.mdb" file into the device if alternate language captions are to be displayed. When the "wmsLang.mdb" file is copied into the Pocket PC, it will be automatically renamed to "wmsLang.cdb" on the device.

Copying the "wmsLang.mdb" file from Desktop PC to the Device

Run the menu option **Tools | Import Database Tables …** from the Microsoft ActiveSync 3.8 program on the desktop PC.

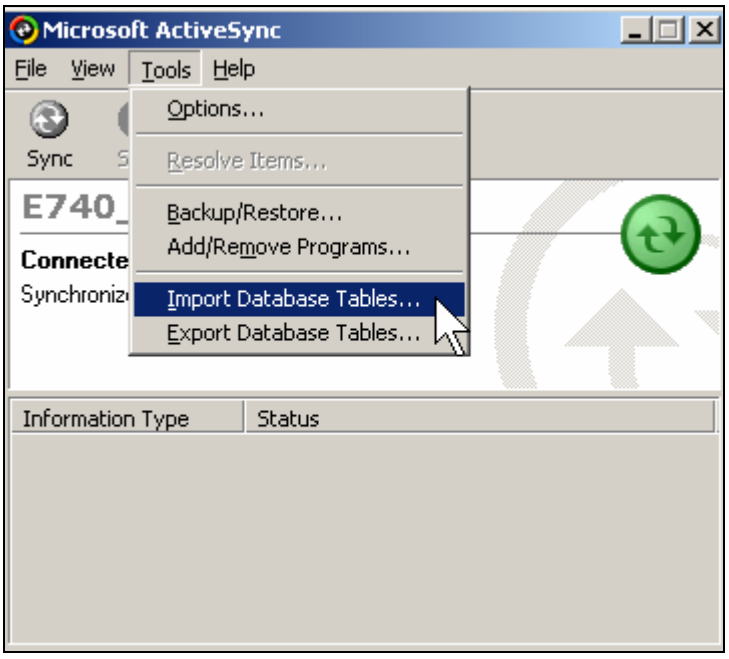


Figure 40: ActiveSync – Import Database Tables menu option

The program will prompt you for the location of the "wmsLang.mdb" file (on the desktop PC).

After selecting it, the following screen will be displayed for you to specify the destination on the Pocket PC device. Note that the Database Conversion program will automatically rename the file to a "cdb" extension. Simply specify the location where the WMS RF programs have been installed.

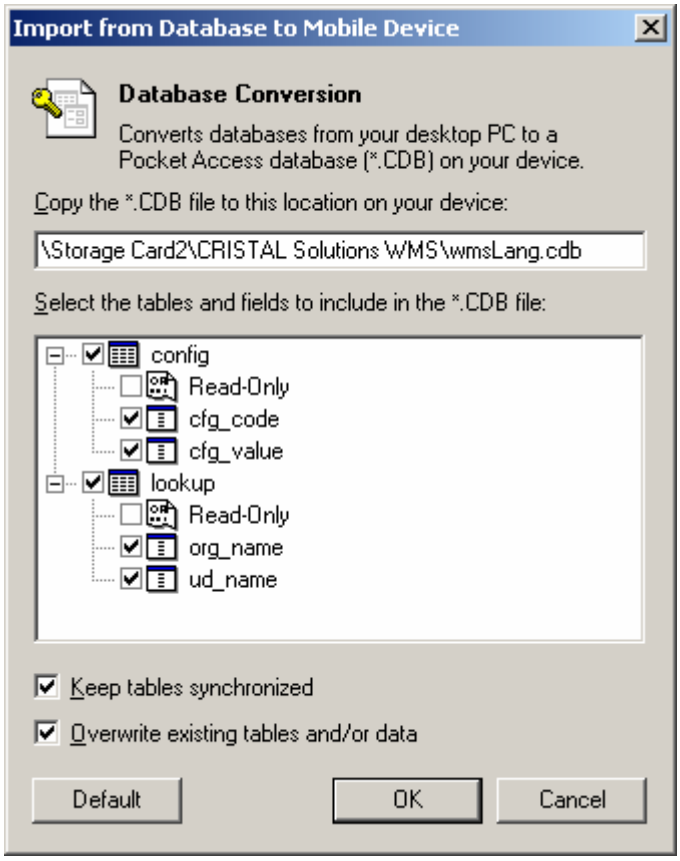


Figure 41: Database Conversion screen

Click the **OK** button to perform the copy.

Note that once the "wmsLang.cdb" file exists in the WMS application files directory, the WMS RF program will always perform language translation on the captions. This will actually slow down the performance of the WMS RF program.

To revert the Pocket PC device to the original English captions (and speed up the WMS RF program performance), either delete the "wmsLang.cdb" file, or move the file to a different directory on the device.

Contents of "wmsLang.cdb" / "wmsLang.mdb" File

There are 2 tables in the "wmsLang" database:

1. LOOKUP
2. CONFIG

The LOOKUP table contains the captions in the alternative language to be used.

The CONFIG table contains optional parameters specifying the font the alternative language is to be displayed in.

LOOKUP Table

The LOOKUP table contains only 2 fields:

Field Name	Description
ORG_NAME	Original caption name (in English)
UD_NAME	User defined caption name (can be in other languages)

Table 5: "wmsLang.cdb" Database – LOOKUP Table Structure

The translation mechanism is relatively simple: If the original English caption can be found in an ORG_NAME field, the program replaces the caption with the one stored in the UD_NAME field.

If the original English caption cannot be found in the ORG_NAME field, the original English caption is retained.

The following images illustrate how the same screen looks with original English captions, and in Russian and Simplified Chinese.

As can be observed, when the original English caption is not found in the LOOKUP table, the English caption is retained in the Russian/Chinese screens.

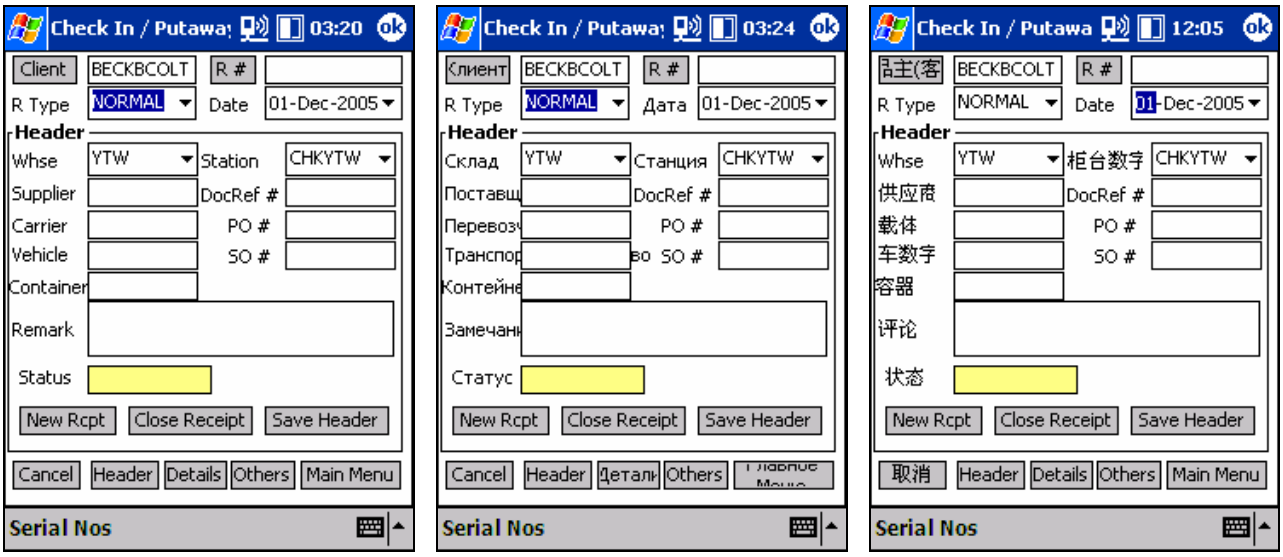
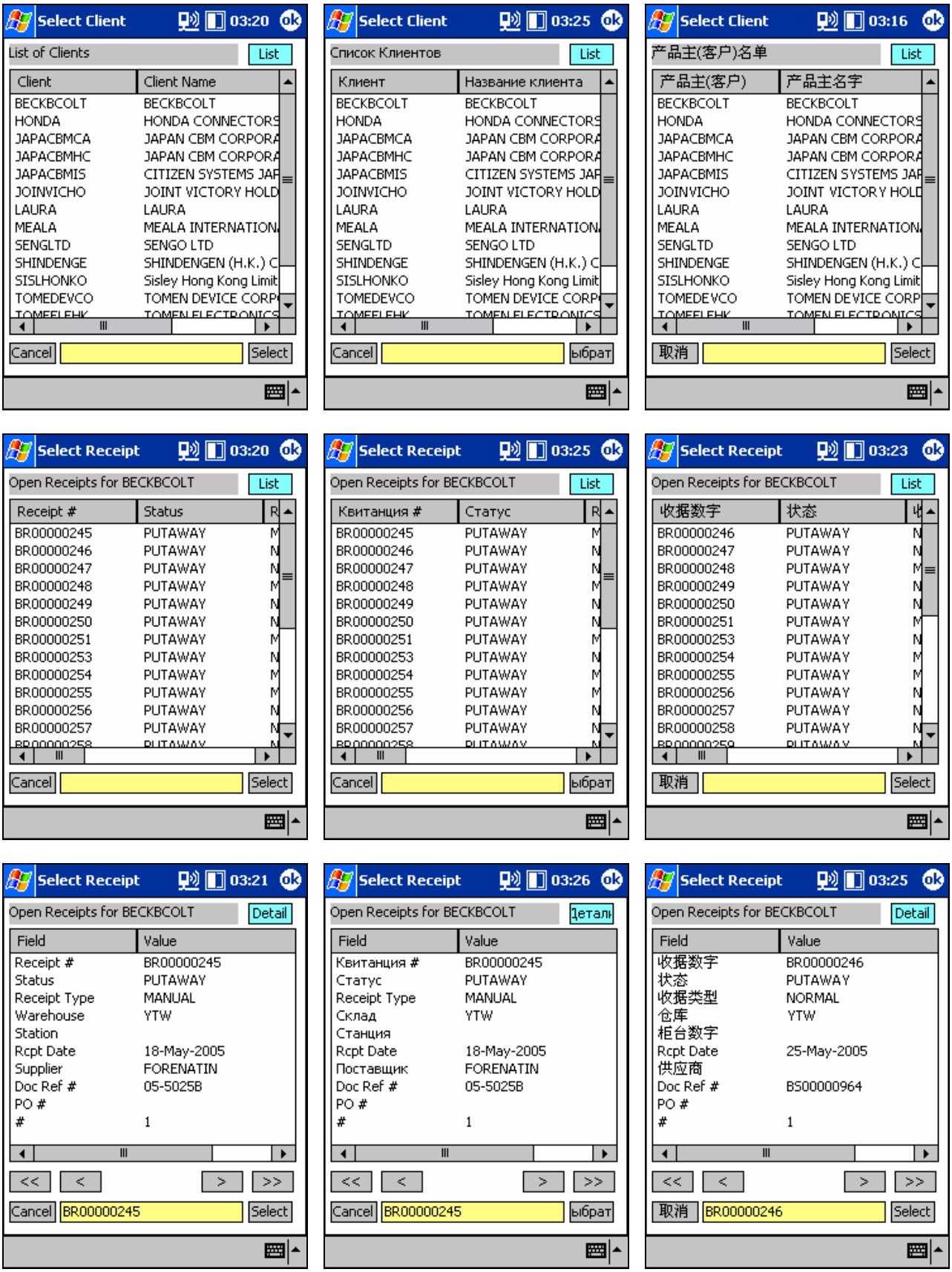


Figure 42: Screens in English and Alternate Languages (Russian and Simplified Chinese)



CONFIG Table

The CONFIG table records are optional. They specify the font name and the font size to be used for the alternate language if a non-standard font must be used. If a non-standard font is required, the font file must first

be copied into the "\Windows\Fonts" directory of the Pocket PC. The font name (as defined in the font file) must be specified in the "FONTNAME" record.

Currently, this is used for Chinese fonts.

CFG_CODE	CFG_VALUE	Remarks
FONTNAME	UniSun	For Simplified Chinese font. Requires copying the "SUNG14.TTF" font file into the "\Windows\Fonts" directory.
	MingLiu	For Traditional Chinese font Requires copying the "mingliu.ttf" font file into the "\Windows\Fonts" directory.
FONTSIZE	10	If not specified, the font size will default to size 8.5. Because the default size of 8.5 is too small for reading Chinese characters, a size 10 is recommended for the Chinese fonts.

Table 6: "wmsLang.cdb" Database – CONFIG Table Records

Editing contents

The "wmsLang.mdb" database can be edited on the desktop using Microsoft Access:

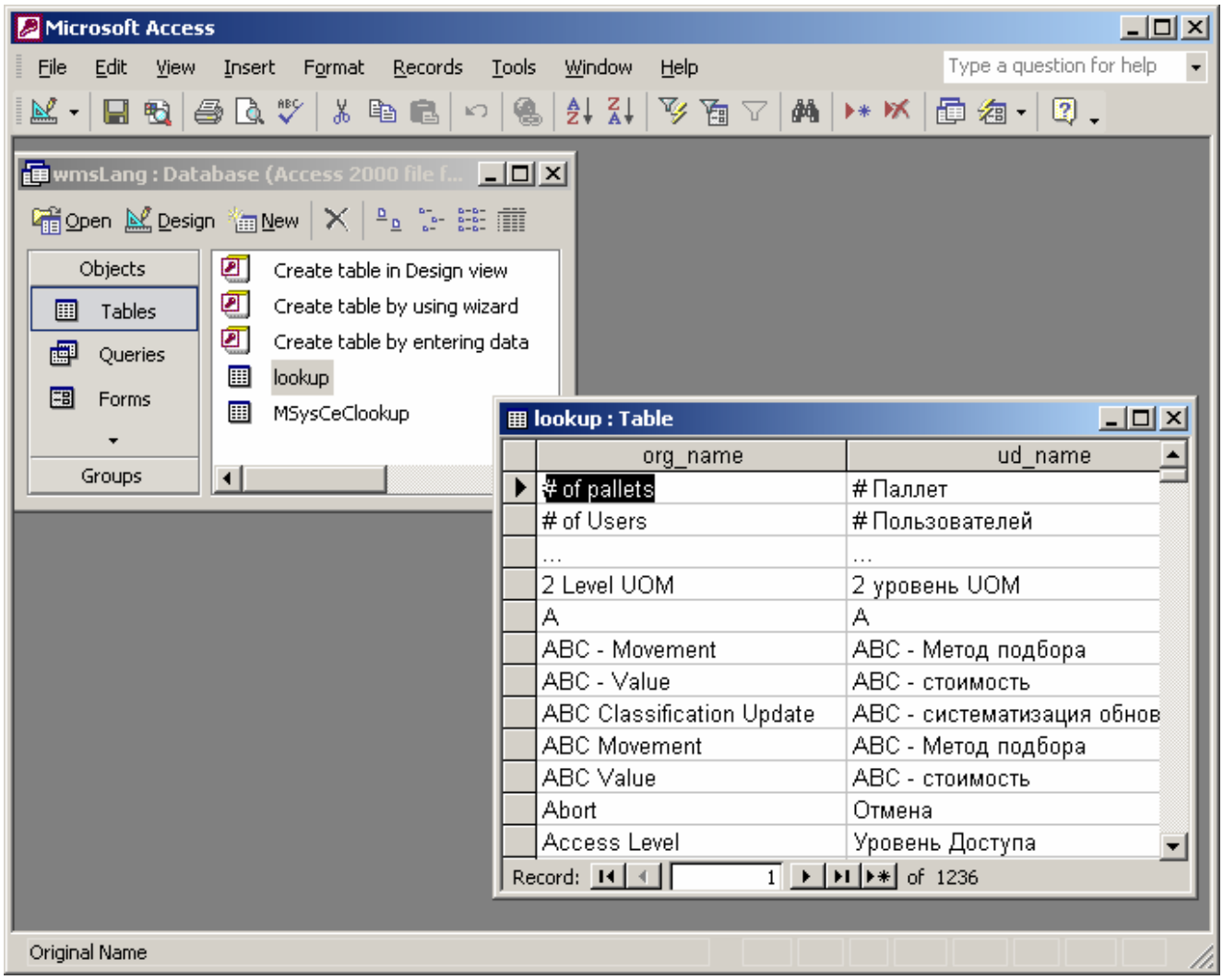


Figure 43: Use Access to edit the LOOKUP table in the "wmsLang.mdb" database

When all changes have been completed, save the "wmsLang.mdb" file and close Microsoft Access. You must close Microsoft Access as the "wmsLang.mdb" file cannot be converted to a "wmsLang.cdb" file if Microsoft Access is still locking the file on the desktop.

5. MISCELLANEOUS

DEBUG_WMS_ASP.ASP

Sometimes, it may be hard to debug why no response was obtained from the IIS Server when running the WMS RF program on the Pocket PC.

For VB debugging purpose, a modified form of the "http_wms_asp.asp" script file has also been provided. This file is the "debug_wms_asp.asp" script file, and is stored together in the same directory as the "http_wms_asp.asp" file.

The "debug_wms_asp.asp" file allows users to type in the query string directly into the address field of a web browser like Internet Explorer.

For example, if we typed

http://192.168.2.66/wms_asp/debug_wms_asp.asp?dbinstance=CRISTALWMS&↵ function=rf_about

inside the Internet Explorer address field, we will be returned the "About" information:

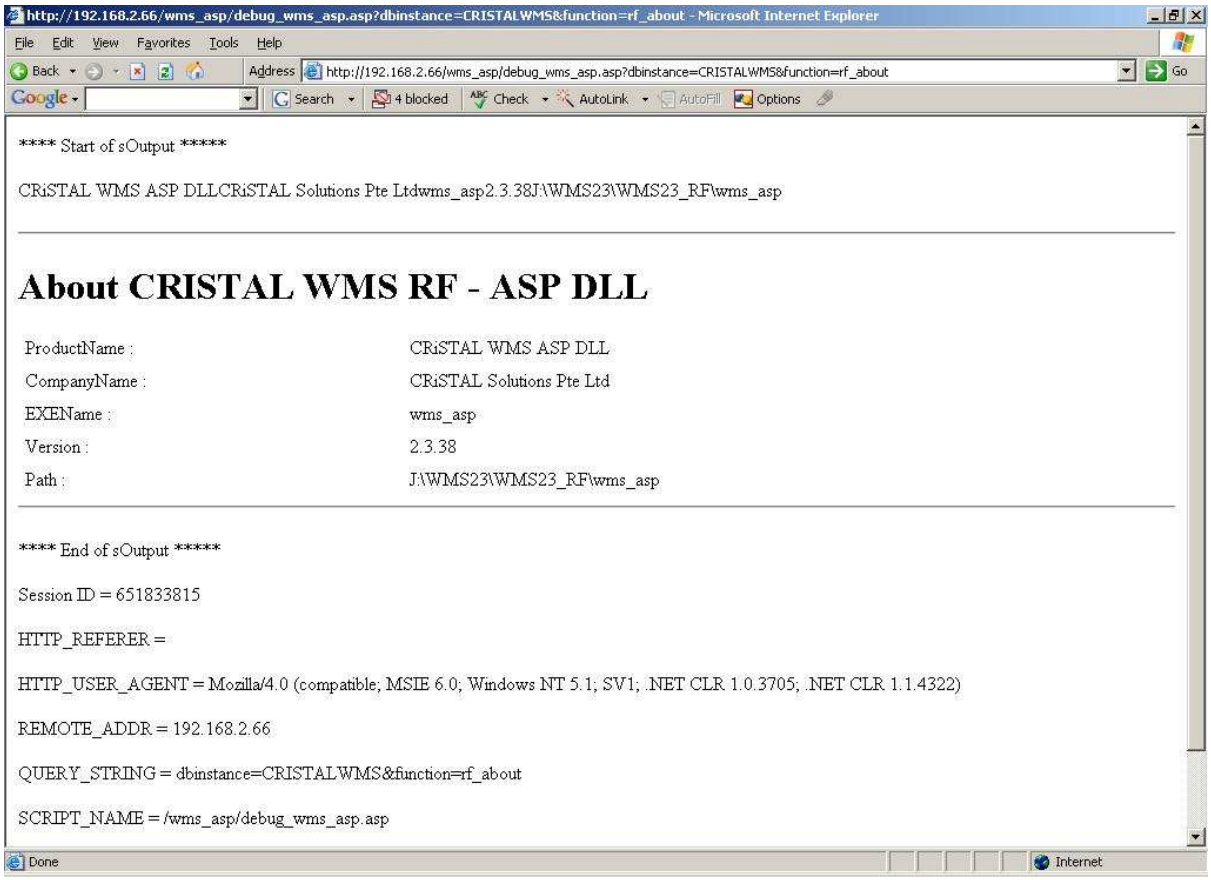


Figure 44: "About" page from Internet Explorer

If the "About" page can be displayed, that means the WMS_ASP.DLL and the IIS Server has been installed and configured correctly.

The same URL can be typed in Pocket Internet Explorer on the Pocket PC to test the connectivity from the Pocket PC:

Figure 45: "About" page from Pocket Internet Explorer

Note that this feature is only useful to confirm that the HTTP protocol is working. Other debugging techniques may be required to resolve more difficult connectivity errors.

WMS_ASP.INI – Logging Transactions

The WMS_ASP.INI file can be edited to incorporate a [GENERAL] section. There are 2 parameters in the [GENERAL] section:

```
[GENERAL]
LOGGING FILE=C:\TEMP\WMS\WMS.TXT
rem LOGGING MODE=BRIEF
rem LOGGING MODE=DETAIL
LOGGING MODE=DETAILED
```

LOGGING FILE

If this parameter exists, it specifies a text file in which transactions processed by the WMS_ASP.DLL will be logged.

To disable logging, either delete the "LOGGING FILE" parameter or "REMark" the parameter definition.

LOGGING MODE

The type of data to be recorded in the logging file is defined by the "LOGGING MODE" parameter.

You can assign 1 of 3 values to this parameter: "BRIEF", "DETAIL", or "DETAILED".

In "BRIEF" mode, the logging file will only show the start time and end time of each stored procedure executed by the WMS_ASP.DLL program.

```
21/11/2005 17:12:49 - 192.168.2.166 entering rf_about2
21/11/2005 17:12:49 - 192.168.2.166 exiting rf_about2

21/11/2005 17:12:49 - 192.168.2.166 entering rf_get_system_config_rf
21/11/2005 17:12:50 - 192.168.2.166 exiting rf_get_system_config_rf

21/11/2005 17:12:51 - 192.168.2.166 entering rf_get_system_config2
21/11/2005 17:12:51 - 192.168.2.166 exiting rf_get_system_config2
```

```
21/11/2005 17:12:52 - 192.168.2.166 entering rf_get_facility_type
21/11/2005 17:12:52 - 192.168.2.166 exiting rf_get_facility_type

21/11/2005 17:12:55 - 192.168.2.166 entering rf_check_user_password
21/11/2005 17:12:56 - 192.168.2.166 exiting rf_check_user_password

21/11/2005 17:12:56 - 192.168.2.166 entering rf_get_user_profile
21/11/2005 17:12:56 - 192.168.2.166 exiting rf_get_user_profile

21/11/2005 17:12:56 - 192.168.2.166 entering rf_get_user_tasks_priority
21/11/2005 17:12:57 - 192.168.2.166 exiting rf_get_user_tasks_priority

21/11/2005 17:12:57 - 192.168.2.166 entering rf_get_user_access
21/11/2005 17:12:57 - 192.168.2.166 exiting rf_get_user_access

21/11/2005 17:12:57 - 192.168.2.166 entering rf_get_operator_clients2
21/11/2005 17:12:57 - 192.168.2.166 exiting rf_get_operator_clients2

21/11/2005 17:12:57 - 192.168.2.166 entering rf_get_last_client_accessed
21/11/2005 17:12:58 - 192.168.2.166 exiting rf_get_last_client_accessed
```

In "DETAIL" mode, the logging file will also record the parameter values send up from the Pocket PC.

```
21/11/2005 17:16:21 - 192.168.2.166 entering rf_system_logout
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_system_logout
3 > operator : CRISTAL1
21/11/2005 17:16:22 - 192.168.2.166 exiting rf_system_logout

21/11/2005 17:16:56 - 192.168.2.166 entering rf_about2
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_about2
21/11/2005 17:16:56 - 192.168.2.166 exiting rf_about2

21/11/2005 17:16:57 - 192.168.2.166 entering rf_get_system_config_rf
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_get_system_config_rf
21/11/2005 17:16:57 - 192.168.2.166 exiting rf_get_system_config_rf

21/11/2005 17:16:59 - 192.168.2.166 entering rf_get_system_config2
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_get_system_config2
3 > cfg_code : RF_COUNT_BY_LOC
21/11/2005 17:16:59 - 192.168.2.166 exiting rf_get_system_config2

21/11/2005 17:17:00 - 192.168.2.166 entering rf_get_facility_type
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_get_facility_type
21/11/2005 17:17:00 - 192.168.2.166 exiting rf_get_facility_type

21/11/2005 17:17:04 - 192.168.2.166 entering rf_check_user_password
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_check_user_password
3 > operator : CRISTAL1
4 > password : **********
21/11/2005 17:17:04 - 192.168.2.166 exiting rf_check_user_password

21/11/2005 17:17:04 - 192.168.2.166 entering rf_get_user_profile
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_get_user_profile
3 > operator : CRISTAL1
21/11/2005 17:17:04 - 192.168.2.166 exiting rf_get_user_profile
```

The "DETAILED" logging mode is the most voluminous setting, as this mode will also record the stored procedure results in the logging file.

```
21/11/2005 17:18:04 - 192.168.2.166 entering rf_system_logout
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_system_logout
3 > operator : CRISTAL1
21/11/2005 17:18:04 - 192.168.2.166 exiting rf_system_logout

21/11/2005 17:18:46 - 192.168.2.166 entering rf_about2
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_about2
21/11/2005 17:18:46 - 192.168.2.166 exiting rf_about2
<app_productname>CRiSTAL WMS ASP DLL</app_productname><app_companyname>CRiSTAL Solutions Pte
Ltd</app_companyname><app_exename>wms_asp</app_exename><app_version>2.3.38</app_version><app_pa
th>J:\WMS23\WMS23_RF\wms_asp</app_path><session_sessionid>209485428</session_sessionid><server_
server_name>192.168.2.66</server_server_name><server_http_referer></server_http_referer><server
_http_user_agent>HTTPComponent</server_http_user_agent><server_remote_addr>192.168.2.166</serve
r_remote_addr><server_query_string></server_query_string><server_script_name>/wms_asp/http_wms_
asp.asp</server_script_name><server_path_translated>J:\WMS23\IIS_Server\multi_version\asp_file\
wms_asp\http_wms_asp.asp</server_path_translated><dbinstance>CRISTALWMS_CASA</dbinstance><funct
ion>rf_about2</function><dbconnectionstring>SERVER=127.0.0.1;DATABASE=CRISTALWMS_CASA;USER
ID=WAREHOUSEDBO_CASA;PASSWORD=***********;PROVIDER=SQLOLEDB</dbconnectionstring>

21/11/2005 17:18:47 - 192.168.2.166 entering rf_get_system_config_rf
1 > dbinstance : CRISTALWMS_CASA
2 > function : rf_get_system_config_rf
21/11/2005 17:18:47 - 192.168.2.166 exiting rf_get_system_config_rf
<record><cfg_code>DEFAULT RCPTGRADE</cfg_code><cfg_description>Default Receipt
Grade</cfg_description><cfg_value>01</cfg_value><last_update>22/08/2005
17:04:50</last_update><sys_user>USER</sys_user><grouping>PRODUCT</grouping><value_type>TEXT</va
lue_type></record><record><cfg_code>DEFAULT RCPTTYPE</cfg_code><cfg_description>Default Receipt
Type</cfg_description><cfg_value>NORMAL</cfg_value><last_update>22/08/2005
17:04:50</last_update><sys_user>USER</sys_user><grouping>SYSTEM</grouping><value_type>TEXT</val
ue_type></record><record><cfg_code>PALLET DEPTH</cfg_code><cfg_description>Default Pallet
Depth</cfg_description><cfg_value>1220</cfg_value><last_update>22/08/2005
17:04:50</last_update><sys_user>USER</sys_user><grouping>PRODUCT</grouping><value_type>NUMERIC<
/value_type></record><record><cfg_code>PALLET UOM</cfg_code><cfg_description>Default Base
UOM</cfg_description><cfg_value>EA</cfg_value><last_update>22/08/2005
17:04:50</last_update><sys_user>USER</sys_user><grouping>PRODUCT</grouping><value_type>FREE</va
lue_type></record><record><cfg_code>PALLET WIDTH</cfg_code><cfg_description>Default Pallet
Width</cfg_description><cfg_value>1830</cfg_value><last_update>22/08/2005
17:04:50</last_update><sys_user>USER</sys_user><grouping>PRODUCT</grouping><value_type>NUMERIC<
/value_type></record><record><cfg_code>PQ INTERVAL</cfg_code><cfg_description>Print Queue
Interval</cfg_description><cfg_value>10</cfg_value><last_update>22/08/2005
17:04:50</last_update><sys_user>USER</sys_user><grouping>PRINT</grouping><value_type>FREE</valu
e_type></record><record><cfg_code>RF_CHECKIN_PALLET_LABEL</cfg_code><cfg_description>Generate
pallet label from Check In</cfg_description><cfg_value>Y</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>BOOLEAN</valu
e_type></record><record><cfg_code>RF_CHECKIN_PUTAWAY</cfg_code><cfg_description>RF Check In
Type</cfg_description><cfg_value>SEPARATE</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>FREE</value_t
ype></record><record><cfg_code>RF_CHECKIN_RECEIPT_DATE_SOURCE</cfg_code><cfg_description>PALLET
_HISTORY {receipt_date}
Source</cfg_description><cfg_value>ACTUAL</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>FREE</value_t
ype></record><record><cfg_code>RF_PICKING_BY_SO</cfg_code><cfg_description>Enable Pick By SO
Option on RF</cfg_description><cfg_value>Y</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>BOOLEAN</valu
e_type></record><record><cfg_code>RF_PICKING_ITEM_BARCODE</cfg_code><cfg_description>Indicates
if Products have barcodes</cfg_description><cfg_value>N</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>BOOLEAN</valu
e_type></record><record><cfg_code>RF_PICKING_LOC_CONFIRMATION</cfg_code><cfg_description>Pickin
g location scan confirmation required
</cfg_description><cfg_value>Y</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>BOOLEAN</valu
e_type></record><record><cfg_code>RF_PICKING_PALLET_NO</cfg_code><cfg_description>Indicates if
Picked Pallet No must be
specified</cfg_description><cfg_value>N</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>BOOLEAN</valu
e_type></record><record><cfg_code>RF_PUTAWAY_GRN_REPORT</cfg_code><cfg_description>Auto print
GRN report upon Receipt
putaway</cfg_description><cfg_value>N</cfg_value><last_update>27/09/2005
19:21:53</last_update><sys_user>USER</sys_user><grouping>RF</grouping><value_type>BOOLEAN</valu
e_type></record><record><cfg_code>RF_PUTAWAY_LOC_CONFIRMATION</cfg_code><cfg_description>Putawa
y location scan confirmation required </cfg_description>….
```

Miscellaneous Pocket PC Utilities (All Freeware)

It is recommended that the following freeware utilities be downloaded and installed on the Pocket PC to augment its functionality.

1. **Total Commander for Pocket PC**

   Microsoft provides "File Explorer" for the Pocket PC. However, this navigator has many serious shortcomings. "File Explorer" cannot display the full name of long directories (it truncates the display). "File Explorer" does not show the extensions of files, making it difficult to locate files. Also, Microsoft does not provide an ASCII text editor for the Pocket PC. All these shortcomings are addressed by the Total Commander freeware utility.

   http://www.ghisler.com/pocketpc.htm

2. **Pocket Hosts**

   Pocket Hosts is a freeware utility to create static host names mappings to IP addresses on the Pocket PC. This utility is very useful should you want to run an ActiveSync connection over the wireless LAN.

   When a Standard Partnership is first established between the Pocket PC and the desktop PC, the Pocket PC records the host name of the desktop PC, but associates the IP address from the Loopback Adaptor to the desktop host name. This prevents the Pocket PC from synchronising with the desktop PC through any other network connection other than the USB or serial connection. With Pocket Hosts, we can create an entry mapping the desktop PC's wireless LAN IP address to the existing host name. Synchronising via wireless LAN then becomes as easy as 123.

   http://www.zimac.de/cestuff.htm

3. **vxUtil**

   Download this suite of network tools that include useful programs like PING, IPCONFIG, FINGER etc. No network utilities are provided by default on the Pocket PC.

   http://www.cam.com/windowsce.html

4. **Tascalsoft Registry Editor**

   This is a freeware Registry Editor program for the Pocket PC.

   http://www2r.biglobe.ne.jp/~tascal/download/pocketpc/tre_e.htm

5. **Microsoft ActiveSync Remote Display Powertoy**

   ActiveSync Remote Display allows the Pocket PC screen to be displayed on the desktop PC. The user can then tap on the Pocket PC by simply clicking on the remote display on the desktop PC. This facility is also useful for training purposes as the Pocket PC screen on the desktop PC screen can be projected to a wall for viewing by many people, something that is not possible with the miniscule Pocket PC screen alone.

   Also, because the Pocket PC screen can now be displayed on a desktop PC, we can use normal screen capturing software for the desktop PC to capture the Pocket PC screen for documentation purposes.

   http://www.microsoft.com/downloads/details.aspx?familyid=74473fd6-1dcc-47aa-ab28-6a2b006edfe9&displaylang=en

Backing up the Pocket PC

Warning

This section is only applicable to devices running Pocket PC 2002/2003 operating systems.

For devices running Windows Mobile 5 (and higher), there is no **Backup/Restore** option in the ActiveSync 4.x "Tools" menu.

If the Pocket PC's battery is completely drained, the RAM contents on the Pocket PC will be wiped out. Since the "\Windows" and "\Program Files" directories are stored in volatile RAM, we will actually lose all configuration settings on the device whenever this occurs.

It is therefore very important to make a backup copy of the Pocket PC once we have installed all required programs and have fully configured the device.

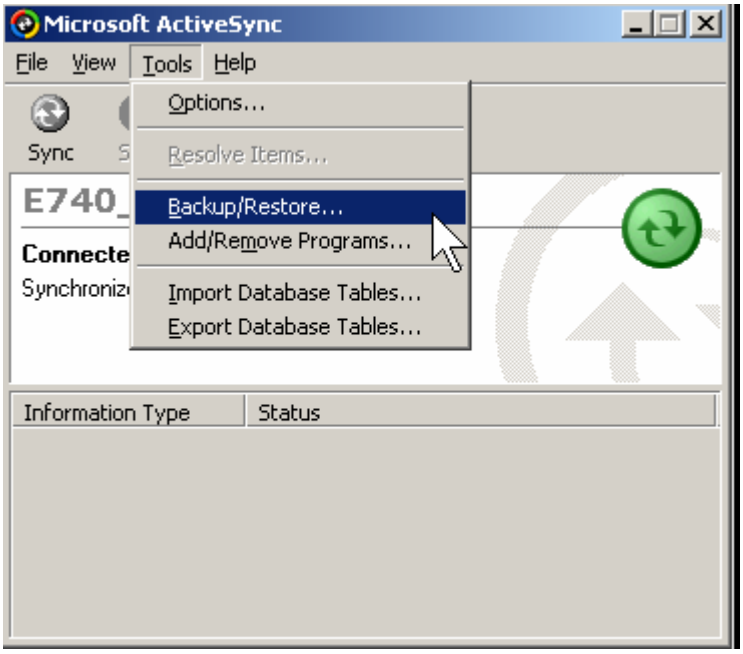


Figure 46: ActiveSync Backup/Restore

Select the **Tools | Backup/Restore** menu option from the ActiveSync program to run the backup or restore program.

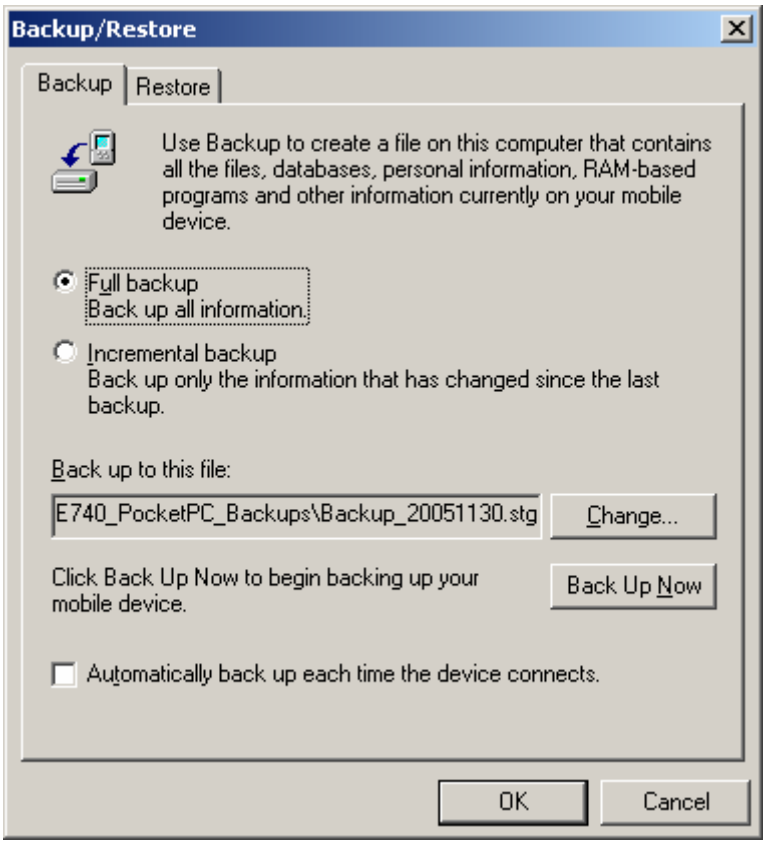


Figure 47: Backup

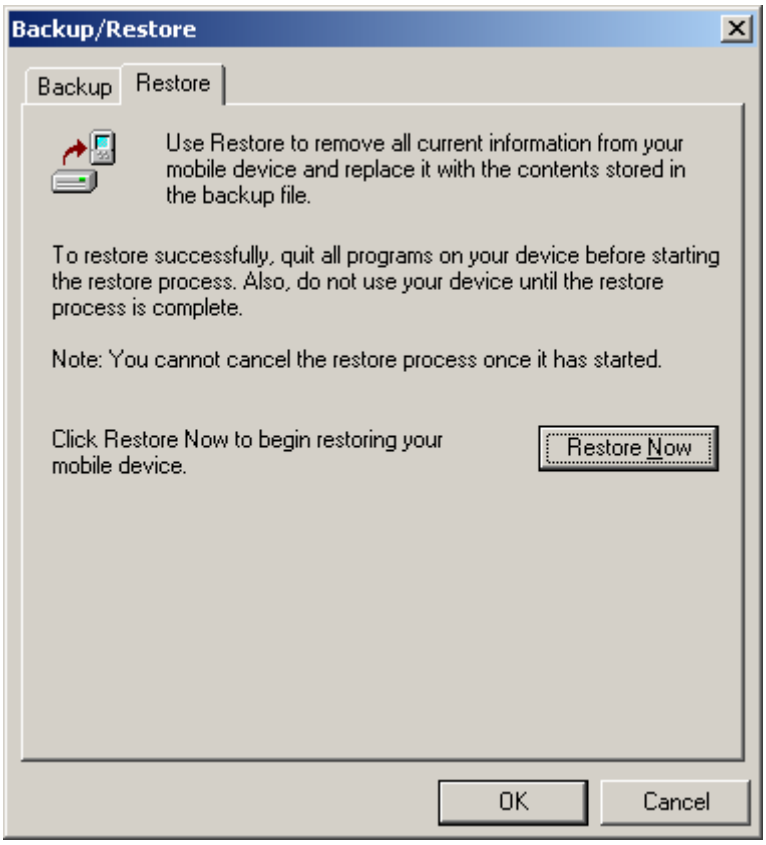


Figure 48: Restore

Restoring the Pocket PC

Warning

This section is only applicable to devices running Pocket PC 2002/2003 operating systems.

For devices running Windows Mobile 5 (and higher), there is no **Backup/Restore** option in the ActiveSync 4.x “Tools” menu.

If the Pocket PC is not recharged for an extended period of time, when its battery level is completely discharged, the Pocket PC will lose all contents stored in RAM. Unfortunately, because the "\Windows" directory is actually stored in RAM, this means that all program files that have been installed into the "\Windows" directory will also be lost ("cold reset").

When this happens, simply ActiveSync the device as a GUEST, and then use the **Restore** function to restore the device from a backup made previously.