

# About this book

IBM® Mobile Connect gives users of handheld PalmOS, Windows® CE, or EPOC devices access to Lotus Notes, Microsoft Exchange Server and relational database data, including DB2™ Everywhere data.

This book is intended to help you install and manage access to IBM Mobile Connect.

## Who should read this book

This book is written for:

- System administrators who are involved in deploying IBM Mobile Connect
- Application programmers who are involved in developing IBM Mobile Connect actions

You should have knowledge of Windows NT administration and any of the following, where appropriate:

- Lotus Notes and Domino administration and usage, and Notes Formula programming
- Microsoft Exchange Server administration and usage
- Relational database administration and usage

Application programmers should also know Visual Basic which is the scripting language used by IBM Mobile Connect. Application programmers who are using DB2 Everywhere should also know the basic functions of DB2 Everywhere and the relational database management systems (RDBMSs) used by DB2 Everywhere.

## Prerequisites

Refer to the appropriate Lotus Domino, Microsoft Exchange Server, or relational database documentation for the installation and administration of those systems. Also refer to the appropriate handheld device documentation that accompanies those devices.

## How to use this book

This book is designed to be used as a guide and reference for installing and administering the IBM Mobile Connect product. Some basic operations of the PDA devices that you may need to perform when using them in conjunction with IBM Mobile Connect are not explained in this book. Refer to the documentation that comes with your PDA device for instructions on performing these operations.

This book is divided into 3 parts:

- Part I: Introduction and installation. This covers general concepts, the installation of every part of the system, and how to quickly get a demo system, or your first working system, automatically set up.
- Part II: The Admin program. This provides details on how to manually set up, or modify, any part of your IBM Mobile Connect system.
- Part III: Reference. This covers the use of VBScript to customize your system (in the rare instances where the standard tools cannot perform the tasks you require), and also provides other reference material.

The book also contains an index.

Table 1 provides a road map for the chapters of this book.

*Table 1. The chapters of this book:*

<b>If you want to...</b>	<b>Refer to...</b>
Read an introduction to IBM Mobile Connect and its component parts.	The chapter: "An overview of IBM Mobile Connect" on page 9
Find out what replaces Conduits and HotSync within an IBM Mobile Connect system.	The chapter: "Using IBM Mobile Connect with Palm OS mobiles" on page 15
Quickly set up a demonstration server/mobile synchronization.	The chapter: "A quick demo of IBM Mobile Connect in action" on page 19
Set up an IBM Mobile Connect server.	The chapter: "Installation" on page 23
Find out about IBM Mobile Connect's use of encrypted communications, and set them up.	The chapter: "The service security settings" on page 29
Use IBM Mobile Connect to synchronize mobiles with Lotus Notes.	The chapter: "Using IBM Mobile Connect with Lotus Notes" on page 33
Use IBM Mobile Connect to synchronize mobiles with Microsoft Exchange Server.	The chapter: "Using IBM Mobile Connect with Microsoft Exchange Server" on page 37
Use the IBM Mobile Connect client program, or instruct end users on how to use the client.	The chapter: "Using the IBM Mobile Connect Palm OS client" on page 43
Quickly set up your first IBM Mobile Connect system.	The chapter: "The Site Wizard" on page 45
Synchronize some of your mobiles by connecting them directly to a networked PC, rather than by remotely synchronizing them.	The chapter: "The Connect Proxy program" on page 63
Configure Windows RAS and TCP/IP.	The chapter: "Configuring RAS and

	TCP/IP on Palm OS mobiles and Windows NT” on page 69
Gain an insight into how IBM Mobile Connect functions.	The chapter: “An overview of the connection process” on page 85
Familiarize yourself with the Admin program, and the concept of ‘groups’ within IBM Mobile Connect.	The chapter: “The IBM Mobile Connect Admin program” on page 89
Authenticate the IBM Mobile Connect users against Lotus Notes or Microsoft Exchange Server.	The chapter: “User authentication within IBM Mobile Connect” on page 99
Perform synchronizations with Lotus Notes.	The chapter: “Using IBM Mobile Connect with Lotus Notes—some issues in greater detail” on page 119
Manually set up, or modify, an IBM Mobile Connect ‘configuration file’.	The chapter: “Creating ‘Actions’ and ‘Action Sets’” on page 143
Manually set up, or modify, the synchronization of files.	The chapter: “File Actions” on page 151
Quickly set up synchronizations with Lotus Notes or Microsoft Exchange Server, after your initial configuration file has been created.	The chapter: “PIM Synchronization” on page 157
Quickly set up, or modify, synchronizations between DB2 Everywhere and a server-based data source.	The chapter: “The Replication Wizard” on page 167
Manually set up, or modify, the synchronization of databases.	The chapter: “Database Actions” on page 177
Create a new ‘Action’ of any sort (Database, File, Script, and so on), or if you need to modify a ‘configuration file’ that’s been set up by any of the Wizards.	The chapter: “‘Triggers’ and how to set them” on page 201
Use the built-in status reports in order to monitor or maintain your IBM Mobile Connect system.	The chapter: “Reports” on page 207
Use Microsoft Management Console to remotely monitor the IBM Mobile Connect server.	The chapter: “Connect Monitor” on page 213
Monitor or maintain your IBM Mobile Connect system, and you need greater detail than is available from the Admin program’s built-in status reports.	The chapter: “The Connection Log and Error Logging” on page 227
Modify an IBM Mobile Connect ‘Action’ by attaching a short piece of VBScript to it.	The chapter: “‘Events’ and Script Actions” on page 235
Use VBScript to customize the functioning of IBM Mobile Connect.	The chapter: “Programming with VBScript” on page 243
Write your own Palm OS application using C or C++.	Appendix A “Using the Palm Generic Plugin” on page 261
Write your own Palm OS application using Satellite Forms.	Appendix B “Satellite Forms and IBM Mobile Connect” on page 265
Synchronize with Lotus Notes, and you need to know which of the Windows CE	Appendix C “Column Mapping for Lotus Notes to Windows CE” on page 269

## About this book

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columns have been mapped.

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## Terminology

Table 2 provides a brief list of common IBM Mobile Connect terms and shortened names used in this book.

*Table 2. IBM Mobile Connect Basic Terminology*

<b>Term</b>	<b>Definition</b>
DB2	IBM DB2 Universal Database
EPOC	The operating system used by Psion mobiles
HPC	Handheld Personal Computer
MMC	Microsoft Management Console
NT	Microsoft Windows NT operating system
ODBC	Open Data Base Connectivity
Palm OS	3COM Palm operating system
PDA device	Personal Digital Assistant device
PIM	Personal Information Management
Windows CE	Microsoft Windows CE operating system
Windows NT	Microsoft Windows NT operating system

## Highlighting conventions

The following conventions are used in this book.

<b>Bold</b>	Indicates the names of dialogs, forms, buttons, system applets, or is used for general emphasis.
<b>Bold and non-serif font</b>	Indicates the name of a chapter or section that's being referred to in the text.
<i>Italics</i>	Indicates an option on a form or dialog, or is used for general emphasis.

## Using this book online

This book is available in Microsoft Word format in the Docs folder within the IBM Mobile Connect directory.

## How to send your comments

Your feedback helps IBM to provide quality information. Please send any comments that you have about this book. You can use any of the following methods to provide comments:

- Send your comments from the Web. Visit the Web site at:  
<http://www.ibm.com/solutions/mobile>
- Send your comments by e-mail to: [mobiles@us.ibm.com](mailto:mobiles@us.ibm.com)

Be sure to include the name of the product, the version number of the product, and the name and part number of the book. If you are commenting on specific text, please include the location of the text (for example, a chapter and section title, a table number, or a page number).



# Part I: Introduction and installation





# An overview of IBM Mobile Connect

IBM Mobile Connect is a flexible and adaptable data management solution. It enables corporate IT managers to harness the power of handheld computing devices by remotely linking them directly to their corporate applications. This enables the mobile workforce to access and update corporate information from any location, which can streamline business processes, and accelerate corporate decision making.

## Some main features of the system

- Supports Windows® CE, the Palm Computing Platform, and Symbian's EPOC operating systems.
- Mobile users can easily synchronize data with Microsoft Exchange, Lotus Notes, or with any ODBC-compliant database, such as DB2™, Oracle, Sybase and Extended System's Advantage Database Server.
- The mobile can synchronize using modem, cellular phone, Internet, Wireless, Intranet, local area network (LAN), wide area network (WAN), and so on.
- Intuitive interface and wizards reduce the time it takes to set up the system.
- The mobile users can be authenticated through the existing user details held by Microsoft Exchange or Lotus Notes, which minimizes administration and initial set-up time.
- Centralized control for effective management.
- Automatic backup/restore of mobile devices, remote installation of apps, and detailed reporting of each mobile's status, making managing mobile devices easier.
- Encrypted communications assures the secure transfer of corporate data to and from mobile devices.
- Remote monitoring through Microsoft's Management Console, enabling support staff to easily monitor and conduct diagnostics on mobile devices.

## Customizing IBM Mobile Connect

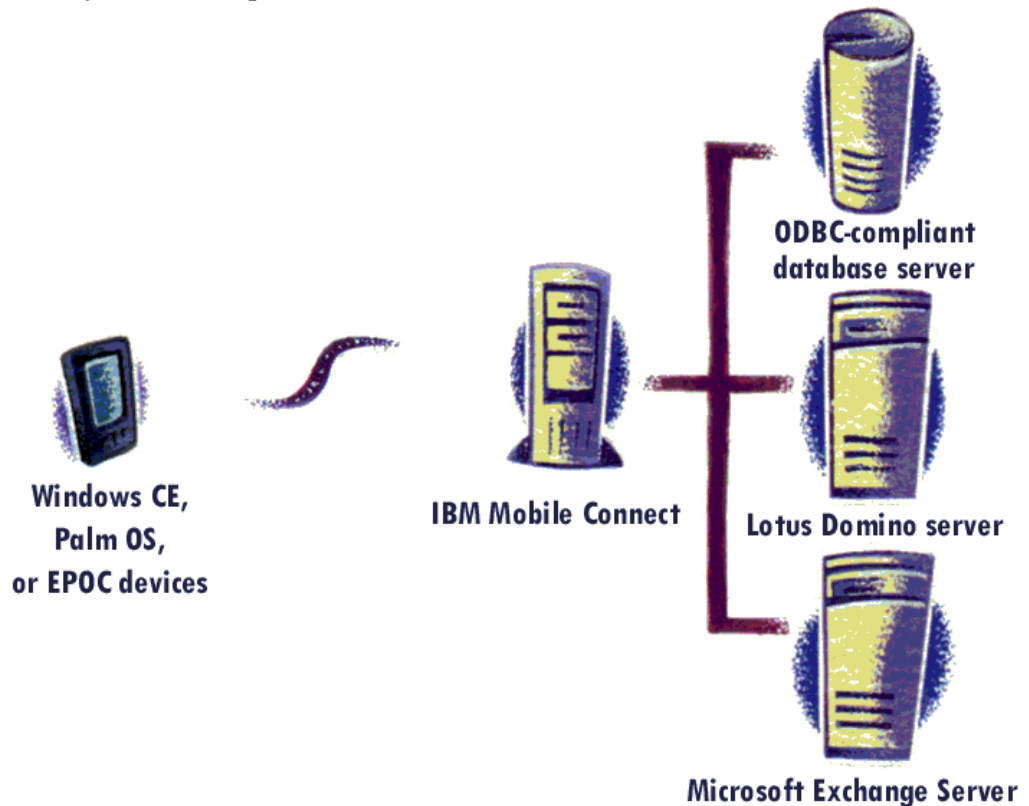
For an organization to start using IBM Mobile Connect, the system is set up quickly and easily using Wizards and an intuitive admin program. For most purposes, these easy-to-use tools will suffice. But for some specialized tasks, short pieces of VBScript can be written which modify the functioning of IBM Mobile Connect. These Scripts can be used to customize the system in almost any way. For example, they could be used to allow remotely-transmitted orders to be directly launched into an organization's workflow system.

## A flexible framework

With these powerful capabilities, IBM Mobile Connect provides a framework that gives an organization the freedom to build the exact mobile computing system they require, and to also allow them to change and extend their system as their needs change, or as new technology appears.

## Connecting remote mobiles to the corporate network

Before installing IBM Mobile Connect, an organization may have been using mobile devices to hold personal data. Each member of staff may have used a mobile to carry around some personal data from their PC, then synchronized this data with their desktop PC each time they returned to the office. But when using IBM Mobile Connect, the mobile computer's role changes completely. The mobile worker need not ever use a desktop PC. Their handheld computer could be the only computing device they ever use. And they would connect to the corporate network by modem, or docking cradle, or some other method. But the important distinction is that a mobile worker no longer needs to go back to their own desktop PC and synchronize their mobile with that PC. With IBM Mobile Connect, they can synchronize their mobile directly with the corporate servers.



## The system's main software components

### The IBM Mobile Connect service

A service that runs on a Windows NT™ or Windows2000 server. The service performs all the functions of the IBM Mobile Connect server. When an end user wants to synchronize their mobile device, the service handles the request from the mobile, manages security, and performs all the data transfers between the mobile device and the enterprise data sources.

### The IBM Mobile Connect client

A program that runs on the mobile device. Once the client is set up, the end user can synchronize their mobile device by simply tapping the client's 'Connect' push button. The client then establishes a connection with the IBM Mobile Connect server, so that the server can perform the synchronization.

### The IBM Mobile Connect Admin program

A program that runs on Windows NT or Windows2000. The program is used to set up all aspects of IBM Mobile Connect. The program uses a Microsoft® 'Explorer' style interface for ease of use. Most of the synchronizations can be set up by using wizards, or intuitive forms. All this information is then saved in a 'configuration' file, which tells the service which synchronizations are required for each mobile user.

### Connect Monitor

A Snap-in for Microsoft Management Console. It is a diagnostic tool that enables the IBM Mobile Connect server to be remotely monitored from anywhere on the network (by authorized users only). It provides detailed, live information about every synchronization session that the service is currently performing, and can also show error history.

### Connect Proxy

A program that runs on a networked PC. It can run on a Windows NT, Windows2000, Windows95, or Windows98 PC. In some situations you might want to dock mobiles with one or more networked PCs (usually using a serial cable), so that the IBM Mobile Connect client communicates with IBM Mobile Connect using the networked PC (rather than using your organization's modem bank, for instance). In this situation, you would normally need to set up Windows RAS and TCP/IP on each of the PCs, so that the communication can take place between the client and IBM Mobile Connect. But by using Connect Proxy, you avoid having to do any of this configuration, since Connect Proxy provides an alternative communications link between the client and IBM Mobile Connect.

## The Wizards

### Site Wizard

Site Wizard automatically sets up the following:

- The user authentication method (this is done either through the existing user details held by Microsoft Exchange or Lotus Notes, or through a list of users, which you may import or type in directly).
- Details of which PIM applications on the mobile are to be synchronized with Microsoft Exchange or Lotus Notes.
- The details of any applications that are to be automatically installed on the mobile.
- Whether the mobiles are to be automatically backed up to the server, then restored as required.

Using Site Wizard enables you to have IBM Mobile Connect up and running almost immediately. If your organization needs to synchronize more than just PIM data, you may then begin adding the other synchronizations to the same IBM Mobile Connect configuration file that Site Wizard has created.

### PIM Wizard

PIM Wizard serves a similar function to Site Wizard, only PIM Wizard is concerned purely with setting up the synchronization of the built-in PIM apps on the mobile with Microsoft Exchange or Lotus Notes. It does not set up user authentication, nor the backup and restore of mobile apps.

PIM Wizard is used when you already have an existing IBM Mobile Connect configuration file, and you want to add new PIM synchronizations to it. If desired, Site Wizard may be used to create the initial configuration file.

### Replication Wizard

Replication Wizard is used to quickly and easily set up synchronizations between any server-based ODBC data source and mobile apps that are using the IBM® DB2™ Everywhere database, or Microsoft ActiveX Data Objects (ActiveX Data Objects are used on Windows CE mobiles only).

Like PIM Wizard, Replication Wizard is used when you already have an existing IBM Mobile Connect configuration file, and you want to add 'DB2 Everywhere' or 'ActiveX Data Object' synchronizations to the existing configuration file. If desired, Site Wizard may be used to create the initial configuration file.

## Supported mobile devices

IBM Mobile Connect supports mobile devices that use the following operating systems:

### Palm OS

**Note:** 'Palm OS' refers to the 'Palm Operating System', which is usually called the 'Palm Computing Platform'. These mobiles include the 3Com Connected Organizer, the PalmPilot, and also the IBM WorkPad PC Companion.

Windows CE1, Windows CE2.  
EPOC Release 5 (version 1.05, or above).

If you're using IBM Mobile Connect with Windows CE or EPOC mobiles, please refer to the accompanying user manual: **IBM Mobile Connect for Windows CE and EPOC**.



# Using IBM Mobile Connect with Palm OS mobiles

The term **Palm OS mobile** is used to mean any mobile that runs 'Palm OS' (Palm Operating System). These mobiles include the 3Com® Connected Organizer (which used to be called the **PalmPilot™**), and also the IBM® WorkPad™ PC Companion. Palm OS is the operating system that was used by the first Palm Computing® handheld device (the 'Pilot 1000'). Palm OS is also called the 'Palm Computing Platform'. The first generation of the 3Com Connected Organizer (following the name-change from 'PalmPilot') was called the '**Palm III**'. Further generations have followed.

Palm OS is a different operating system to Windows® CE (which is the other main operating system used for handheld devices). The two systems are not compatible, and software that runs on one, will not run on the other. (But note that IBM Mobile Connect supports both Palm OS mobiles, and Windows CE mobiles.) One of the main ways that the two operating systems differ, is in the way that the mobiles store their data.

## The Palm OS 'filing system'

Palm OS mobiles don't use the same filing system that DOS and Windows do. On Palm OS mobiles there is no directory (folder) structure; there is just a 'list' of files that are currently stored in the mobile's memory. Also, these files are no longer called 'files', but are all called 'databases', irrespective of whether they contain an application or data.

Palm OS 'database' names do not have suffixes, in the way that DOS filenames do, so that each Palm OS 'database' name consists of just a single text string. There are also no rules about what format each Palm OS mobile application should use when they store their data in a Palm OS 'database'.

## Synchronizing with Palm OS mobiles

Because of all these factors, one application has no way of knowing how another application has stored its data on the Palm OS mobile. While using the mobile as a PC companion, you would have solved this problem by using 3Com Palm's HotSync® facility. With HotSync, a 'conduit' is required for each Palm OS application that you want to synchronize with. The conduit knows the exact format that each application stores its data in, and this allows HotSync to synchronize the data on the mobile with an application running on a desktop PC.

But since IBM Mobile Connect performs the synchronization with data sources held on a server (and doesn't use a PC as a go-between), a different approach is needed. IBM Mobile Connect replaces this 'HotSync and conduit' facility with a method of its own, called 'plugins'.

## 'Conduits' are replaced by 'plugins'

A 'plugin' is a short program that tells IBM Mobile Connect how a particular Palm OS application is storing its data on the Palm OS mobile. This then enables IBM Mobile Connect to transfer data back and forth between the Palm OS mobile and any server-based data sources. A range of plugins are supplied as standard. These are stored on the server and are installed by the IBM Mobile Connect installation program.

A plugin is required for each Palm OS application that you want to synchronize with. If a plugin isn't available for that particular application (such as with applications developed in-house), you would write the plugin using the IBM Mobile Connect Software Developer's Kit. Plugins are relatively straightforward to write.

## 'File'-types on the Palm OS mobile

Basically there are two types of 'file' that Palm OS recognises. While these files are stored on a Windows machine, they have the following suffixes. But when the files are transferred to a Palm OS mobile, the suffixes are removed.

### 'PRC' files:

On the Palm OS mobile, whole applications are usually stored in a single 'database', rather than being stored on many databases (in the way that Windows and DOS store their applications in many files). These applications are called 'Pilot Resources', and while the application is stored on a DOS system, the file has the suffix '.PRC'. The term 'Pilot Resource' comes from the name of the original 3Com Palm OS mobile: the Pilot 1000.

### 'PDB' files:

Databases (in the usual sense) are also stored on the Palm OS mobile in a single 'database'. These are called 'Pilot Databases', and when the database is stored on a DOS system, the file has the suffix '.PDB'. The term 'Pilot Database' also comes from the name of the original 3Com Palm OS mobile: the Pilot 1000.

The beauty of this system, is that an application can be installed on the mobile by simply copying the single .PRC file onto the mobile. Some applications also have a sample database that must be installed along with the application. To do this, you would also copy across the single .PDB file. (Occasionally, an application may split its data between several databases on the Palm OS mobile. With these applications you would need to copy every one of the .PDB files onto the mobile.)

IBM Mobile Connect can then automatically backup the application's database, by simply copying the PDB from the mobile onto the server. Later, IBM Mobile Connect could then automatically restore the data by copying the single .PDB file back onto the mobile. IBM Mobile Connect can also automatically install any application on the remote Palm OS mobile by copying the application's single .PRC file from the server onto the mobile.

If a plugin is available for the Palm OS application (or one is written specially for it), this then enables IBM Mobile Connect to transfer any information between the remote



Palm OS mobile's application and any server-based data source—automatically distributing and collecting the information from the corporate network in any way desired.



# A quick demo of IBM Mobile Connect in action

The best way to quickly set up a demonstration of IBM Mobile Connect in action is to use the IBM Mobile Connect Site Wizard to set up synchronization of PIM data with Lotus Domino/Notes Server or Microsoft Exchange Server.

But before setting up the demonstration, you need to ensure that IBM Mobile Connect is properly installed on your demonstration machines. To do this, go through the following steps (in these demos, you'll be using a serial cable connection to your IBM Mobile Connect server):

1. Ensure that your 'demo' PC is running either Windows NT4 with Service Pack 3 (or later), or Windows2000, and that TCP/IP is installed.
2. Ensure that you have a mobile device together with its cradle, and that your demo PC has the mobile's desktop software installed.
3. If you wish to synchronize PIM data with **Lotus Notes**, a Lotus Notes client program must be installed and configured on your demo PC. For details on how to install Lotus Notes Server/Client, see the section: **Using IBM Mobile Connect with Lotus Notes**, p.33.
4. If you wish to synchronize PIM data with **Microsoft Exchange Server**, please see the section: **Using IBM Mobile Connect with Microsoft Exchange Server**, p.37 (particular attention should be paid to the section: **Essential Exchange configuration checks**, p.39). These sections contain important information about configuration details that might be needed to ensure that IBM Mobile Connect can 'talk' to Exchange.
5. Using a serial cable, connect your mobile device to your demo PC. Follow the instructions in the section: **Installation**, p23, to install the IBM Mobile Connect server and the Connect Proxy program onto your demo PC, and the client onto your mobile.

## Configuring the client on the mobile

Follow the instructions in the **Installation** section (starting on page 23) on how to configure your particular mobile device, and also the IBM Mobile Connect client on your mobile.

You should configure you mobile device so that it uses its 'direct cable' option, rather than a modem. There is no need to set up Windows RAS on the demo PC, as the 'Connect Proxy' program will bypass Windows RAS and establish a direct connection between the client and the IBM Mobile Connect server.

You should set the following options on the IBM Mobile Connect client:

- The 'Server IP' field should be set to the IP address of your demo PC.
- Select the option to connect using the Proxy.

## Demo 1: 'Out of the box' PIM syncing with Lotus Notes

PIM syncing covers synchronization of the end user's Lotus Notes mail, Calendar, and To Do list with the built-in applications on their mobile device.

You can use the IBM Mobile Connect Site Wizard to get PIM syncing up and running in a couple of minutes. To do this, take the following steps (greater detail is given in the section: **The Site Wizard**, p.45):

1. Install every component of IBM Mobile Connect, as described above (including the client configuration).
2. Run the IBM Mobile Connect Admin program from **Start - Programs - IBM - Admin**. Select the 'Site Wizard' option from the first dialog.
3. On the **Site Wizard - Groupware synchronization** dialog, select 'Lotus Domino/Notes Server' and specify which type of mobile device you're using.
4. On the **Site Wizard - Users and Authentication** dialog, enter the name of your Lotus Notes Server, and the password for its 'server.id' file.
5. On the **Site Wizard - Groupware Applications** dialog, uncheck 'Contacts' or 'Address' (depending on which type of mobile device you're using).
6. On the following dialogs, accept the default settings.
7. After completing the **Site Wizard - Finish** dialog, your IBM Mobile Connect configuration file will be displayed in the Admin program.
8. From the Admin program's 'File' menu, select 'Restart Service'.
9. On your mobile device, start the IBM Mobile Connect client.
10. Tap Connect.
11. Enter a user's Lotus Notes username and password. Tap 'OK'

A connection will be established, and the user's Lotus Notes PIM data will be synchronized with the mobile device.

## Demo 2: 'Out of the box' PIM syncing with Microsoft Exchange Server

PIM syncing covers synchronization of the end user's Exchange mail, Calendar, Contacts and Tasks with the built-in applications on their mobile device.

You can use the IBM Mobile Connect Site Wizard to get PIM syncing up and running in a couple of minutes. To do this, take the following steps (greater detail is given in the section: **The Site Wizard**, p.45):

But before taking these steps, you should first read the following sections:

**Essential Exchange configuration checks**, p.39

**The available log-on methods**, p.40

1. Install every component of IBM Mobile Connect, as described above (including the client configuration).
2. Run the IBM Mobile Connect Admin program from **Start - Programs - IBM - Admin**. Select the 'Site Wizard' option from the first dialog.
3. On the **Site Wizard - Groupware synchronization** dialog, select 'Microsoft Exchange Server' and specify which type of mobile device you're using.
4. On the **Site Wizard - Groupware Applications** dialog, accept the default settings. Click Next.
5. On the **Site Wizard - Users and Authentication** dialog, enter the name of your Exchange Server.
6. On the following dialogs, accept the default settings.
7. After completing the **Site Wizard - Finish** dialog, your IBM Mobile Connect configuration file will be displayed in the Admin program.
8. From the Admin program's 'File' menu, select 'Restart Service'.
9. On your mobile device, start the IBM Mobile Connect client.
10. Tap Connect.
11. In the 'username' field, enter a user's Windows NT "domain/username". Enter their Windows NT password in the 'password' field. Tap OK.

A Connection will be established, and the user's Exchange PIM data will be synchronized with the mobile device.



# Installation

## Installing the IBM Mobile Connect server

The IBM Mobile Connect server runs on either Windows2000, or Windows NT 4.0 with Service Pack 3 (or later), which can be either Windows NT Server, or Windows NT Workstation. The server consists of a 'service' and an Admin program, which are both installed from the CD as part of the initial installation.

Before installing the IBM Mobile Connect server you should ensure that you have the following information:

- The 'IP' address of the server. (IP addresses are defined under **Control Panel - Network**, 'Protocols' tab. Select the 'TCP/IP Protocol' entry, and click Properties.)
- The port address which TCP/IP will use to communicate with the server. This is set in the factory to 5001, though you might need to change this to suit your own requirements. **Note:** If you will be allowing access to IBM Mobile Connect using the Internet, you will need to configure your firewall/routers to allow access both to the IP address and the port number.

As part of this 'server' installation process, if you also wish to install the client on one or more mobile devices, you should first do the following.

- Connect the mobile device to the server using a serial cable.
- Install the mobile's 'desktop' software on the server.
- If desktop software uses different user accounts for each mobile that's going to be docked with a particular PC, you should create an account on the desktop software for each of your mobiles that you want to install the IBM Mobile Connect client on.

To install the IBM Mobile Connect server, take the following steps:

1. Start your Windows server.
2. Log on as an administrator, or as someone who has rights to install a service.
3. Insert the IBM Mobile Connect CD into the CD-ROM drive.
4. The CD should autostart. But if it doesn't, run 'Setup.exe'.
5. On the first panel of the IBM Mobile Connect setup program, click the option to install IBM Mobile Connect.
6. Follow the instructions on each panel. Click Next to progress through the panels.

After the IBM Mobile Connect server has been installed, you will be presented with a sequence of further dialogs, beginning with the **Select Authentication Source** dialog. These dialogs will help you to configure IBM Mobile Connect so that it meets the requirements of your particular organization's mobile-synchronization needs. The information you enter will be used to create your first IBM Mobile Connect

## Installation

'configuration' files. Any of the details you enter may be changed later, and each configuration file can have further synchronizations added to it. You may also create completely new configuration files at any time in the future.

Follow the instructions on each panel, then click Next. Some panels have a 'Help' button, which may be clicked to provide you with much more detailed instructions.

Once the installation is complete, IBM Mobile Connect will be set up to use the configuration file (or files) that you've defined during the second part of the above installation process (one configuration file will have been created for each of the mobile-device types that you selected: Windows CE, Palm OS, or EPOC32).



## Configuring IBM Mobile Connect

After installation, you may change the default settings for the start-up of the service and for the user account under which the service will run.

In **Control Panel**, click the **Services** icon. The **Services** form will appear. Scroll down to the 'IBM Mobile Connect' entry, and click Startup. The **Service** dialog will appear. The dialog has two sections: 'Startup Type', and 'Log On As'. These are described below:

### The 'Service' dialog, 'Startup Type' section

#### **Automatic**

The service starts automatically whenever Windows is started.

#### **Manual**

The service needs to be restarted manually whenever Windows is restarted. This can either be done using the **Services** option in **Control Panel** or by typing:

```
net start "ConnectService"
```

at the command prompt.

#### **Disabled**

The service is disabled and may not be started.

### The 'Service' dialog, 'Log On As' section

#### **System Account**

The service has the security rights of the Windows server kernel. This may mean that the service cannot access resources on other computers because it does not have the correct security rights.

Generally, the 'Allow Service to Interact with Desktop' option will not be selected for a server. This option is only available for the system account and allows the service or applications called from within the service to display visual components.

For example, within the VBScript processing of an event, you might launch Microsoft Word to format and print a document. This may have a visual element and would cause the service to reject the action if the 'Allow Service to Interact with Desktop' option was not set.

Therefore you should ensure that any VBScript processing does not require (or activate any other code that requires) a user-interface element.

#### **This Account**

The IBM Mobile Connect service will have the security rights of the nominated Windows user account. This is the recommended option for a server. Often a special user account is set up just to run the IBM Mobile Connect service.

This option, also, will not allow interaction with the desktop.

For more information on services and their configuration, please refer to the Windows documentation.

## Installation

# Command-line options for the IBM Mobile Connect service

There are several command-line options that may be used when running the IBM Mobile Connect service from the Command Prompt.

Normally you would not need to use this feature. The feature is provided for advanced administrators who may have an occasional need to use it. To use this feature, you should do the following:

1. Start the Command Prompt (**Start - Programs - Command Prompt**).
2. Use the 'CD' command to move to the IBM Mobile Connect installation folder.
3. Type "Connectservice", followed by a command-line option.

## The available command-line options

### **help**

-?  
-help

example:

Connectservice -?

This command would bring up a message box, telling you what command-line options are available.

### **install**

-install  
-regserver

This option is used to install the service. Normally the service is installed when you do a standard installation from the IBM Mobile Connect installation CD. But there may be instances when you want to reinstall the service without having to do a standard installation of IBM Mobile Connect. Or you might want to uninstall the service and install a different version of it. In these sorts of instances, you could use these command-line options to install or uninstall the service.

example:

Connectservice -install

This command would install the service. No information will be given about whether or not the operation was successful (see the '-v' switch, below).

### **remove**

-remove  
-unregserver

example:

Connectservice -remove

This command would remove (uninstall) the service. No information will be given about whether or not the operation was successful.

**verbose****-v**

This option is to be used together with one of the other command-line options. When '-v' is used, the specified operation is performed, then a dialog is shown, giving information about whether or not the operation was successful, and, if not successful, reporting any error messages.

example:

```
Connectservice -install -v
```

This command would install the service, then confirm that the service has been successfully installed, or report any error messages.

# Installing the IBM Mobile Connect client

In some instances, the IBM Mobile Connect client will have been pre-installed on your mobile computers by the supplier or manufacturer. In this case, the client may still need to be configured for connection to IBM Mobile Connect.

If you need to install the client yourself, you should first ensure that you have the following information:

- The 'IP' address of the IBM Mobile Connect server that the clients will be communicating with. If you have more than one IBM Mobile Connect server, you should decide which server each mobile is going to use.
- The port address which TCP/IP will use to communicate with the server. This is set in the factory to 5001, though you might need to change this to suit your own requirements. **Note:** If you will be allowing access to IBM Mobile Connect using the Internet, you will need to configure your firewall/routers to allow access both to the IP address and the port number.

## Installing the client on Palm OS mobiles

### The desktop software

Before you can install the client, you need to have the **PalmPilot Install Tool** installed on your PC. This is usually installed as part of the Palm OS mobile's desktop software installation.

### To install the IBM Mobile Connect client on a Palm OS mobile

1. Start the PalmPilot Install Tool.
2. Complete the 'File Name' field, by browsing to the IBM Mobile Connect client ("ConPilot.prc"). This will be in the 'Clients/PalmOS' subfolder of the main IBM Mobile Connect installation.
3. From the 'User Name' drop-down list box, select the name of the user whose mobile you want to install the IBM Mobile Connect Palm OS client onto.
4. Click Install.
5. The 'Ready to Install' message will appear, telling you that the file is ready to install, and that it will be installed on the appropriate Palm OS mobile the next time that mobile is 'HotSynced'.
6. To install the client onto additional users' mobiles, click Install Another File.
7. Repeat steps 3 to 5 until the client is installed on every mobile that you want to be able to connect to IBM Mobile Connect.
8. Click Exit.

The installation is now complete.

# The service security settings

From version 2.3, IBM Mobile Connect is capable of using encrypted communications between the remote client and the IBM Mobile Connect server.

When the IBM Mobile Connect server is first installed, its 'security settings' file is created by the install program. When this has been done, that particular server (that particular installation of the IBM Mobile Connect service) will then have its own 'server ID', with a 'private key' (which is known only to the service itself and will never be displayed in the Admin program, nor elsewhere), and a corresponding 'public key'. The first time each remote client connects to IBM Mobile Connect, the end user will need to type this public key into their client.

IBM Mobile Connect is supplied in three different versions, depending on the level of encryption that the service is capable of using. The three different levels are:

- None
- Limited strength
- Full strength

## Different versions cannot be mixed

**IMPORTANT** note. For the IBM Mobile Connect system to work, its three components (the service, client, and Admin program) must all be versions that have the same level of encryption capability.

For instance, at different times you may have installed a version of IBM Mobile Connect that has no encryption capability, then later you may have installed a version that has limited strength, or full strength encryption capability. If your system contains a mixture of components from the different versions, the overall system will not work.

### How to check a component's encryption capability

With either the Admin program, or the client, the level of encryption of that particular component can be checked in the 'About' box. In the Admin program, this is found on the 'Help' menu. On the client, the location of the 'About' box will depend on the type of mobile device that's being used.

With the service, the version details can be checked by using 'Connect Monitor' (please see the section **Connect Monitor**, p.213). Details on how to find out the version of the service can be found in the section: **The 'Connect Monitor Properties' form**, p.222.

## Changing the service security settings

The security settings for a particular IBM Mobile Connect server (that is: for a

## The service security settings

particular installation of the service), were created when the server was first installed. To change these settings, you should start the IBM Mobile Connect Admin program on the same Windows machine that the service is installed on. Then, from the 'File' menu, select 'Service Security'.

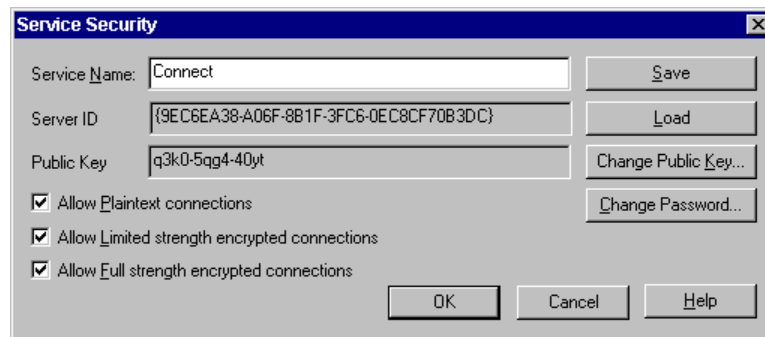
You will then be prompted for your password. This is the password that was entered when the server was first installed. The password is case-sensitive.

**Note:** The password should be written down and kept in a safe place. If the password is lost or forgotten, you will no longer be able to administer the current IBM Mobile Connect server. This will mean that when you next need to make changes to your current system, you would need to re-install the server, set up the service security settings again, and inform all your end users of the new public key.

Once you've entered the password, click OK. The **Service Security** form will appear.

## The 'Service Security' form

The current 'Server ID' and 'Public Key' are shown on the **Service Security** form.



### Service Name

Enter any string that identifies this particular IBM Mobile Connect server. The string can be anything you choose. The end users will need to enter this string on their client the first time they connect to the server.

### Server ID

This is a unique string that identifies this particular server. The string is automatically created by IBM Mobile Connect when the security settings are first set up for this particular server. The string is independent of the 'Service Name' string. This means that you will be able to change the 'Service Name' without having to change the Server ID.

### Public Key

This string ties in with the 'private key' for this particular server (the 'private key' is not displayed on the **Service Security** form, nor anywhere else). The public key string is automatically created by IBM Mobile Connect when the security settings are first set up for this particular server. The key is always in the same format: three groups of four alpha-numeric characters.

When each client first connects to the service, a prompt will appear on the mobile

device, asking the end-user to enter the public key. Each end-user will therefore need to be told the public key.

This public-key arrangement is used to further enhance the security of the IBM Mobile Connect system. It ensures that the client is connecting to the server that it's expecting to be connected to, and not to some bogus server that may have been set up to attempt to mimic the authentic server, and thus breach the security. By using this public-key arrangement, this situation is avoided.

---

## The 'encryption strength' check boxes

Three options are available:

- Allow Plain text connections
- Allow Limited strength encrypted connections ('export grade' encryption)
- Allow Full strength encrypted connections (128 bit encryption)

To set up a secure server, you would uncheck the first two options. This would mean that only sessions that can do full strength encryption would be allowed to connect to the server.

---

### **Save**

This option saves the service security settings to a file, for backup purposes. The file will be saved with the same password that you used to open the **Service Security** form.

It's advisable to save the service security settings to a diskette, and store the disk in a secure location. If a server crash occurs, and you need to reinstall the server, these saved security settings would be needed. If you don't have a saved copy of the service security settings, you would then need to create new settings, and inform all your end users of the new public key.

### **Load**

This option loads an existing service security settings file. You will be prompted for the password that was used when the file was saved. IBM Mobile Connect will then check that you are restoring old settings from the current server, and not trying to restore settings from a completely different server. Only settings that were saved from the current server may be reloaded. Each server is identified by the Server ID string, which is created when you first set up the service security settings for that server.

### **Change Public Key**

This option should only be used when it is suspected that your security has been compromised. If the public key is changed, you will need to inform every end-user of the new key, so that they can enter the new public key on their client when they next connect to the IBM Mobile Connect server.

### **Change Password**

This option changes the password that's used to display the **Service Security** settings form. To change the password, you are not required to enter the old password first, since you would have already entered the old password to be able to select the

## The service security settings

'Change Password' option.



# Using IBM Mobile Connect with Lotus Notes

## **Synchronizing the mobile's built-in applications**

IBM Mobile Connect synchronizes the end user's Lotus Notes mail, Calendar, and To Do list with the built-in applications on their mobile device.

## **The 'Category' field**

From version 2.2 of IBM Mobile Connect, where the Lotus Notes data, and also the corresponding application on the mobile, contain a 'Category' field, the Category field will be included in the synchronizations.

**Note:** On the Palm OS device, a maximum number of 15 categories may be defined. Each user is free to either use only the default categories (Business, Personal, Unfiled), or to define extra categories, up to the maximum number of 15. If a user has already defined 15 categories on their device, and a server-to-mobile synchronization takes place involving an entry whose category is not among the 15, then the entry will be synchronized, but it will be placed into the 'Unfiled' category. To view this entry, the user would either need to display 'All' or just the 'Unfiled' categories.

## **Synchronizing 'line-of-business' applications**

IBM Mobile Connect can also synchronize your own custom-written mobile applications ('line-of-business' applications) with corporate databases.

## **User authentication**

IBM Mobile Connect users can be authenticated against user-lists held by Lotus Notes, so that it's not necessary to enter and maintain a separate list of users for IBM Mobile Connect (see the section: **User authentication within IBM Mobile Connect**, p.99).

## **The Lotus Notes client must be installed**

For IBM Mobile Connect to be able to synchronize with Lotus Notes, it is essential that at least the Lotus Notes client is installed on the same Windows server that the IBM Mobile Connect service is installed on. If this is not done, the synchronization will not work.

## **Information needed to set up synchronizations between IBM Mobile Connect and Notes**

For each user that you wish to synchronize Notes data with, you will need their:

1. Notes mail server
2. Notes mail database name (for example: mail\jsmith.nsf).
3. Notes Public Address Book server
4. (optionally) Notes Personal Address Book database (for example: address\jsmith.nsf).

## Using IBM Mobile Connect with Lotus Notes

In some circumstances, you may also need their:

5. Notes ID file (copy this onto the IBM Mobile Connect server).
6. Notes ID file password.

The first two items will allow you to synchronize mail, 'Calendar' and 'To Do', all of which are held in a user's mail database. 'Contact' information on Notes is held in a separate database, the Name and Address Book. Each Notes user has access to a Public Address Book, which is held on a Notes server, and a Personal Address Book, which may be held locally on their workstation. For IBM Mobile Connect to synchronize 'Contact' information, the Address Book needs to be either on a Notes server or on the IBM Mobile Connect server itself. In practice, since the Public Address Book may be too large to send down to mobile devices, this might mean that users would replicate their Personal Address Books onto a Notes server, or create new address books specifically for IBM Mobile Connect synching purposes.

## Installing/configuring only the Notes client

**Note:** If you are installing a demo Notes server on the IBM Mobile Connect server as well as installing the Notes client, then you should not follow the instructions in the current section, but instead, you should follow the instructions in the next section: 'Installing a demo Notes server'.

To install the Notes client, you should run the Notes setup CD. Take the option to run the client, provide the home server information and open the mail database. This ensures that the Notes client itself, and hence IBM Mobile Connect, can communicate with the initial user's mail database. Connection details for the home server will also be created using this process.

For further users who are set up to use IBM Mobile Connect and Notes, you may need to create:

- Connection documents in the Name and Address Book, which instruct Notes on how to connect to other Notes servers.
- Cross-certificates which allow authentication with other servers.

Contact your Notes system administrator for further details on these.

If you are installing a Notes client *after* IBM Mobile Connect has been installed, then you'll need to add the Notes directory (the default is: '\\Notes') to the System Path. You can do this by clicking the **System** icon in **Control Panel** (click the 'Environment' tab, and choose: 'Path' in the top list. Edit the value shown to include, say: 'C:\\Notes', and click on 'Apply'). You may need to re-boot your machine for this new path to take effect everywhere.

## Installing a demo Notes server

While evaluating IBM Mobile Connect's synchronization with Lotus Notes, you may want to set up a new copy of Lotus Notes. To do this, take the following steps.

1. Delete/uninstall any existing copies of Lotus Notes that may be on the Windows server that you'll be using during the evaluation.
2. Delete the **notes.ini** file (if present) from the Windows folder.
3. Insert the Lotus Notes setup CD. The CD may autostart the Lotus Intranet Starter Pack Installation Program (or similar). If this happens, close down the Lotus installation program.
4. Open Windows Explorer, and select the **Country\W32Intel\Install** folder (the exact location of the 'W32Intel' folder on the Lotus Notes CD will depend on which version of Lotus Notes you're installing). Double click on **install.exe**. The **Lotus Notes Install Program** should start.
5. Enter your name and company name and do not check the *install on a fileserver* option. Click NEXT. Confirm the name and address details. If Notes has been installed on your machine before, a warning might now be given. Ignore this.
6. On the **Install Options** form, choose *Server Install* (this also installs the client). Change the locations of the Notes program and data folders (if required). Click NEXT.
7. Continue through the other panels to complete the installation.

The Lotus Notes client must now be configured for IBM Mobile Connect. To do this take the following steps:

1. Run the Notes client from the Lotus Applications program menu (**Start/Programs/Lotus Applications/Lotus Notes**). **DO NOT START THE SERVER YET. IF YOU DO YOU WILL HAVE TO START THE COMPLETE INSTALLATION PROCESS AGAIN.**
2. On the **Notes Server Setup** form, select: *The first Lotus Notes server in your organization*.
3. On the **First Server Setup** form, enter the Server, Organization, and Administrator details. This can be your own name. Since the machine is to be used as a client, select the option at the bottom of the panel: *Server is also administrator's personal workstation*. (If you do not do this, you will need to amend the **notes.ini** file later to add in the entry: **ServerKeyFile=server.id**.) Click OK.
4. The Notes client panel will appear. **CLOSE THE NOTES CLIENT IMMEDIATELY. DO NOT ENTER ANY DATABASES.**
5. Now start the Notes server (**Start/Programs/Lotus Applications/Lotus Domino Server**). **DO NOT TRY TO ACCESS THE SERVER WITHOUT STARTING IT FIRST.** The first run of the server creates information which needs to be present before the client will run. If you connect with the client, this process can be affected and you will have to start the complete installation process again.
6. Start the Notes client (**Start/Programs/Lotus Applications/Lotus Notes**).

The installation is now complete.

To add a new user, choose 'File/Tools/Server Administration'. Select the server and click People. Choose 'Register Person'. On the next panel, click Continue. Enter the name and password. Click Other. Choose 'Store the User ID in a file on the server'. Click Register. The user is now added.

To add a local address book. Login as the person and choose 'File/Database/New'. Select the server, type in the label and name of the address database and ensure that you choose the type as: 'Personal Address Book'.



# Using IBM Mobile Connect with Microsoft Exchange Server

IBM Mobile Connect supports Microsoft Exchange Server 5.5 (or later). Service pack 1 is optional. Versions earlier than version 5.5 are not supported.

## **Synchronizing the mobile's built-in applications**

IBM Mobile Connect synchronizes the end user's Exchange mail, Calendar, Contacts and Tasks with the built-in applications on their mobile device.

For end-users who want to also use a desktop PC, the PIM data that IBM Mobile Connect handles can be viewed using Outlook 98 or Outlook 2000 (but IBM Mobile Connect is not compatible with older PC clients, such as Microsoft Schedule+).

## **The 'Category' field**

From version 2.2 of IBM Mobile Connect, where the Exchange data, and also the corresponding application on the mobile, contain a 'Category' field, the Category field will be included in the synchronizations.

**Note:** On the Palm OS device, a maximum number of 15 categories may be defined. Each user is free to either use only the default categories (Business, Personal, Unfiled), or to define extra categories, up to the maximum number of 15. If a user has already defined 15 categories on their device, and a server-to-mobile synchronization takes place involving an entry whose category is not among the 15, then the entry will be synchronized, but it will be placed into the 'Unfiled' category. To view this entry, the user would either need to display 'All' or just the 'Unfiled' categories.

## **Synchronizing 'line-of-business' applications**

IBM Mobile Connect can also synchronize your own custom-written mobile applications ('line-of-business' applications) with corporate databases. With Microsoft Exchange Server, the data would need to be held in Public Folders.

## **User authentication**

From version 2.1 of IBM Mobile Connect, the IBM Mobile Connect users can now be authenticated against lists held on groupware, so that it's not now necessary to enter and maintain a separate list of users for IBM Mobile Connect (see the section: **User authentication within IBM Mobile Connect**, p.99).

## **Installing Microsoft Exchange Server**

You can run IBM Mobile Connect on the same machine as Microsoft Exchange Server, or on a separate machine.

If Exchange Server and IBM Mobile Connect are to be run on separate machines, you should ensure that the following conditions are met:

### **The IBM Mobile Connect machine:**

Some Exchange Connectivity software needs to be installed on the machine that IBM Mobile Connect is going to be run from. This software is installed automatically when Outlook 98 is installed (with the Exchange Server connectivity options set during install). Therefore, the simplest solution is probably to install Outlook 98 on the same Windows server that you're going to install IBM Mobile Connect on.

### **The Microsoft Exchange Server machine:**

To install Exchange Server on a machine, you should ensure that you have the following setup:

- The machine should have at least 64Mb of RAM, but 96Mb is a more sensible minimum.
- The machine should be running Windows NT 4.0 Server with Service Pack 3 (Exchange Server will not run on an NT Workstation machine). When installing NT, make sure NT is configured as a '**Primary Domain Controller**' or a '**Backup Domain Controller**'. This cannot be changed after installation!

### **Further desktop PCs:**

If you want IBM Mobile Connect to be able to synchronize the Exchange data with desktop PCs as well as with mobile devices, each of the desktop PCs will need to use Outlook 98 to view the PIM data.

## Essential Exchange configuration checks

To enable IBM Mobile Connect to synchronize with Exchange, the following configuration items should be checked.

### **Both machines are running Windows NT or Windows2000 and are members of domains**

Your Exchange server and IBM Mobile Connect must both run on Windows servers that are members of domains. IBM Mobile Connect can be running on NT Workstation or NT Server or Windows2000. If you are installing a new Exchange Server, Microsoft require you to do so on Windows NT Server 4.0 with Service Pack 3 (or later), configured as either a Primary Domain Controller or a Backup Domain Controller. Note that IBM Mobile Connect is certified against Exchange Server 5.5 (or later) only—Service Pack 1 is optional. To use IBM Mobile Connect's Exchange Authentication service, you will need to be using Integrated NT Security—the vast majority of installations do this and this is the default for new installations.

### **The trust relationships across domains**

If you have IBM Mobile Connect server and Exchange Server on machines in different domains, the IBM Mobile Connect server domain will need to trust the Exchange Server domain. To create a 'Trust Relationship' do the following: click on the 'User Manager for Domains' item on **Start/Programs/Administrative Tools**. When the dialog appears, select the menu option: 'Policies', 'Trust Relationships'.

### **Essential DLL files**

IBM Mobile Connect uses 'Cdo.dll' and 'Mapi32.dll' to connect to an Exchange Server. On the Windows server that the IBM Mobile Connect service is running on, the Windows 'System32' folder should contain these two DLL files. The Cdo.dll file is shipped with any of the following software:

- Exchange Server 5.5 Outlook Web Access
- Exchange Server 5.5 Service Pack 1 (this contains version 1.21 of Cdo.dll, which is the latest version)
- Outlook 98.

You should ensure that the DLL's date is 1998 or later (the DLL installed with Outlook 97 will not work with IBM Mobile Connect).

If the Exchange Server and IBM Mobile Connect are running on different machines, you should ensure that the 'Cdo.dll' has also been installed on the IBM Mobile Connect machine. The most straightforward way to do this is to install Outlook 98 on the IBM Mobile Connect machine.

## The available log-on methods

When the IBM Mobile Connect users are to be authenticated against Microsoft Exchange Server, there are a number of methods that the users may use to log on to IBM Mobile Connect. For each method, IBM Mobile Connect needs to be configured correctly. The different methods are listed below, together with their configuration requirements.

### The users log on using their Exchange 'Alias'

Users may log on to IBM Mobile Connect using their Exchange 'Alias' name. (The Alias name is set up for each user in the Exchange Server Administrator program, Mailbox properties, 'General' tab.)

For users to be able to do this, a number of requirements must be met:

Their Alias must be unique. Where there are a large number of users, spread over several Exchange Servers, more than one user may be using the same Alias. In this case, one of the other log-on formats should be used.

If their Alias is unique, you should also ensure that either **one** of the following is true:

either:

The Windows account that the IBM Mobile Connect service runs under has been changed from the 'System Account' (see the section: **Setting the Windows account that the IBM Mobile Connect service runs under**, p.41).

or:

All the users who are going to connect are placed in a single Exchange address book, and the details of the account that the address book belongs to, have been entered on the **Exchange Server Authentication** form, under the check-box: 'Attempt to resolve Exchange Addresses under Account below's Address Book' (see the section: **User authentication against Microsoft Exchange**, p.112).

### The users log on using their Windows NT domain name and username

Users may log on to IBM Mobile Connect using any of the following formats:

- "NT Domain\NT username"

If a user has more than one Exchange mailbox, they could use any of the following to log on to their required mailbox:

- "NT Domain\NT username\Alias"
- "NT Domain\NT username\user@company.com"

In order for the users to be able to log-on using any of these formats, no other configuration requirements need to be in place. The IBM Mobile Connect service may be run under the 'System Account' (it is set to run under the System Account when IBM Mobile Connect is first installed), and an 'Authentication' account does not need to be entered on the **Exchange Server Authentication** form.



## Setting the Windows account that the IBM Mobile Connect service runs under

When IBM Mobile Connect is first installed, its service is set to run under the System Account.

In some instances (see the section: **The available log-on methods**, p.40), this account must be changed to enable IBM Mobile Connect to synchronize with Exchange. If you need to change the account that the service runs under (because your users are logging on using the method that's described in the relevant section on page 40), the following condition applies:

The IBM Mobile Connect service must be running using an Exchange Administrator account that has Service Permissions. Usually this will be the same account that is used to run the Exchange Server services. This can be set or checked by examining the **Service** dialog for the IBM Mobile Connect service. This is found on the IBM Mobile Connect machine, under **Control Panel/Services**. Scroll down to the 'IBM Mobile Connect' service, and click Startup.... The **Service** dialog will be displayed. In the 'Log On As' section, the 'This Account' field should be selected, and should contain the same name that this field contains for the Exchange server.

Make sure you select the correct Domain/User combination from the list—for example: ExchangeDomain/Administrator instead of the local Administrator or OtherDomain/Administrator. If in doubt, use the Exchange Admin Program to make sure that the account has a 'service Account Admin' role over the Exchange Site (click on the site, select 'File Properties', then the 'permissions' tab).

This 'Exchange Administrator' account that the IBM Mobile Connect service is running under will also need rights on the IBM Mobile Connect server machine. For the time being, to make things simple you could make it a member of the 'administrators' group on the machine that's running the IBM Mobile Connect service. Again make sure you get the correct Domain/User combination.

**IMPORTANT:** Changed rights or roles in Exchange Server Admin may not take effect immediately. You may need to wait until the next Directory Synchronization takes place at your site. If you are running Exchange on a single machine and are in a position to restart the Exchange Server, this can force the change to take effect when Exchange restarts.

### **Must have 'Act as part of the Operating System' right**

If Exchange Authentication is being used, you need to give the 'Act as part of the Operating System' right to the account that runs the IBM Mobile Connect service **on that machine**. This allows IBM Mobile Connect to validate its users' usernames and passwords by using Exchange. Note that this right will automatically be set on a Backup Domain Controller if you set it on a Primary Domain Controller, but other non-domain controller machines will have to have this right applied **on that machine**. Again make sure you select the correct account (for example: MyDomain/Administrator instead of Local Administrator).

**IMPORTANT:** Changed rights in Windows NT may not take effect immediately. You can force an update by using Windows NT Server Manager to propagate changes across a domain.



# Using the IBM Mobile Connect Palm OS client

When a remote user is ready to connect to IBM Mobile Connect, they should go through the following steps.

1. On their Palm OS mobile, start the IBM Mobile Connect client by tapping its icon.
2. Tap Connect. This will begin the IBM Mobile Connect connection session.

Before beginning the first connection session of each day, the remote user should check that the IBM Mobile Connect Palm OS client has the correct settings for the IBM Mobile Connect User name, Password, and server details. To do this, they should perform the following steps.

1. On their Palm OS mobile, start the IBM Mobile Connect client by tapping its icon.
2. Tap the mobile's 'menu' screen button. The **Options** menu will appear.
3. On the **Options** menu, tap the 'Identity' item.
4. The IBM Mobile Connect username and password will be displayed. Check that these are correct, and change them if they are incorrect.
5. The *Replace HotSync* option may be ticked, or not ticked, depending on personal preference. If this option is ticked, whenever the 'HotSync' button on the Palm OS mobile's cradle is pressed, the IBM Mobile Connect client will be started up, instead of the Palm OS mobile's HotSync application.
6. Tap 'OK'. This will close the 'Identity' item.
7. If the **Options** menu has also closed, open it again by tapping the mobile's 'menu' screen button. Tap the 'Server' item in the list of options.
8. The IBM Mobile Connect server details will be displayed. The server identity can either be entered as an IP address, or as a name—provided that your organization's system is using DNS (Domain Naming System). Check that the server identity and port number are correct, and change them if they are incorrect. (**Note:** For the mobile to be able to connect using DNS, the DNS server details must be set up in the Network Preferences on the mobile. See the section: **Configuring the Palm OS mobile for RAS connections**, p.80).
9. In some cases, the *Connect via Connect Proxy* option will need to be checked. The user should check that this option is either ticked or is not ticked, depending on which method of synchronization IBM Mobile Connect is using in their particular case. (For details, see the section: **The Connect Proxy program**, p.63)
10. Tap 'OK'. This will close the 'Identity' option.

The Palm OS mobile is now ready to begin an IBM Mobile Connect connection session.



# The Site Wizard

The Site Wizard sets up your internal list of users and passwords (or allows you to authenticate users against existing lists held by your groupware product); enables the automatic backup of mobiles; the automatic installation and updating of applications on the mobile; and sets up the automatic synchronization of the built-in applications on the mobiles with each user's Lotus Notes or Microsoft Exchange account.

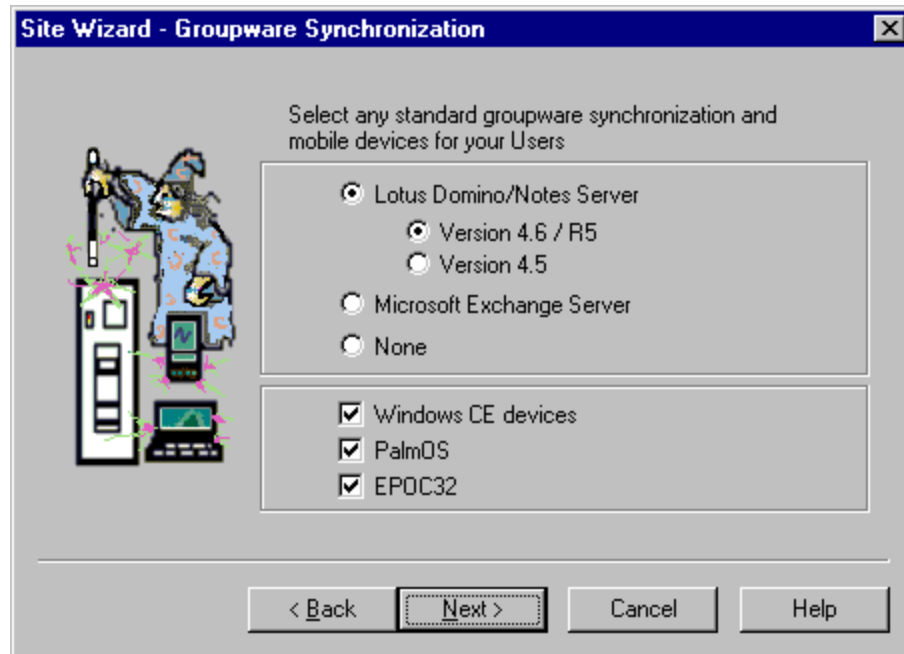
This enables you to have IBM Mobile Connect up and running on your network, almost immediately. You are then free to begin adding your other synchronizations to the same IBM Mobile Connect configuration file.

## To run the Site Wizard

Once the Admin program has been installed, do the following:

1. Start the Admin program (**Start/Programs/IBM Mobile Connect/Admin**). The **Start Options** dialog will appear.
2. Select the 'Site Wizard' option and click OK. The first Site Wizard panel will appear.
3. While running the Site Wizard, click 'Next' or 'Back' to move forwards or backwards through the following dialogs:

## Site Wizard - Groupware Synchronization



Select the groupware that you would like your remote users to be able to synchronize with, and also specify which mobile devices they will be using. For example, if your organization only uses Windows CE devices, you should clear the ‘PalmOS’ and ‘EPOC32’ check boxes.

### **Lotus Domino/Notes Server**

**Note:** For IBM Mobile Connect to be able to synchronize with Lotus Notes, it is essential that at least the Lotus Notes client is installed on the same Windows server that IBM Mobile Connect is installed on. If this is not done, the synchronization will not work. For full details, please see the section: **Using IBM Mobile Connect with Lotus Notes**, p.33.

### **Microsoft Exchange Server**

For full details on IBM Mobile Connect’s support of Microsoft Exchange Server, and also guidelines on making a new installation of Microsoft Exchange Server (in order to evaluate IBM Mobile Connect’s groupware synchronization), please see the section: **Using IBM Mobile Connect with Microsoft Exchange Server**, p.37. Particular attention should be paid to the section: **Essential Exchange configuration checks**, p.39.

## Site Wizard - Users and Authentication

The contents of this form will be dependent on whether you're synchronizing with Lotus Notes or Microsoft Exchange Server.

The first Lotus Notes 'Users and Authentication' form:

Site Wizard - Users and Authentication

Notes server:

On this server, use the following ID file to look up your users in the Public Address Book.

User ID  ...

Password

< Back   Next >   Cancel   Help

### Notes server

The name of the Notes server that contains the Notes Public Address Book database (for example: 'NOTES/domain').

### User ID/ Password

IBM Mobile Connect authenticates its users by checking the username and password that they enter on the IBM Mobile Connect client against their username and password in the Notes Public Address Book. But in order for IBM Mobile Connect to be able to do this, it needs to use a Notes ID file to enable it to access the Public Address Book. This is the ID file that you should type in the 'User ID' field. Type the name and password of any Notes ID file that has read access into the Notes Public Address Book.

**Tip:** To make the administration of your IBM Mobile Connect system as straightforward as possible, it is recommended that you create a Lotus Notes account for IBM Mobile Connect, and use this account to manage the IBM Mobile Connect synchronizations. For instance, you could register the account under the name of 'Connect Manager'. Its ID file should either be saved to a Notes server that's on the same machine as the IBM Mobile Connect, or it should be saved in the IBM Mobile Connect installation folder. The ID file could be called 'connect.id'.

## The Site Wizard

The second Lotus Notes 'Users and Authentication' form:

Site Wizard - Users and Authentication

Notes server: NOTES/domain

User ID: connect.id

How should Connect authenticate and synchronise your users ?

Use the ID file above (this file requires manager access to each users' MailFile)

Use each user's ID file (these must exist on this server).  
The path and filename can be found in the following field in the Public Address Book:

Authenticate users against a separate list of users and passwords, held by Connect.

< Back   Next >   Cancel   Help

## How would you like to authenticate and synchronize your users?

For full details of IBM Mobile Connect's groupware user-authentication (and also a more detailed description of the following options), please see the section: **User authentication within IBM Mobile Connect**, p.99.

### Use the ID File above

Select this option if you do not want to provide IBM Mobile Connect with a copy of every user's Notes ID file.

In this case, to gain access to the Lotus Notes databases, IBM Mobile Connect will use a single Notes ID file. It will use this same ID file, no matter which IBM Mobile Connect user it is accessing a Lotus Notes database on behalf of. To authenticate each user it will check the password that they enter on the IBM Mobile Connect client against that user's Lotus Notes 'HTTPPassword'.

Therefore, when selecting this option, it is important that all the IBM Mobile Connect users who are going to access Notes have their Notes 'HTTPPassword' defined.

Also, each of these users must grant permission for IBM Mobile Connect to access their data by adding the user account name for the above ID file to the Access Control List of their mail database with the following permissions:

User Type:	'Unspecified' or 'Person'
Access:	'Manager'
Delete Documents:	✓

**Note:** When this option is being used, IBM Mobile Connect would need to be running on a **Notes Server** that is part of a **Notes Domain**.



**Use each user's ID file...**

Select this option if the users that the Site Wizard is setting your system up for, all have a Notes ID file, and you want IBM Mobile Connect to access their data using their own ID files.

To use this option, you should first choose an unused field in the Notes Public Address Book, and, for each user, enter into this field the path and name of their Notes ID file. Then type the name of this unused field into the edit box that's under the selection: 'Use each user's ID file...'

**IMPORTANT.** The Notes ID files must reside on the same server as IBM Mobile Connect. If the Notes ID files are not stored on the same server, they should all be copied into a folder on the IBM Mobile Connect server, and it's this folder's path (and each ID filename) that should be entered into the above unused field in the Notes Public Address Book.

**Note:** IBM Mobile Connect can support a 'mixed community' of Lotus Notes users (some with Lotus Notes ID files, and some without), and yet still authenticate all the users against lists held by Lotus Notes. However, the Site Wizard can only configure your system for either of these groups. To set up your system for a 'mixed community' you would need to modify the IBM Mobile Connect configuration file after it's been set up by the Site Wizard. For details on how to do this, please see the section: **User authentication within IBM Mobile Connect**, p.99.

**Authenticate users against a separate list of Users and Passwords held by IBM Mobile Connect**

If this option is selected, a following set of dialogs will allow you to either manually enter your users' details or to import their details from an existing list held in a '.csv' file.

## The Site Wizard

The Microsoft Exchange 'Users and Authentication' form:



The screenshot shows a dialog box titled "Site Wizard - Users and Authentication". The main text reads: "Choose where Connect looks for lists of Users and their passwords. This can be changed or refined later." On the left, there is a cartoon wizard character holding a staff, standing next to a server rack, a mobile phone, and a laptop. The dialog contains two radio button options: "Authenticate Users against Microsoft Exchange Server." (which is selected) and "Authenticate Users against a separate list of Users and Passwords held by Connect". Below the first option is a text field labeled "Server Name". At the bottom, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

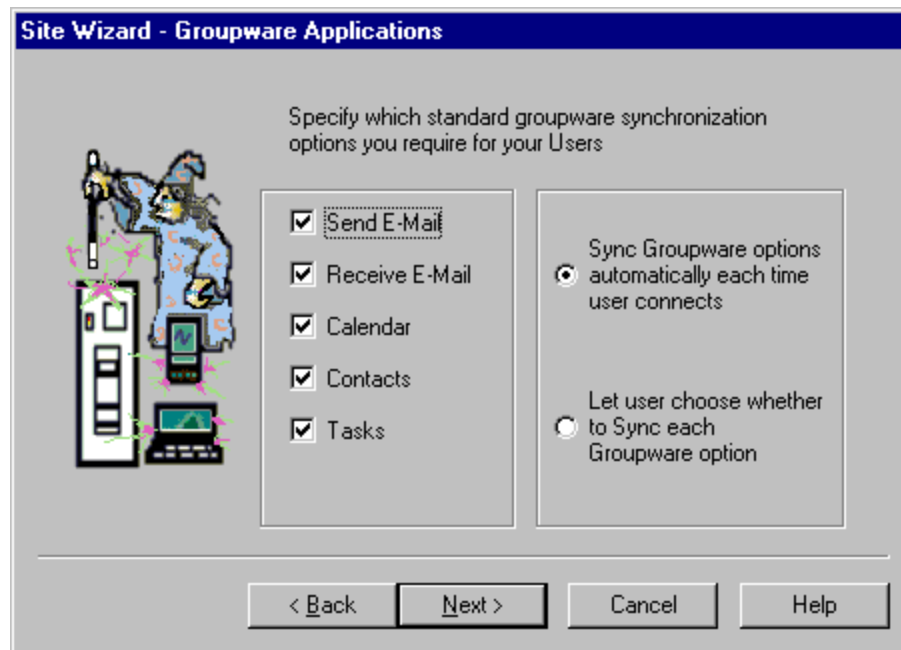
### **Authenticate users against Microsoft Exchange Server**

If this option is selected, in the 'Server Name' field, enter the name of your Microsoft Exchange Server.

### **Authenticate users against a separate list of Users and Passwords held by IBM Mobile Connect**

If this option is selected, a following set of dialogs will allow you to either manually enter your users' details or to import their details from an existing list held in a '.csv' file.

## Site Wizard - Groupware Applications



In the left-hand section of the dialog, there is a checkbox for each of the built-in groupware applications on the mobile device (the exact items that appear in the list will depend on whether you chose 'Palm OS', 'Win CE' or 'EPOC' mobiles on the previous dialog).

All the items are checked by default. Uncheck any items that you do not want synced. For instance, if you do not wish to synchronize your users' Lotus Notes Personal Address Books, then you should uncheck 'Contacts' or 'Address' (depending on the type of mobile device you're using).

### **Sync Groupware options automatically each time user connects**

If this option is selected, then every time a user connects to IBM Mobile Connect, every one of the checked groupware components will be synchronized with the corresponding built-in PIM applications on their mobile.

### **Let user choose whether to sync each Groupware option**

If this option is selected, then when the user connects they will be given the option of choosing which (if any) of the checked groupware components they want to synchronize.

Selecting this option could sometimes save time for your users. If, for instance, they are only connecting to sync their email, then they might not want to remain connected until all the other components have been synchronized.

## Site Wizard - Address Book Database

**Site Wizard - Address Book Database**

Please define how Connect will synchronize Address Book information with a Lotus Notes server.

Address Book server is the same as the mail server  
Server Name

Address Book Database  
Is the Mail database name with the following SUFFIX  
\_ab

Share Address Book database between many users  
User Name Field

< Back   Next >   Cancel   Help

This panel only appears when the Site Wizard is setting up IBM Mobile Connect to synchronize with Lotus Notes. It does not apply to Microsoft Exchange Server synchronizations. The panel will only appear if you chose to implement 'Contacts' (for Windows CE or EPOC) or 'Address' (for Palm OS).

The 'Contacts' or 'Address List' applications on the mobile device will be synchronized with each user's Lotus Notes Personal Address Book.

**Users must replicate their Personal Address Books onto a Notes server:**

The Personal Address Book is usually stored on a user's desktop PC, rather than on a Notes server. But IBM Mobile Connect does not synchronize with databases that are held on a user's desktop PC; it only synchronizes with databases that are held on a server.

Therefore, if you want to synchronize each user's Personal Address Book with that user's mobile, each IBM Mobile Connect user must replicate their Personal Address Book onto a Notes server. To enable them to do this, you should first take the following steps (these instructions assume that you're going to accept the default settings on the **Site Wizard - Address Book Database** panel):

1. Ensure that all the IBM Mobile Connect users have 'Create Replica Access' into the Notes server where their mail database is held. This can be done by editing the 'Server' document in the Public Address Book on that server:
  - Open the 'Server' document.
  - Click 'Edit Server'.
  - Expand the 'Restrictions' heading.
  - In the 'Create replica databases' field, enter '\*'. (This will enable all users listed in the server's Public Address Book to create replica databases on the server.)

- Click 'Save and Close'.
2. Instruct your users to give IBM Mobile Connect access to their Personal Address Book. To do this, they should add the 'Connect Manager' account to the Access Control List of their Personal Address Book (assuming that you've registered IBM Mobile Connect as a Notes user called 'Connect Manager', and on the **Site Wizard - Users and Authentication** panels, you typed the ID file for the 'Connect Manager' account). They should give the account 'Manager' access, with the permission to delete documents.
  3. Instruct your users to replicate their Personal Address Book onto the Notes server where their mail database is held. The replica should be stored in the 'mail' folder. It should have the same name as their mail database, but with the suffix '\_ab' added to the name of the file. For example, if a user's mail database is called 'jsmith.nsf', they should name the replica of their Personal Address Book 'jsmith\_ab.nsf', and store this replica in the 'mail' folder.

If you've decided to use the default settings on the **Site Wizard - Address Book Database** panel, you should make a note of the above three steps, then click Next. If you do not wish to use the default settings, the alternative settings are described below:

#### **Address Book server is the same as the mail server**

The checkbox: 'Address Book server is the same as the mail server' is selected by default. This indicates that the Notes server where the replica of a user's Personal Address Book is held, is the same server as the one where their mail file is held.

If the replicas of the Personal Address Books are not held on the mail server, you should ensure that all the replicas of the Personal Address Books are held on a single alternative server. In this case, you should then uncheck the above checkbox and type the name of this alternative server in the 'Server Name' field (for example: 'NOTES/domain').

---

### The 'Address Book Database' section:

This section is used to tell IBM Mobile Connect which name and folder are being used for the replicas of each user's Personal Address Book. The dropdown list-box completes the sentence: '**The Address Book database...**' Here's an explanation of the possible choices:

#### **Is the Mail database name with the following PREFIX**

In this instance, the replica is stored in the same folder as a user's mail database, and the replica has the same name as the user's mail database file, but with a prefix added to the name. You should select a suitable prefix, and type it into the edit box. (For example, if a user's mail file is called 'jsmith.nsf' and you choose a prefix of 'ab\_', you should instruct this user to name the replica of their Personal Address Book: 'ab\_jsmith.nsf'.)

#### **Is the Mail database name with the following SUFFIX**

In this instance, the replica is stored in the same folder as a user's mail database, and the replica has the same name as the user's mail database file, but with a suffix added to the name. You should select a suitable suffix, and type it into the edit box. (For example, if a user's mail file is called 'jsmith.nsf' and you choose a prefix of '\_ab', you should instruct this user to name the replica of their Personal Address Book: 'jsmith\_ab.nsf'.)

### **Is the Mail database name in the following directory**

In this instance, the replica has the same name as the user's mail database file, but it is stored in a different folder. You should select a suitable folder within the Notes server's data folder, create this folder (if it doesn't already exist), and type the name of this folder into the edit box. (For example, if you select a folder called 'Address', and a user's mail file is called 'jsmith.nsf', you should instruct this user to name the replica of their Personal Address Book: 'jsmith.nsf' and to store the replica in the 'Address' folder on the Notes server.)

### **Is located in the following public N&A book field**

This option allows you to specify a field within each user's 'Person' document in the Public Address Book that defines the location of the replica of that user's Personal Address Book.

### **Is derived from the following formula**

This option allows you to enter a LotusScript formula which will define the location and name of the replicas of each user's Personal Address Book. (For example, to take the name of a user's mail file and append '\_address', you should enter: 'MailFile + "\_address"'.)

### **Is held in the following Notes database**

This option allows you to enter the physical name of the Notes database that holds the users' Personal Address Book details. This is generally only useful when a number of users are sharing one address book. (For example: type 'address\common\_address.nsf'.)

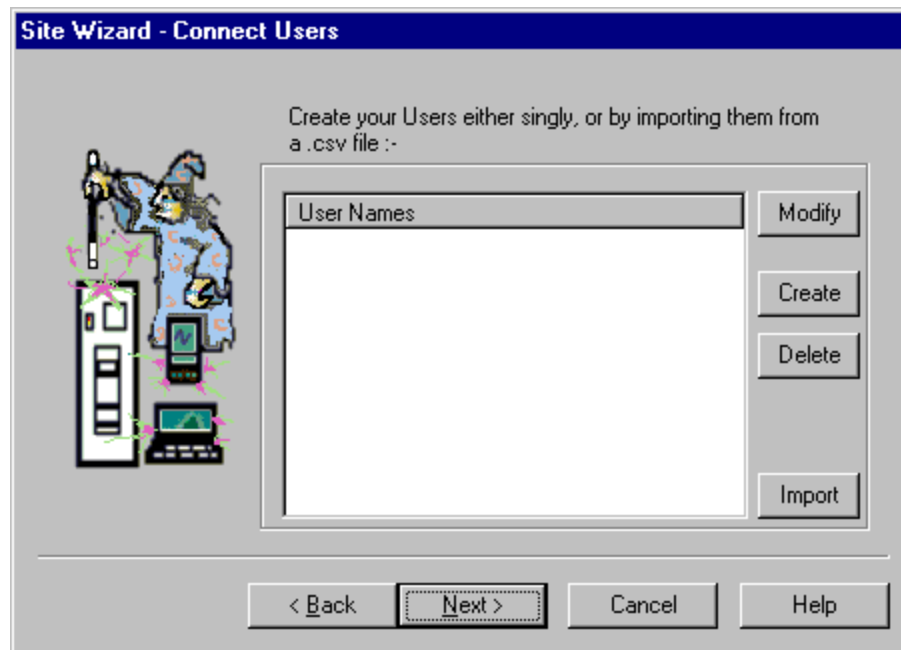
---

### **Share Address Book database between many users**

If you want IBM Mobile Connect to share one address book database amongst many users whilst still allowing each user to maintain their own list of addresses, then check this check-box. In the 'User Name Field' enter the name of a field in the Address Book database which will contain the user's full Notes name. This field will be used to differentiate between the address books of individual users.

**Note:** IBM Mobile Connect creates a filter on the common address book database based upon the user's Notes name that's returned by the tag '\$NOTESAUTH\_NAME'. For more information on filters, please see the section: The 'Database Action Properties' form, 'Filters' tab.

## Site Wizard - IBM Mobile Connect Users



It's only necessary to input user details into IBM Mobile Connect's internal list of users, for users who are not going to be authenticated against your existing groupware lists (please see the section: **User authentication within IBM Mobile Connect**, p.99). Therefore, the present dialog will only appear if you selected the 'None' option on the Groupware Synchronization dialog, or if you selected groupware synchronization, but choose the option: 'Authenticate users against a separate list of Users and Passwords held by IBM Mobile Connect'.

In both these case, you must now supply the user details for IBM Mobile Connect's internal list of users.

## Introduction to Users and Groups within IBM Mobile Connect

In IBM Mobile Connect the users are usually gathered into 'groups of users'. A group contains all the users who need similar transfers set up for them (for example, the sales team might be in one group; the delivery staff in another; inspectors in another, and so on). Using this approach, saves setting-up time (since the same data-transfers don't have to be defined over and over again for each user in the group, but only need to be defined once for each group), and makes the management of the system far more straightforward.

Initially, however, the Site Wizard will place all the users into the same group. Once the Site Wizard has created your configuration file, you'll be able to use the Admin program to create extra groups, and move some of the users into these other groups, as appropriate. The Site Wizard places them in the same group initially, because, at this stage, you are only setting up transfers that are likely to be applied to all users of your mobile computing system (use of groupware, routine backup of the mobile, automatic installation of applications—the exact applications can be varied per user later on).

## The Site Wizard

Once the initial system has been set up, you might decide that a certain part of your mobile workforce needs to have some extra data-transfers defined (something beyond simple groupware synchronization). To do this, you would create a new group, place these users in it, and define the different transfers for that group. All these operations are covered in detail in other sections.

---

## To enter new users, one by one

1. Click Create.  
(While you were on the **Site Wizard - Groupware Synchronization** dialog, if you chose to synchronize groupware, then the appropriate groupware **User Information** dialog will now appear. But if you chose 'None' on the **Site Wizard - Groupware Synchronization** dialog, then the **User Properties** dialog will now appear.)
2. Enter the IBM Mobile Connect username and password. This is the name and password that this particular end-user will need to enter when they remotely log on to IBM Mobile Connect.
3. If the dialog that you're completing is a groupware **User Information** dialog, enter the groupware username, password, and server details. IBM Mobile Connect will use these details when it logs on to the groupware application to access this particular user's data.
4. Click OK.

This will enter the new user into the IBM Mobile Connect internal list of users. By using in the Admin program, the details can be changed at any time in the future.

## To change a user's details in the current list

Call up the groupware **User Information** dialog by doing one of the following:

- Double click on the user you wish to change.
- Click the user you wish to change, and click Modify.

Once the **New User** dialog appears, edit the details and click OK.



## To enter new users, by importing a list

Call up the **User List Import Properties** dialog by clicking Import.

This dialog assumes that a username list was previously saved as a '.CSV' (comma separated values) file. This file may have been saved from within the IBM Mobile Connect Admin program, in which case the file will be in the default format, and you will only now need to enter the file's name. Ensure that the edit box contains the full path and filename, or if you want to browse to the file, click the browse push button. Once the filename has been entered, click Import.

**Note:** The import feature will not create groups in your configuration file. If you are importing a list of users where the users were previously gathered into groups, you should first define the groups in your present (or new) configuration file, and then import the old list of users. The import feature will then correctly import the users into your present configuration file, placing them into their allotted groups.

If you wish to load a list of users that was not saved from within the IBM Mobile Connect Admin program, you will need to define the format of the file, as described below:

1. Click Setup. The **User List Mapping & Format Properties** dialog will appear:

The 'mapping values' box contains eight fields ('User', 'Description', 'Full Name', 'Password', 'Department', 'Location', 'Telephone', and 'Group'). The contents of these fields are specific to IBM Mobile Connect, and do not refer to groupware user information. The first seven fields are details that can be entered for each end-user of IBM Mobile Connect. Only the first field is mandatory—the username. The final field, 'Group', refers to the IBM Mobile Connect 'group of users' that this user will be placed in. As mentioned above, the Site Wizard always places all the users in the same group. Therefore the 'Group' field can be left blank. If an entry is made in the 'Group' field, this will be ignored and all the users will be placed in the same group.

2. Enter the order of the corresponding data fields in your CSV file. Suppose your CSV file contains (for example) five strings for each user, and the username is the

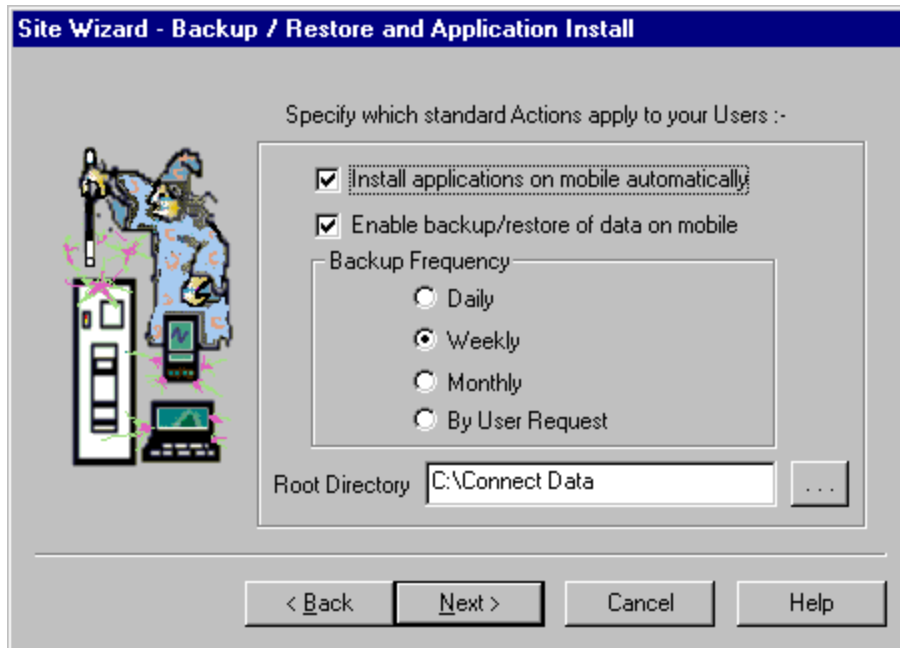
### The Site Wizard

fifth string in the sequence. For the 'User' field in the 'mapping values' box, you would enter the value '5', and so on for the other fields, if required.

3. Choose the delimiter and text qualifier, if appropriate, and click OK.
4. Enter the location of the CSV file, and click Import.

**Note:** Once the Site Wizard has finished, you will need to enter the groupware details for each user. See the section: **Adding new users**, p.90.

## Site Wizard - Backup / Restore and Application Install



### **Install applications on mobile automatically**

If you tick this check-box, the necessary transfers will be set up so that IBM Mobile Connect will do the following. Each time a remote user connects to the system, IBM Mobile Connect will look in a particular folder on the server (see below) for Palm OS applications to install. IBM Mobile Connect will check the dates on each of these applications, and if any of them have later dates than the copies installed on the remote mobile (or if the applications are not currently installed on the mobile), then the applications will be transferred to the mobile.

### **Enable backup/restore of data on mobile**

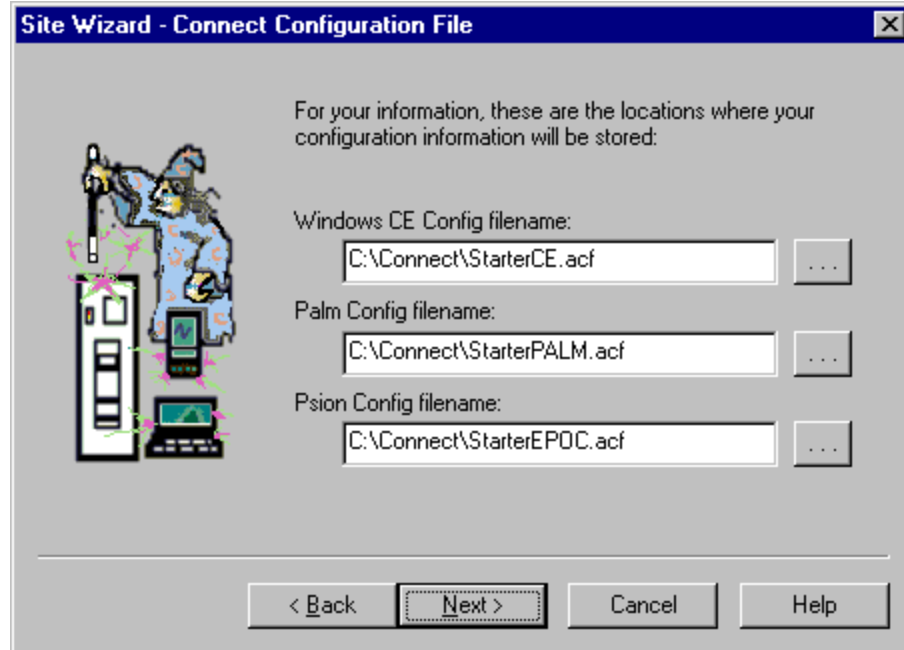
If you tick this check-box, the necessary transfers will be set up so that IBM Mobile Connect will do the following. On the specified 'backup frequency', a backup of the remote mobile will be made. If the 'By User Request' backup frequency is chosen, every time the end-user of the mobile connects, the IBM Mobile Connect client will give them the option of performing a backup.

Once Site Wizard has created the IBM Mobile Connect configuration file, you can find out which items will be included in the backup by examining the 'Backup' Action Set. The Action Set may then be refined to suit your organization's particular needs.

### **Root Folder**

This edit-box shows the default root folder for the backup/restore/install system that the Site Wizard will create once it has gathered all the information it needs. From this root, three subfolders will be created: 'Backup', 'Install', 'Mirror'. Any applications that you wish to be automatically installed/updated, should be placed in the 'Install' folder.

## IBM Mobile Connect Configuration File



The edit boxes show the default names (and paths) of the configuration files that are about to be created. Change these if desired, then click Next.

The Site Wizard has now finished collecting information. Click Finish. This will create your configuration files, close the Site Wizard, and load the last configuration file on the above panel into the Admin program.

## The IBM Mobile Connect service—further configuration options

The IBM Mobile Connect service has a number of options which can be configured through the Admin program's **Service Settings** dialog.

To display the **Service Settings** dialog, start the Admin program, and, from the Admin program's File menu, select 'Service Settings'.

Field Name	Value	Buttons
Win CE Config. File Path	F:\Connect\Demo(CE).acf	..., OK
PalmOS Config File Path	F:\Connect\Demo(Palm).acf	..., Cancel
EPOC32 Config File Path	F:\Connect\Demo(EPOC).acf	..., Help
Logging Database	F:\Connect\ConnLog.mdb	...
Server IP	192.6.77.136	
Server Port	5001	

### Win CE Config File Path

This field shows the configuration file that IBM Mobile Connect will use when the remotely connected mobile is a Windows CE mobile.

### Palm OS Config File Path

This field shows the configuration file that IBM Mobile Connect will use when the remotely connected mobile is a Palm OS mobile.

### EPOC32 Config File Path

This field shows the configuration file that IBM Mobile Connect will use when the remotely connected mobile is an EPOC mobile.

### Logging Database

This field shows the Microsoft Access database that is used by IBM Mobile Connect to hold logging information. (see the section: **The Connection Log and Error Logging**, p.227).

### Server IP

This field shows the IP address on which the NT server is receiving incoming IBM Mobile Connect connections from mobile computers.

### Server Port

This field shows the port number used at the above address.

**Note:** In order for any changes made during the **Service Settings** dialog to take effect, the IBM Mobile Connect service will need to be stopped and restarted.



# The Connect Proxy program

In some situations you might want to connect mobiles directly to networked PCs using a serial cable. The PCs could be running Windows95, Windows98, Windows NT, or Windows2000.

This arrangement might be used in hospital wards, for instance, where PC workstations might have a serial cable and a cradle for the mobile device permanently set up on the PC. Doctors and nurses could then gather information in a ward, then, as they're leaving the ward, they could place their mobile in the workstation's cradle to update the hospital's network with the information they'd just gathered. They would then repeat the process as they pass from ward to ward.

This same arrangement could also be used in any industry where workers are moving around collecting data on handheld devices, and they need to frequently transfer this information to their organization's network from different locations around the site.

It's these types of situations that Connect Proxy is intended for.

## Avoid the need to configure Windows RAS

Connect Proxy performs a function that's similar to the one that 3Com's **HotSync** performs, but the main difference is that Connect Proxy performs the synchronization directly between the IBM Mobile Connect client that's running on the mobile and the IBM Mobile Connect server. Therefore, by using Connect Proxy to do the syncing, you avoid having to solve complex configuration problems which would involve configuring TCP/IP and possibly tweaking the registry of each workstation.

## To install the Connect Proxy program

On each network PC that you want to install Connect Proxy onto, use either of the following installation methods to install Connect Proxy:

### Installation method A:

1. Insert the IBM Mobile Connect installation CD.
2. If the CD doesn't autostart, run Setup.exe, which is in the CD's root folder.
3. On the first panel of the IBM Mobile Connect setup program, select the option to install Connect Proxy.
4. Follow the on-screen installation instructions.

The ConnectProxy.exe program will be installed on the PC. The program will be placed in the Startup folder, so that it is started each time the PC is booted. A shortcut to the program will also be placed in the IBM Mobile Connect program group.

## The Connect Proxy program

### Installation method B:

1. Copy 'ConnectProxy.exe' from the 'Proxy' subfolder of the IBM Mobile Connect installation folder onto your PC.
2. (Optionally) add the Proxy program to the PC's Windows Startup folder.



## Using Connect Proxy on Palm OS mobiles

### Configuring the client to synchronize using Connect Proxy

In order for the IBM Mobile Connect client to synchronize using Connect Proxy, rather than by using the usual TCP/IP network arrangement, the end-users of the Palm OS mobiles must configure the IBM Mobile Connect client to use the proxy option:

#### **Configuring the client to use Connect Proxy**

To configure an IBM Mobile Connect client to synchronize using Connect Proxy every time the client's 'Connect' push button is tapped, the end-users of the Palm OS mobile would go through the following steps:

1. On their Palm OS mobile, start the IBM Mobile Connect client by tapping its icon.
2. Tap the Palm OS mobile's 'menu' screen button.
3. Tap the 'Server' item in the list of options. The **Server Options** form will appear.
4. On the **Server Options** form, tick the option: *Connect via Connect Proxy*.
5. Tap OK.

The 'proxy' option is now set as the default option on this client. From now on, whenever the end user is ready to make a connection, they will simply tap the client's 'Connect' push button, and the synchronization will take place using Connect Proxy.

### Establishing the connection between the mobile and the IBM Mobile Connect server

To start a synchronization session using Connect Proxy, take the following steps:

1. Connect your serial cable to the workstation port that you wish to use with Connect Proxy, and put your Palm OS mobile into its cradle.
2. Ensure that Connect Proxy is running on the workstation (look for the Proxy's icon on the right-hand side of the workstation's Task Bar).
3. Double click on the Proxy's icon.
4. Select the port that you are reserving for the Proxy and click 'Enable'.
5. In a similar way disable other ports from Proxy use.
6. Once you've created this Proxy configuration choose **Options/Save Serial Port Configuration Now**.
7. Start the IBM Mobile Connect client on the Palm OS mobile, and ensure that the *Connect via Connect Proxy* box on the Server menu option is selected.
8. To establish the session, tap Connect.

When a connection is made to the Proxy, the Proxy's icon on the workstation's Task Bar turns red. At any stage you can double click on the icon to see more details, or to control the port(s) that the Proxy is listening on.

On the Proxy display, there is a list of ports configured on the workstation. The configuration that you saved using 'Save Serial Port Configuration Now' is used at the workstation's startup to allow the Proxy to 'grab' the port that it's to use and allow other programs to access their own ports.

## Enabling an IBM Mobile Connect session to automatically perform a HotSync® session

**Note:** This feature is only available when **Palm OS** mobiles are being synchronized.

From version 2.41 onwards, the IBM Mobile Connect client can be set up so that it automatically performs a HotSync session after it's completed an IBM Mobile Connect session.

This feature can *not* be used when the end users are away from their desks, and are synchronizing their mobile devices with the server from a remote location. But the feature might be useful at other times. For instance, if the end users usually return to their desks in order to synchronize their mobile devices, the feature could be used to ensure that all users perform a HotSync regularly. In this situation, the HotSync process would happen automatically, so that when the user returns to their desk they would simply push the 'Connect' button on the IBM Mobile Connect client and their device would be synchronized with the server, then a HotSync would also be done with their desktop PC.

One example where this process might be useful, is where the users do not have a personal address book on a server. In this case, they could use the Address List application on their Palm OS device, and a backup of this would be made automatically onto their desktop PC each time they synchronized their mobile.

In these situations, this feature would help to minimize the amount of IT instruction and supervision that end users might ordinarily need to enable them to perform these tasks.

### Installation requirements

In order to enable IBM Mobile Connect to be able to automatically perform HotSync sessions, you should do the following:

- If you're currently running a version of IBM Mobile Connect that's earlier than version 2.41, you should install version 2.41 (or later) by running the IBM Mobile Connect installation CD.
- On all desktop PCs (or other personal computers) where the end user will be performing an automatic HotSync session, the Connect Proxy program must be running. The Connect Proxy program should have a build number that begins: '2.41.' (or later). This can be checked on the 'About' box of each Connect Proxy program.
- With each Palm OS device that's going to be set up to perform automatic HotSync sessions, you should ensure that the device is running a version of the IBM Mobile Connect client that has a build number that begins: '2.41.' (or later). This can be checked on the 'About' box of each client.

## To set up automatic HotSyncs

This section assumes that you already have an existing IBM Mobile Connect configuration file (.acf file), and you want to enable the ‘automatic HotSync’ feature so that when the end users synchronize their mobiles, a HotSync will also be performed on their desktop PC.

If you do not have an existing configuration file that you want to modify in this way, you should set up a new file using the IBM Mobile Connect Site Wizard (please see the section: **The Site Wizard**, p.45).

To enable the ‘automatic HotSync’ feature, you do not need to create or change any settings within the IBM Mobile Connect Admin program. You only need to take the following steps:

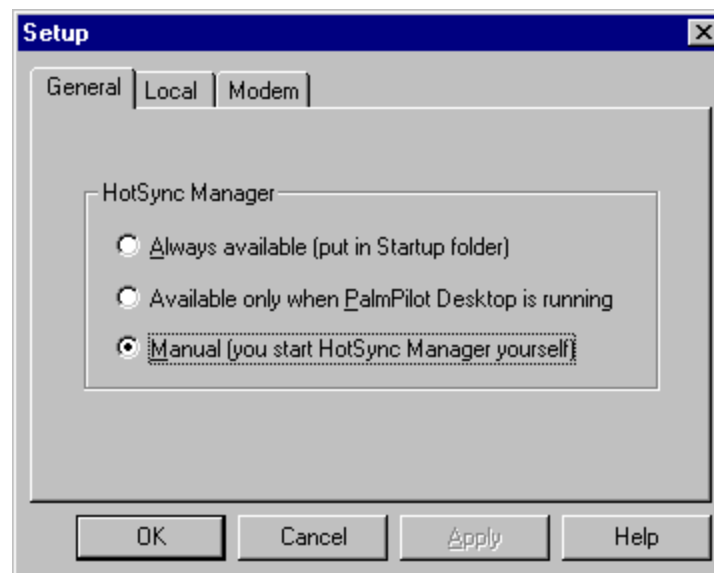
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### On the desktop PC

On all desktop PCs (or other personal computers) where the end user will be performing an automatic HotSync session, you should do the following:

#### **Ensure that the Palm Desktop program is installed on the PC but that HotSync Manager is not running.**

It is important that HotSync Manager is *not* running when the end user performs an IBM Mobile Connect session from their desktop PC. If HotSync Manager is running, the session will not work. To ensure that this doesn’t happen, you should start HotSync Manager (**Start - Programs - Palm Desktop - HotSync Manager**). On the right-hand side of the Windows Task bar, right-click on the HotSync Manager icon. Select ‘Setup’. The **Setup** form will be displayed:



On the ‘General’ tab, select the third option (‘Manual’). Then click OK, and close HotSync Manager (by right-clicking on its icon and selecting ‘Exit’).

#### **Ensure that the correct version of the Connect Proxy program is installed.**

If you need to install the program on a PC, you could do this by copying it from the

## The Connect Proxy program

'Proxy' subfolder of your installation of IBM Mobile Connect. You could then paste it into any convenient folder on each desktop PC that will need to run the program.

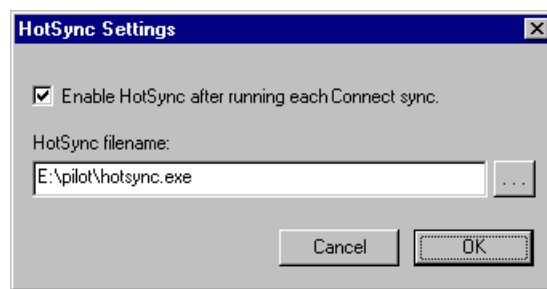
### Ensure that the Connect Proxy program is running.

Probably the simplest way to do this is to create a link to the program, and place this link in the Windows 'Startup' folder, so that the program is started each time the PC is started.

## Configure the Connect Proxy program

You should display the **HotSync Settings** form, by doing either of the following:

- Right-click on the Connect Proxy icon in the right-hand side of the Windows Task bar, and select 'HotSync Settings'.
- Or, double click on the Connect Proxy icon, then, from the 'Options' menu, select 'HotSync Settings'.



On the **HotSync Settings** form, make the following settings:

### Enable HotSync after running each Connect sync.

Check this checkbox

### HotSync filename

This field should contain the path to the 'hotsync.exe' program on the desktop PC that you're currently configuring the Connect Proxy program on. If this field is blank, this means that the Connect Proxy program was unable to find the location of this file. In this case, you should use the browse button to browse to the file. It would normally be located in the folder that the Palm Desktop application was installed in.

---

## On each Palm OS client

On each Palm OS device that's going to be set up to perform automatic HotSync sessions, you should do the following:

1. Start the IBM Mobile Connect client by tapping its icon.
2. To the right of the client's 'Connect' button, there is a dropdown-list button. Tap the button (or tap the entry that's currently displayed beside it).
3. On the menu that appears, tap 'Proxy+HotSync'.

Both the client and the Connect Proxy program are now configured so that a HotSync session will be automatically performed after each IBM Mobile Connect session has been completed.

# Configuring RAS and TCP/IP on Palm OS mobiles and Windows

The IBM Mobile Connect service, which runs under Windows NT or Windows2000, uses TCP/IP to communicate with Palm OS mobiles (which run the IBM Mobile Connect client to establish this communication). This means that any server that's running the IBM Mobile Connect service needs to have the TCP/IP protocol installed and configured correctly on that server. In addition, if connections are being made directly to the server using a serial cable or modem then you will also need to ensure that the **Remote Access Server** (RAS) is also installed and running on that server (though, if you wish, you can use Connect Proxy instead of Windows RAS. Please see the section: **The Connect Proxy program**, p.63).

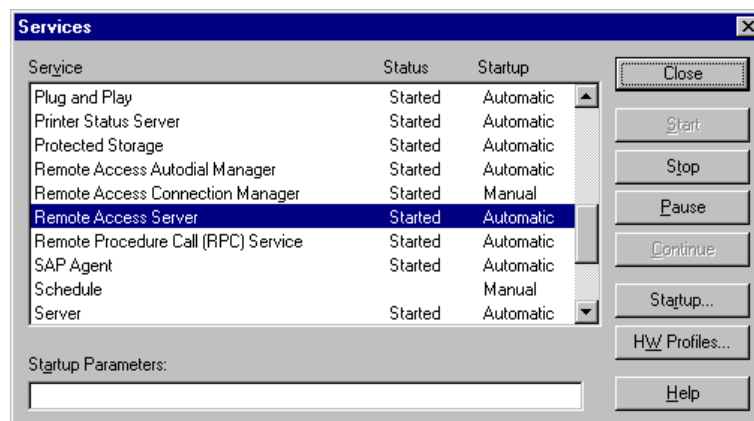
**Note:** With the PalmPilot (which is now called the '3Com connected organizer'), only the Professional Edition is equipped with a TCP/IP stack. Therefore IBM Mobile Connect will not work with the PalmPilot Personal Edition. The **Palm III** (and any later version) is fully compatible with IBM Mobile Connect.

Depending on how you use your Palm OS mobiles, there may be a conflict between RAS and HotSync over port usage (for details, see the section below : **What to do if RAS and HotSync use the same port**, p.76).

In many cases, RAS and TCP/IP will have been installed with Windows when the server was first set up. These notes describe how to check this, and how to install them if they haven't been installed.

## RAS configuration

RAS manages connections to and from remote devices and a machine running Windows NT. To check whether RAS is present on the server, in **Control Panel**, double click the **Services** icon. The **Services** form will appear:



Scroll down the list of services until you find the Remote Access Server. If the

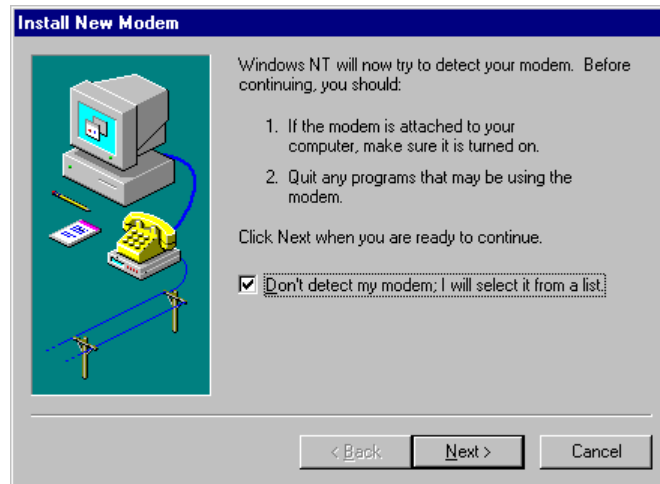
## Configuring RAS and TCP/IP on Palm OS mobiles and Windows

Remote Access Server is not present in the list then you will need to install it from your Windows NT setup CD.

RAS works in a similar way to HotSync in that the service is allocated a port or ports on which to look for connections. When RAS is running, it owns these ports—and other processes such as HotSync will not be able to access them.

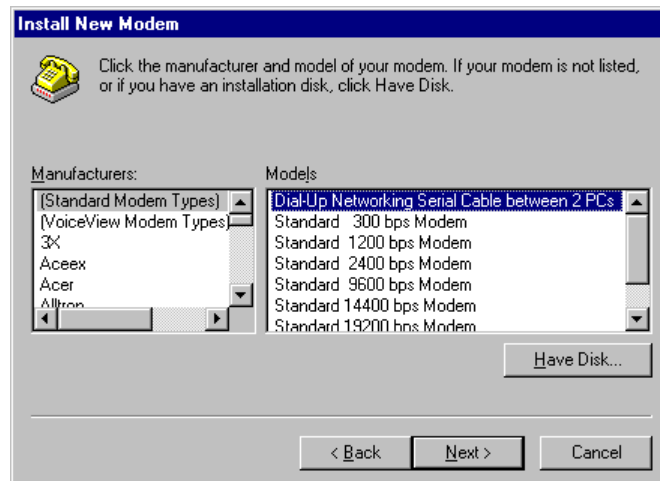
### Setting up serial connections

To set up a serial cable or modem connection for RAS, in **Control Panel**, double click the **Modems** icon. You will either be presented with a list of currently defined 'modem' connections, or the **Install New Modem** dialog will appear:

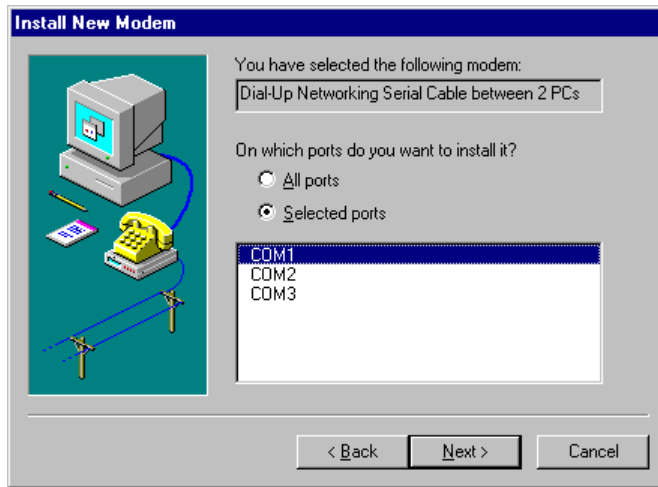


If you are intending to use a serial connection, do the following:

1. Check the 'Don't detect my modem...' check-box.
2. Click Next. The next **Install New Modem** dialog will appear:



3. Since you are using a serial connection, click Dial-Up Networking Serial Cable between 2 PCs.
4. Click Next. The next **Install New Modem** dialog will appear:

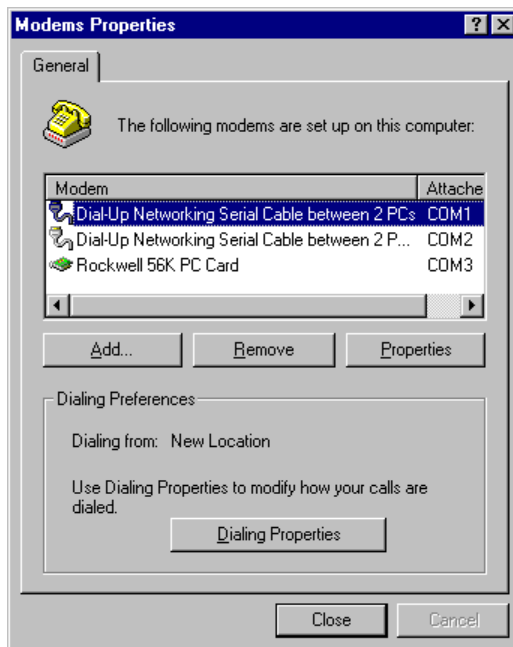


5. Choose the port, or ports, you wish to connect on.
6. Click Next. The installation is now complete.

### Redefining the connection

Once a modem or serial cable connection has been defined, then the details can be refined by doing the following:

1. From **Control Panel**, double click the **Modems** icon.
2. The **Modems Properties** form will appear:



3. Select the connection.
4. Click Properties.

On the 'Properties' form that appears, you will be able to change the port speed, flow

## Configuring RAS and TCP/IP on Palm OS mobiles and Windows

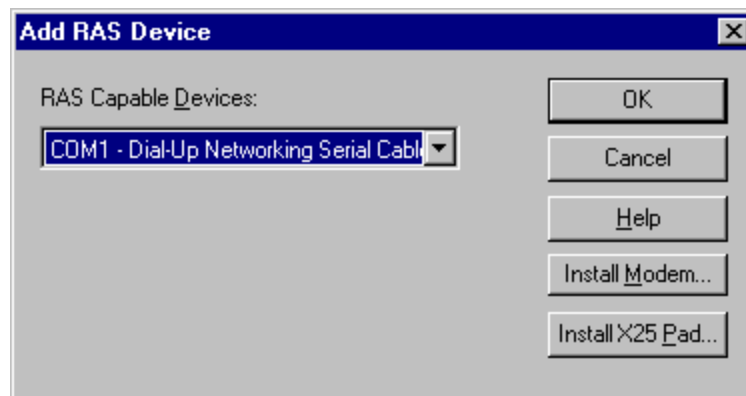
control details, and so on. The default speed of 19200 bps can be left unchanged.

### Configuring RAS to use a connection

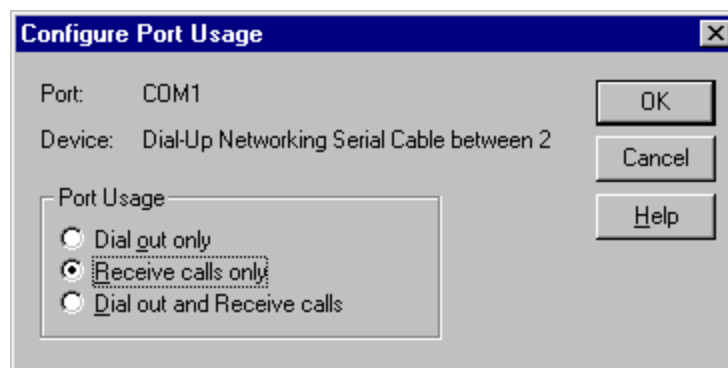
To maintain the ports that RAS uses, in **Control Panel**, double click the **Network** icon. The **Network** form will appear.

1. Click the 'Services' tab.
2. Click the 'Remote Access Service' entry in the list of Network Services.
3. Click Properties... The **Remote Access Setup** form will appear.

The form will show a list of the RAS-configured ports on the server. If there are no ports shown in the list, click Add. Then choose one of the devices that you set up earlier on the **Install New Modems** forms:



1. Click OK. This will return you to the **Remote Access Setup** form.
2. Click the appropriate port in the list.
3. Click Configure... The **Configure Port Usage** form will appear:



For IBM Mobile Connect use, click Receive calls only.

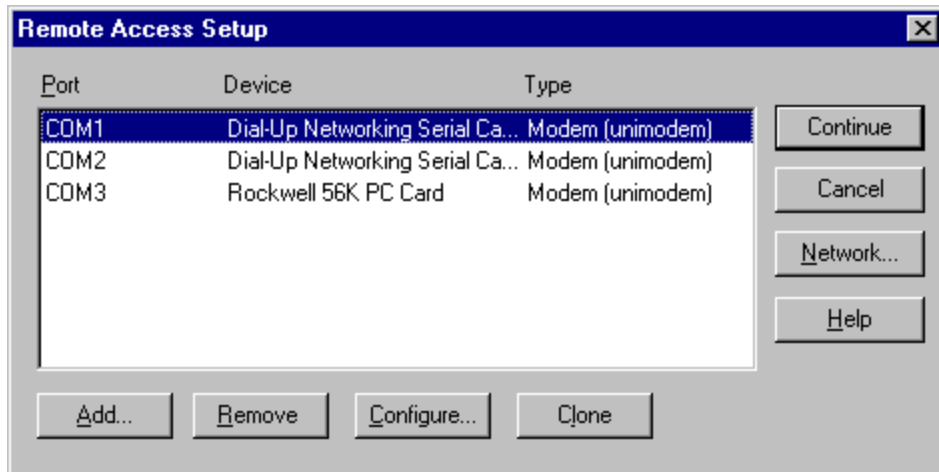
**Note:** if you are running Windows NT Workstation, you can only allow one port to receive calls. If you require more than one port to receive calls, you will need to install Windows NT Server.

Click OK. This will return you to the **Remote Access Setup** form



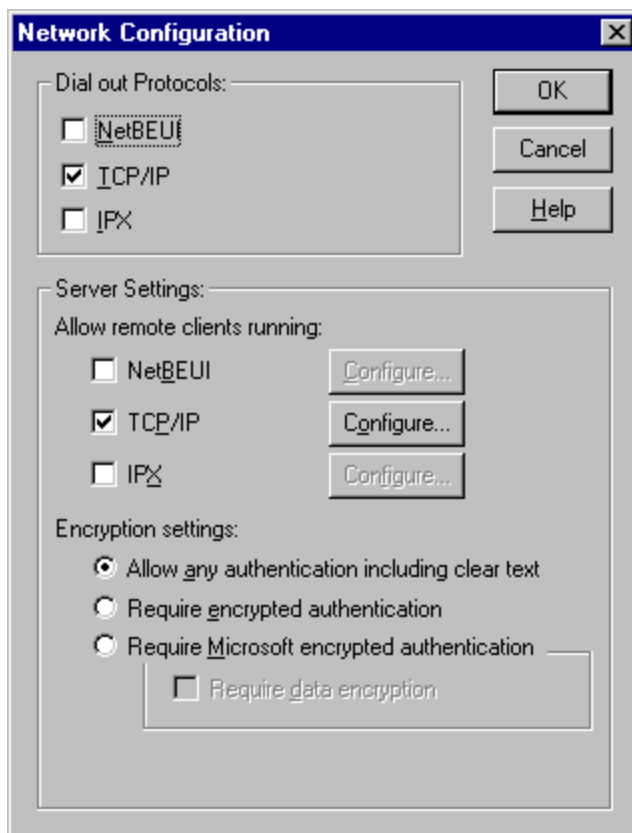
## Altering the network options for a port

While the **Remote Access Setup** form is still displayed, do the following:



Click one of the RAS configured ports.

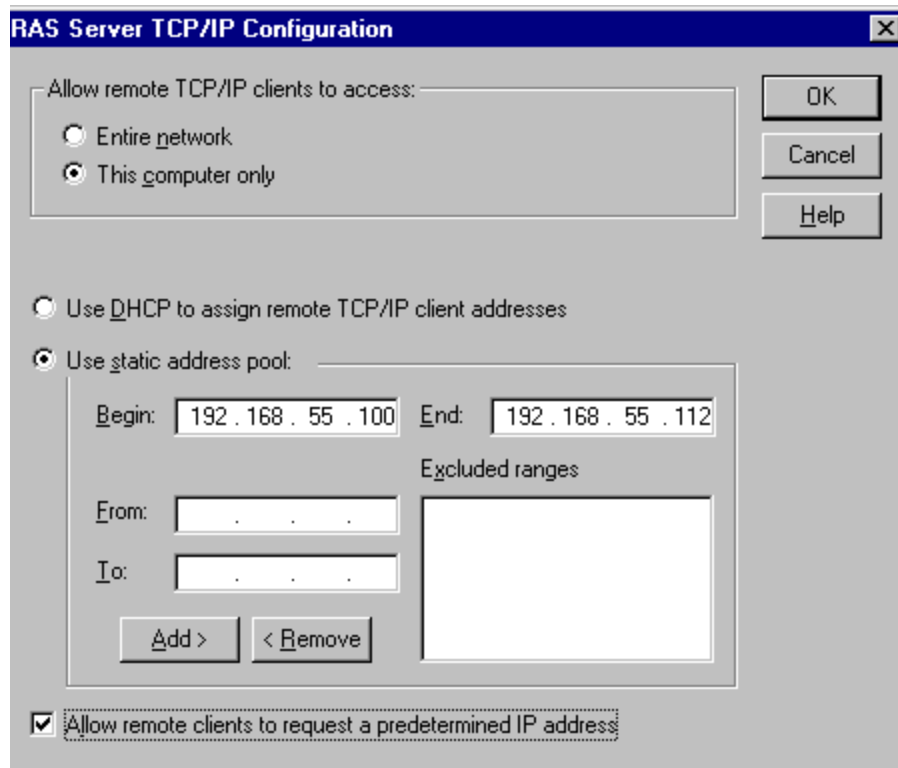
Click Network. The **Network Configuration** form will appear:



You need to ensure that network passwords are received correctly, so click Allow any authentication including clear text

In the 'Server Settings' box, alongside the 'TCP/IP' selection, click Configure....  
The **RAS Server TCP/IP Configuration** form will appear:

## Configuring RAS and TCP/IP on Palm OS mobiles and Windows



The image shows a dialog box titled "RAS Server TCP/IP Configuration". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into several sections:

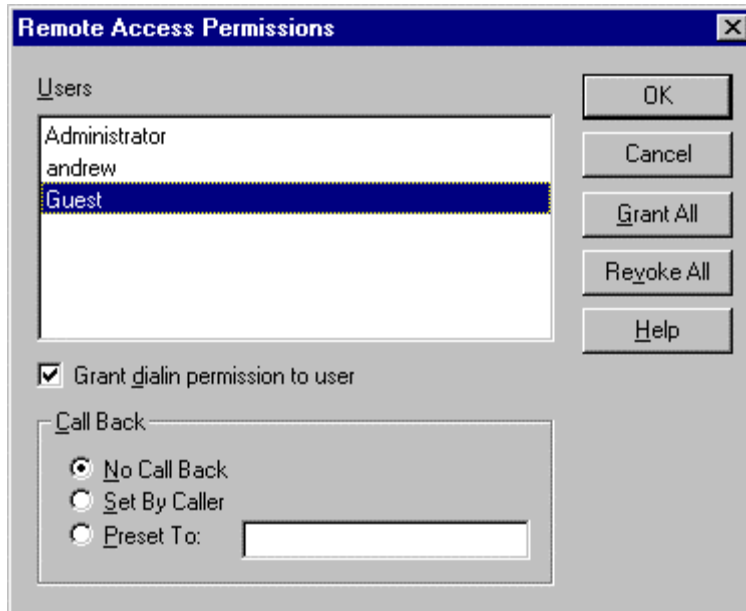
- Allow remote TCP/IP clients to access:** A group box containing two radio buttons: "Entire network" (unselected) and "This computer only" (selected).
- Use DHCP to assign remote TCP/IP client addresses:** A radio button that is unselected.
- Use static address pool:** A radio button that is selected. Below it is a sub-dialog box containing:
  - Begin:** A text field with the value "192 . 168 . 55 . 100".
  - End:** A text field with the value "192 . 168 . 55 . 112".
  - From:** A text field with three dots " . . .".
  - To:** A text field with three dots " . . .".
  - Excluded ranges:** An empty rectangular box.
  - Buttons:** "Add >" and "< Remove".
- Checkboxes:** A checked checkbox labeled "Allow remote clients to request a predetermined IP address".
- Buttons:** "OK", "Cancel", and "Help" buttons are located on the right side of the dialog.

It will not usually be necessary to change or set any of the options on this form. But if in doubt, consult your system administrator.

## Allowing access to RAS from the Palm OS mobile

The username that you have specified on the Palm OS mobile for making the RAS connection needs to be granted permissions on the NT machine (see the section: **Configuring the Palm OS mobile for RAS connections**, p.80).

1. From **Start/Programs/Administrative Tools (Common)**, choose Remote Access Admin.
2. Click on the Permissions option of the Users menu.



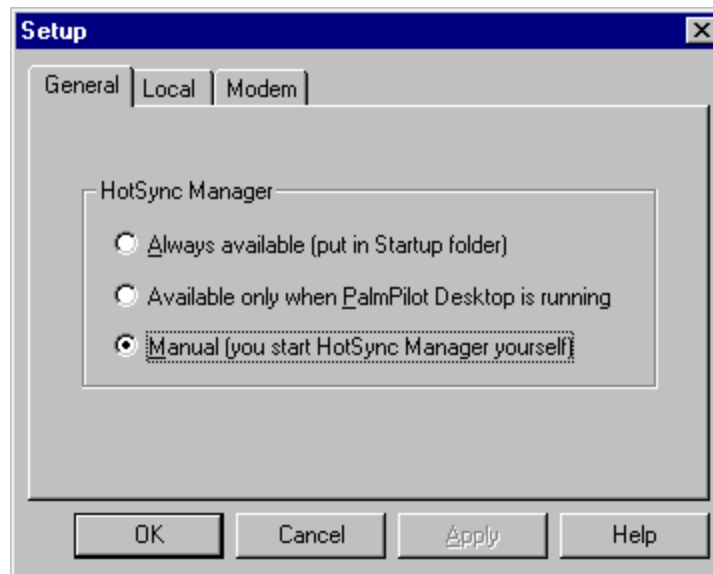
3. Select the appropriate username and check the 'Grant dial-in permission to user' check-box.

The Remote Access Admin program can also be used to manually start and stop RAS and monitor connections.

## What to do if RAS and HotSync use the same port

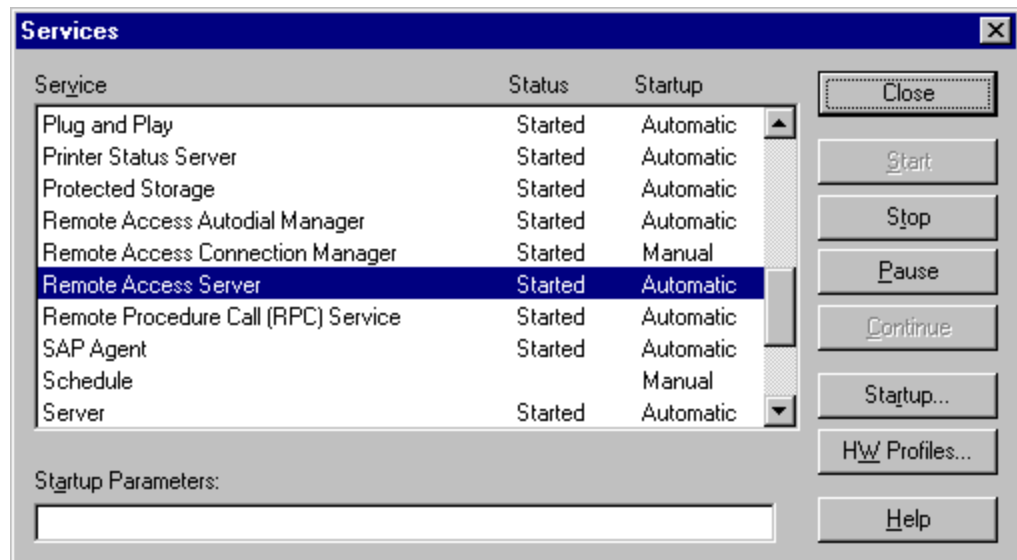
If you are using a serial cable connection with IBM Mobile Connect then ideally you would use, say, COM1 for IBM Mobile Connect and RAS, and COM2 for HotSync. If you need to use the same port for RAS and HotSync then you'll need to ensure that only one of the two applications is trying to use the port at any given time.

With HotSync you can specify a manual startup for the HotSync manager:



A similar choice is available for RAS:

1. In **Control Panel**, double click on the **Services** icon. The **Services** form will appear:



2. Click Remote Access Server.
3. Click Startup.... The **Service** form will appear:



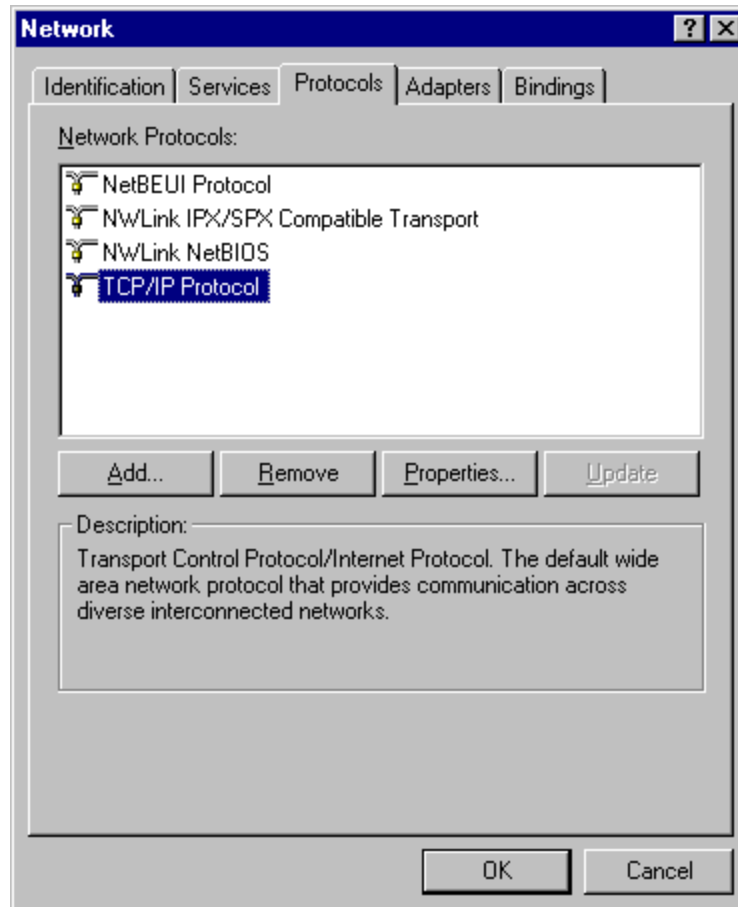
In the 'Startup type, box, click Automatic. This will ensure that RAS is started whenever the server is booted up.

If you specify that RAS is to be started manually then you will need to start and stop it using the previous form: **Services**.

## Checking TCP/IP

From the DOS prompt on the Windows NT server, type “Ping 127.0.0.1”. If this command successfully completes, then TCP/IP is probably functioning correctly.

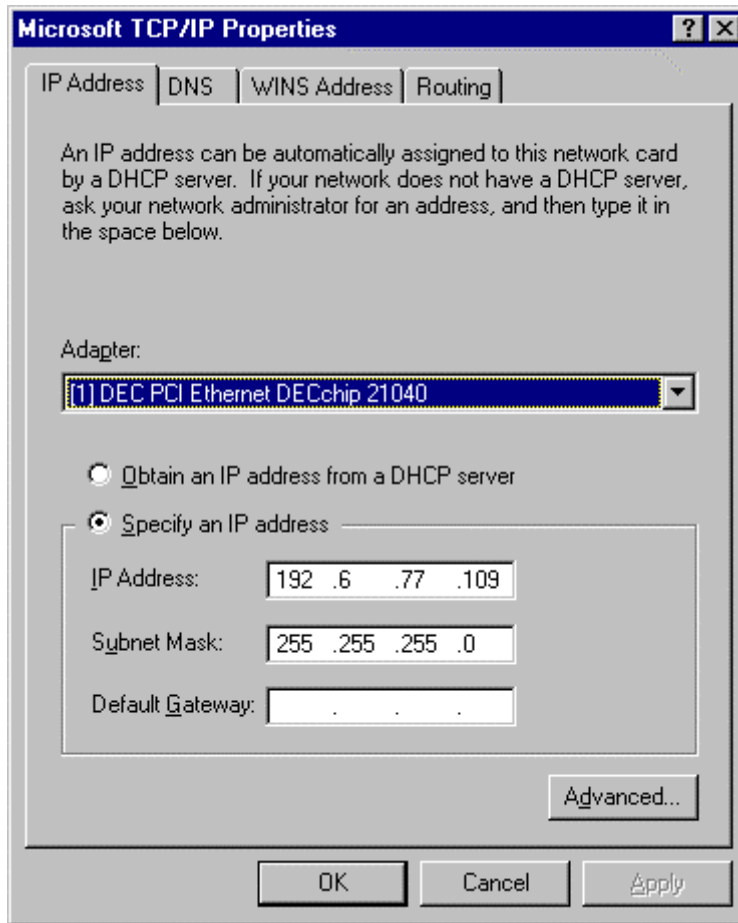
Next, in **Control Panel**, double click the **Network** icon. The **Network** form will appear:



On the ‘Protocols’ tab, a list of installed networking protocols is given.

‘TCP/IP Protocol’ should be one of those listed. If it is not present then you will need to install the protocol from your Windows NT setup CD. To begin the installation, click Add.

To set, or check, the configuration details, click the ‘TCP/IP Protocol’ entry in the list, then click Properties. The **Microsoft TCP/IP Properties** form will be displayed:



The 'Adapter' field should contain the name of the network adapter that's installed on the server. The 'IP Address' and 'Subnet Mask' fields should contain the appropriate values for the server.

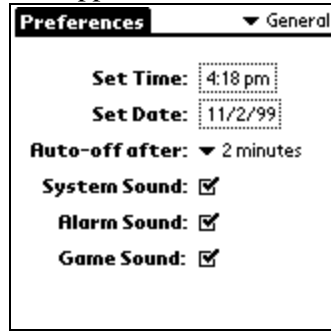
If appropriate for your network, you should use the other tabs to complete the details relating to the Domain Name System, WINS address and IP routing.

Consult your network administrator for details on the settings that you should be using on this form.

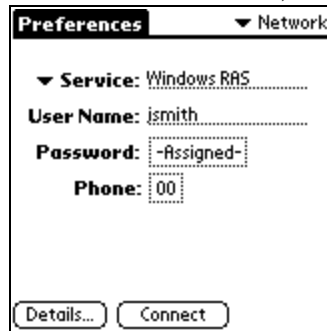
## Configuring the Palm OS mobile for RAS connections

Before a Palm OS mobile's TCP/IP facility can be used, that particular mobile's Network Preferences must be configured. To configure each mobile, take the following steps:

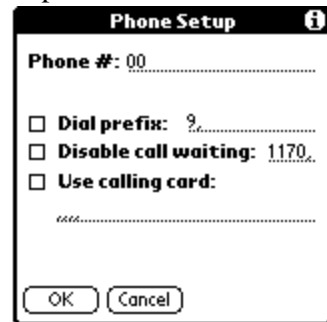
1. From the mobile's Application Picker, tap the **Prefs** icon. The **Preferences** panel will appear.



2. Tap the text that appears in the upper-right corner of the **Preferences** panel. A menu will appear. From the menu, tap the 'Network' item. The **Preferences** panel will now show the Network Preferences.
3. Tap the 'Service' item. A menu will appear. From the menu, tap the 'Windows RAS' item.
4. In the 'User Name' field, enter the username whom you gave RAS access to when configuring RAS on the NT machine.
5. In the 'Password' field, enter the password for this user account:



6. Tap the 'Phone' field. The **Phone Setup** dialog will appear:

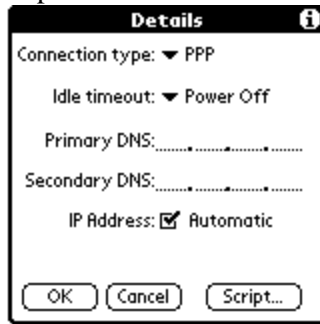


7. In the 'Phone #:' field, enter 00. This specifies that a serial cable connection is to be used (when not using a serial cable, you would enter the phone number of the dial-in server or ISP that you'll be using to connect to IBM Mobile Connect). Tap



'OK' to return to the Network Preferences panel.

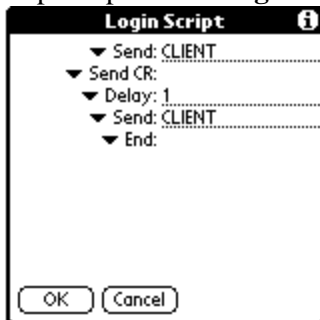
8. Tap Details.... The **Details** dialog will appear:



9. Set the 'Connection type' to PPP.
10. Tick the *IP Address: Automatic* box. This indicates that dynamic IP addressing will be used.
11. If you do not want to use DNS (Domain Naming System) on the IBM Mobile Connect client, then the Primary and Secondary DNS fields can be left blank. But if you do want to use DNS, you should complete the 'Primary DNS' field (and also the 'Secondary DNS' field, if appropriate) with the IP address of the server that administers DNS on your network. Consult your system administrator for the address/es to enter here.

On the **Palm III**, the **Details** dialog contains a further check-box: *Query DNS*. If you tick this box, the Primary and Secondary DNS fields will disappear, and the mobile will be set up so that, each time it connects, it will automatically interrogate the system to find the IP address of the server that handles DNS.

12. Tap Script.... The **Login Script** dialog will appear:



13. Enter the details shown in the above screenshot.
14. To complete the setup, tap OK.

## Setting up the IBM Mobile Connect client on the Palm OS mobile

The details of the server that the IBM Mobile Connect service is running on, need to be set up on the IBM Mobile Connect client. To do this, take the following steps:

1. On the Palm OS mobile, start the IBM Mobile Connect client by tapping its icon.
2. Tap the mobile's 'MENU' screen button. The **Options** menu will appear.
3. From the **Options** menu, tap the 'Server' item. The **Server Options** dialog will appear.
4. Enter either the name (if using DNS) or the IP address on which to look for the IBM Mobile Connect service. The IP address that you need to enter on the IBM Mobile Connect client will have been specified when configuring TCP/IP on the NT machine that the IBM Mobile Connect service is running on. This IP address can be viewed on the NT machine by using the **Network** applet in **Control Panel** and then double clicking on the TCP/IP Protocol entry on the Protocols tab.
5. In the 'Port Number' field, enter '5001', unless you have any specific networking requirements.
6. In some cases, you will need to tick the *Connect via Connect Proxy* option. (For details, see the section: **The Connect Proxy program**, p.63)
7. Tap 'OK' to close the **Server Options** dialog.

On the mobile, you also need to set up your IBM Mobile Connect username and password. To do this, take the following steps:

1. On the Palm OS mobile, while the IBM Mobile Connect client is running, tap the mobile's 'MENU' screen button. The **Options** menu will appear.
2. From the **Options** menu, tap the 'Identity' item. The **Identity** dialog will appear.
3. Enter your IBM Mobile Connect username and password (that is: as defined in the IBM Mobile Connect Admin program).
4. Tap OK. This will close the **Identity** dialog.

## Part II: The Admin program



# An overview of the connection process

This overview gives an example of a single session where a simple line-of-business application (sometimes called a vertical application) remotely connects to IBM Mobile Connect; data is transferred between the remote mobile and the server, in both directions; and the session is then ended. The overview is intended only to familiarize you with the concepts involved in an IBM Mobile Connect session. The detailed functions and features of IBM Mobile Connect are defined in other sections.

For the purposes of demonstration only, we'll take the example of a travelling salesperson. But as mentioned elsewhere, IBM Mobile Connect can form the basis of the mobile computing system in an organisation of any type, and with the mobile computer performing any task. Sales is just a convenient example that most people can easily relate to.

## An example of data transfers between the remote mobile and the server

Whenever our example travelling salesperson connects, they transmit their new quotations, and also any expense claims that they may have. IBM Mobile Connect then transmits back to them any stock updates, and also an immediate confirmation of the quotations. The session ends, and the salesperson can then review the confirmations while off-line. (An efficient way to set this up would be to make IBM Mobile Connect simply update the mobile with a 'confirmed' flag and the delivery date.)

The salesperson has been working off-line, entering orders on the line-of-business application while at the customer's site. While still at the site they now wish to connect to their own company's system. To begin the session, the salesperson connects their mobile computer to their modem or mobile phone. They start the IBM Mobile Connect client program by tapping its icon, then they tap Connect.

### IT department's viewpoint:

Networking is started automatically upon the end user tapping Connect. The connection will be established over a mobile phone or a modem.

### End user's viewpoint:

A communications connection will be established with the server. If the end user is connecting using the Internet, a prompt from the service provider may request a username, password and transfer protocol details. The end user will enter login details for this service provider.

The end user may then be prompted for their IBM Mobile Connect username and password (if these are not stored on their mobile).

## An overview of the connection process

### IT department's viewpoint:

Using a username/password procedure, performs two functions. Firstly it prevents unauthorised access to the IBM Mobile Connect service, and secondly it identifies the end user to the IBM Mobile Connect service so that the service knows which operations they're allowed to perform. (The IT department will have defined these 'permissions' for each user—in a similar fashion that they do with Windows-NT users).

The IBM Mobile Connect service validates the username and password and verifies whether the username (on this particular mobile) has changed since the last time this mobile logged in.

If the login fails, an event is activated which records information into a separate audit log, and so on. (The action that IBM Mobile Connect automatically performs during each of its 'events' is pre-defined by the IT department, and the resultant actions of these 'events' can be customized in any way. For a discussion of 'events' in IBM Mobile Connect, see the section: **Events and Script Actions**, p.235.)

If the login succeeds, an '**On Connect**' event is activated. For this event, the IT department might have specified that IBM Mobile Connect should set up global variables, make connections to various databases, open certain files, and so on. (**Note:** An '**On Disconnect**' event is always activated at the end of the processing of a successful login irrespective of whether an error occurs during processing. For this '**On Disconnect**' event, the IT department might specify that IBM Mobile Connect closes any files or databases that were opened during the '**On Connect**' event.)

If the username has changed, an '**On Losing Ownership**' event is activated. For this event, the IT department might specify that IBM Mobile Connect is to back up the previous user's files and data from the mobile so that this information can be restored to whichever mobile computer the user next logs on with. IBM Mobile Connect also has other events associated with this 'change of user' procedure, and the IT department can use these events to define that IBM Mobile Connect should close any databases, files, and so on, that were to remain open only while the previous user was still 'live'.

IBM Mobile Connect would then activate an '**On Taking Ownership**' event. For this event, the IT department would define that IBM Mobile Connect prepares both the mobile and also the company's system for use by the new user. This might involve opening databases or files, downloading parts of these to the mobile, and perhaps even remotely installing a different line-of-business application on the mobile. This might need to be done if the new user and the old user have different jobs in the company (perhaps the old user was a salesperson, but the new user is an inspector of some sort, or a delivery driver, and so on).

Once the 'change of ownership' checks have been completed, IBM Mobile Connect then activates its '**On Every Connect**' event.

### End user's viewpoint:

The salesperson has entered their username and password, tapped Connect, and the

connection to the server has been automatically established. While the following communications now take place, the status of the connection and the names of any files being updated (and so on) will be displayed on the IBM Mobile Connect Client panel.

IT department's viewpoint:

In our present example, we know that the end user is not a new user, so the above 'change of user' procedure will not have been run. The user's IBM Mobile Connect account has been configured by the IT department so that the following operations are performed:

- 1) *Submit new quotations to the server:*  
This is a database synchronization of the type 'from mobile to server'. IBM Mobile Connect uses its mirror files (see the section: **Reducing network traffic—the 'mirror' file**, p.177) to identify which quotations have been added to the database on the mobile since the last connection was made, and it only transmits these, thus reducing network traffic.
- 2) *Submit each quotation to the corporate workflow system for validation:*  
Once IBM Mobile Connect has successfully written the quotation data to the server database, it will activate its own '**On Insert Row End**' event. For this event, the IT department have defined that IBM Mobile Connect is to submit the quotation to the corporate workflow system for validation. To define this, the IT department needed to write a short piece of VBScript and attach this to the event.  
(**Note:** If control were required on whether the row were actually inserted into the database, the IT department could have written another piece of VBScript to respond to another of IBM Mobile Connect's events—the '**On Insert Row Start**' event. For this event, they would have chosen to skip further processing if the row was not to be inserted.)
- 3) *Write the results of the workflow validation to a message file:*  
The IT department wrote a short piece of VBScript to perform this task. The VBScript uses a 'handle' to the workflow system which was opened in response to the '**On Connect**' event (and which will be closed in response to the '**On Disconnect**' event).
- 4) *Add the latest stock lists to the stock database on the mobile.*
- 5) *Send the result of the quotation validation back to the mobile:*  
If appropriate, a 'confirmed' flag is updated on the mobile's line-of-business application, and the delivery date specified.

Once these standard operations have been completed, IBM Mobile Connect checks to see if any further system-related processing needs to take place. This is in the form of periodic processing that occurs at intervals defined by the IT department (for example: Once per week, back up files).

Finally, IBM Mobile Connect runs any user-specified scripts. In our present example, the IT department have defined an optional transfer on the IBM Mobile Connect client, which they've labelled 'Send expenses'. If the

### An overview of the connection process

salesperson had checked this option just before tapping the 'Connect' push button, then the IT department have defined that IBM Mobile Connect would now copy the expense-claims file from the mobile to the server, and then e-mail it to the salesperson's line manager for authorisation.

At the end of the overall session, IBM Mobile Connect activates its '**On Disconnect**' event. For this event, the IT department might define that any persistent data or handles are to be 'cleaned up'.

#### End user's viewpoint:

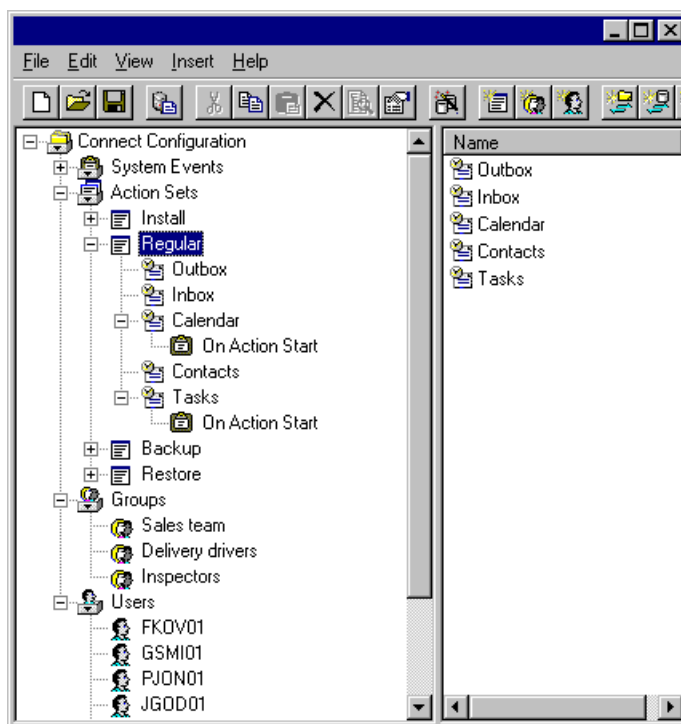
The 'end of connection' message box will appear on the IBM Mobile Connect client's panel. The salesperson closes this message box by tapping OK, and then exits from the IBM Mobile Connect client.

The session is now complete. While off-line, the salesperson can now read any new quotation confirmation messages that have been transferred during the connection-session.



# The IBM Mobile Connect Admin program

The IBM Mobile Connect Admin program is a system administrator's tool. The administrator uses it to define the IBM Mobile Connect usernames; to then group these names into different classes (such as sales staff, admin staff, and so on); and to also define the various data transfers that they want IBM Mobile Connect to automatically perform whenever an end user connects (within IBM Mobile Connect, these transfers are called: 'Actions', such as 'File Action', 'Database Action', and so on.). The administrator also uses IBM Mobile Connect Admin to define the VBScript processing which may be attached to various 'Actions'.



Once any of these factors have been defined using the Admin program, the program then produces a configuration file which is passed to the IBM Mobile Connect service, and it's this configuration file that 'continuously instructs' the IBM Mobile Connect service to perform all the functions that have been defined in the Admin program.

The admin program has a GUI that's very similar to the Windows Explorer panel. Its left pane shows a configuration tree which represents IBM Mobile Connect's current configuration, and the right pane shows details of whichever item is currently selected in the left pane. At the top of the window is a toolbar, which provides quick access to a number of commonly used functions within the Admin program.

## User lists and IBM Mobile Connect

From version 2.1 of IBM Mobile Connect, the IBM Mobile Connect users can now be authenticated against lists held on Lotus Notes or Microsoft Exchange Server, so that it's not now necessary to enter and maintain a separate list of users for IBM Mobile Connect.

You would only need to enter a list of users into IBM Mobile Connect, if you do not wish to authenticate some (or all) of your IBM Mobile Connect users against your existing groupware user-lists. For these users, you must enter their details into IBM Mobile Connect's internal list of users.

For the users that you wish to authenticate against your existing groupware lists of users, please see the section: **User authentication within IBM Mobile Connect**, p.99. But before reading that section, you should familiarize yourself with the concept of 'Groups' within IBM Mobile Connect (for details of this, please see the section: **Arranging the users into 'groups'**, p.97).


## Adding new users to IBM Mobile Connect's internal list of users

When setting up an IBM Mobile Connect configuration for the first time, the first step will usually be to enter the details of the end users who will be remotely accessing the system. They will then be able to log in to the system.

**Note:** to enable the users to log in, you must also select the 'Internal' authentication method on the **System Settings** form. For details on how to do this, please see the section: **User authentication within IBM Mobile Connect**, p.99.

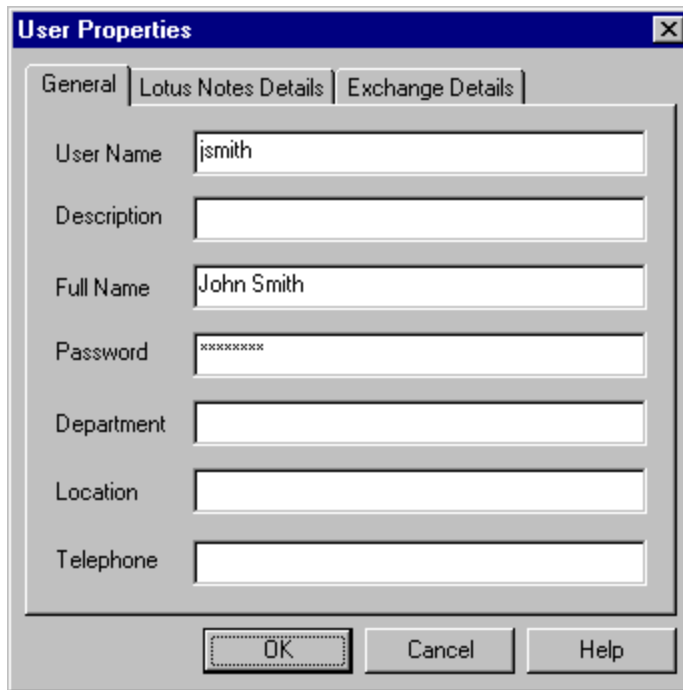
### To add a user

Call up the **User Properties** form by doing any one of the following:

- Click the 'New User' push button on the toolbar: 
- Click on the Insert menu, then select User.
- In the left pane of the IBM Mobile Connect Admin window, right-click on the Users item in the configuration tree, then select New User from the context menu that appears.

## The 'User Properties' form, 'General' tab

The 'General' tab is used to enter the details of the new user. Of the seven fields to be filled in, only the **User Name** field is mandatory. This is the name that the user will need to enter (in conjunction with the password in the **Password** field—if set) when remotely connecting to the service.



The screenshot shows a dialog box titled "User Properties" with a close button (X) in the top right corner. It has three tabs: "General", "Lotus Notes Details", and "Exchange Details". The "General" tab is selected. The form contains the following fields:

- User Name: jsmith
- Description: (empty)
- Full Name: John Smith
- Password: (masked with asterisks)
- Department: (empty)
- Location: (empty)
- Telephone: (empty)

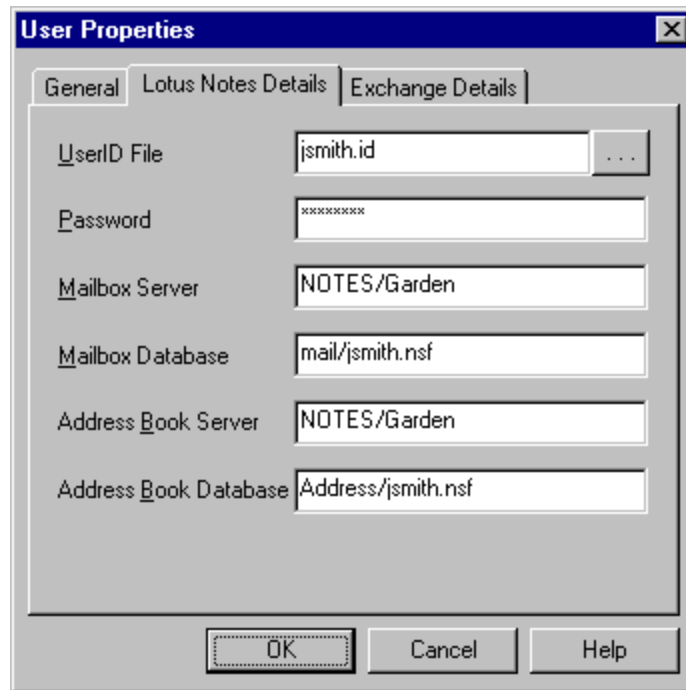
At the bottom of the dialog box are three buttons: "OK", "Cancel", and "Help".

If the system administrator does not enter a password in the **Password** field, then the user will be able to remotely connect to the system by leaving the password field on their IBM Mobile Connect client panel blank.

The other five fields (**Description, Full Name, Department, Location, Telephone**) are intended purely as a reference for the system administrator, and they play no part in the configuration of IBM Mobile Connect.

## The 'User Properties' form, 'Lotus Notes Details' tab

This tab is used to enter the Lotus Notes server details, and also the Lotus Notes ID file and password for this particular user. It's only necessary to enter these details if you will be synchronizing the mobiles with Lotus Notes. Otherwise the details on this tab may be left blank.



The screenshot shows a dialog box titled "User Properties" with three tabs: "General", "Lotus Notes Details", and "Exchange Details". The "Lotus Notes Details" tab is selected. The dialog contains the following fields and values:

Field	Value
UserID File	jsmith.id
Password	*****
Mailbox Server	NOTES/Garden
Mailbox Database	mail/jsmith.nsf
Address Book Server	NOTES/Garden
Address Book Database	Address/jsmith.nsf

Buttons at the bottom: OK, Cancel, Help.

### UserID File

If IBM Mobile Connect and Lotus Notes are running on the same server, this field contains the path to the user's Notes ID file (relative to the Notes data directory). If IBM Mobile Connect and Lotus Notes are **not** running on the same server, you should copy each user's Notes ID file onto the IBM Mobile Connect, and in this field, enter the path to the IBM Mobile Connect copy of the user's Notes ID file.

### Password

The password for the above Notes ID file.

### Mailbox Server

The Lotus Notes server that contains the user's mail file.

### Mailbox Database

The location of the user's mail file on the above server (relative to the Notes server's data directory).

### Address Book Server

The Notes server that contains the user's Personal Address Book. You only need to use this field if you wish to synchronize the user's Personal Address Book. The user's Personal Address Book must be located on a Notes server. If it is located on the user's personal PC, the user must replicate their Personal Address Book onto a Notes server. This field should then contain the location of the replica of their Personal Address Book on the Notes server.

## Avoid the need to enter each user's Notes details

If a large number of the IBM Mobile Connect users will be synchronizing with Lotus Notes, it will probably be less time-consuming for the system administrator to set up an IBM Mobile Connect 'authentication' plugin, rather than entering each user's Lotus Notes details on the present tab. By setting up an authentication plugin, the Notes details will only need to be entered once for most users. For details on how to do this, please see the section: **User authentication within IBM Mobile Connect**, p.99. Alternatively, to quickly set up Lotus Notes syncing in an existing IBM Mobile Connect configuration file, please see the section: **PIM Synchronization**, p.157.

The present tab may be of use when, for instance, most of the users (or most of a Group of users) are not synchronizing with Lotus Notes, but a handful of the users *do* require Lotus Notes synchronization.

In this situation, you might input every user's details into the IBM Mobile Connect internal list of users, and for the handful of users who require Notes synchronization, you would enter their Notes details on the present tab.

Alternatively, for the handful of users, you could omit them from the IBM Mobile Connect internal list of users, and set up a Notes authentication plugin for them (so that the Notes details only need to be entered once for all of them). On the **System Settings** form, Authentication tab, you would then probably arrange the list of plugins in the following priority:

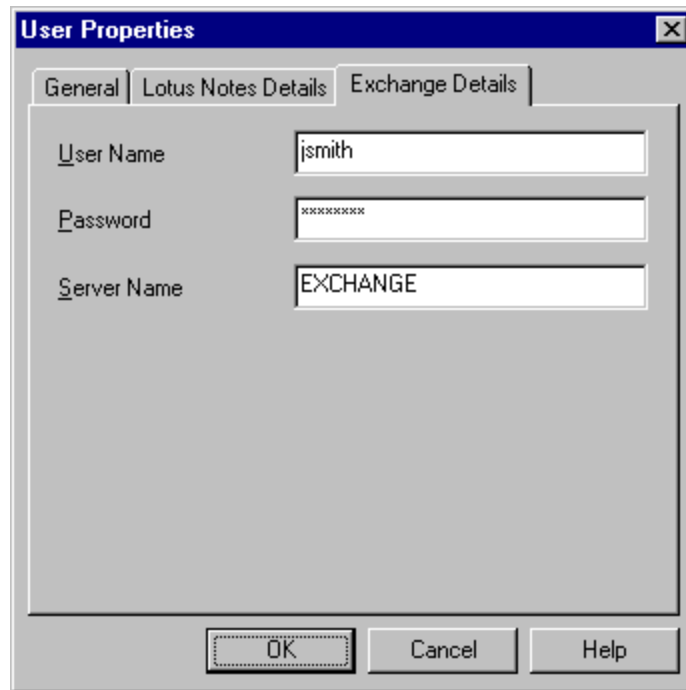
[Internal]  
[Lotus Notes] "Plugin name"

While your internal list of users is the larger list, the above arrangement would probably be more efficient, since IBM Mobile Connect would not attempt to authenticate any of the users on the internal list against Lotus Notes, but would only consult Lotus Notes for the users who fail the authentication against the internal list.

**Note:** For IBM Mobile Connect to be able to synchronize with Lotus Notes, it is essential that at least the Lotus Notes client is installed on the same Windows server that the IBM Mobile Connect service is installed on. If this is not done, the synchronization will not work. Please see the section: **Using IBM Mobile Connect with Lotus Notes**, p.33.

## The 'User Properties' form, 'Exchange Details' tab

This tab is used to enter the Microsoft Exchange server name, and also the Exchange username and password for this particular user. It's only necessary to enter these details if you will be synchronizing the mobiles with Microsoft Exchange Server. Otherwise the details on this tab may be left blank.



The screenshot shows a dialog box titled "User Properties" with a close button (X) in the top right corner. It has three tabs: "General", "Lotus Notes Details", and "Exchange Details". The "Exchange Details" tab is selected. Below the tabs are three text input fields: "User Name" containing "jsmith", "Password" containing "\*\*\*\*\*", and "Server Name" containing "EXCHANGE". At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

### User Name

The username that the user uses to log on to Exchange. This may take the form of the user's Exchange 'Alias', or it may be in the form: "NT domain/NT username". For more detail, please see the section: **The available log-on methods**, p.40.

### Password

The password for the above username.

### Server Name

The name of the Exchange Server that contains the user's Exchange account.

## Avoid the need to enter each user's Exchange details

If a large number of the IBM Mobile Connect users will be synchronizing with Exchange, it will probably be less time-consuming for the system administrator to set up an IBM Mobile Connect 'authentication' plugin, rather than entering each user's Exchange details on the present tab. By setting up an authentication plugin, the Exchange details will only need to be entered once for most users. For details on how to do this, please see the section: **User authentication within IBM Mobile Connect**, p.99. Alternatively, to quickly set up Exchange syncing in an existing IBM Mobile Connect configuration file, please see the section: **PIM Synchronization**, p.157.

The present tab may be of use when, for instance, most of the users (or most of a

Group of users) are not synchronizing with Microsoft Exchange Server, but a handful of the users *do* require Exchange synchronization.

In this situation, you might input every user's details into the IBM Mobile Connect internal list of users, and for the handful of users who require Exchange synchronization, you would enter their Exchange details on the present tab.

Alternatively, for the handful of users, you could omit them from the IBM Mobile Connect internal list of users, and set up an Exchange authentication plugin for them (so that the Exchange details only need to be entered once for all of them). On the **System Settings** form, Authentication tab, you would then probably arrange the list of plugins in the following priority:

[Internal]  
[Microsoft Exchange] "Plugin name"

While your internal list of users is the larger list, the above arrangement would probably be more efficient, since IBM Mobile Connect would not attempt to authenticate any of the users on the internal list against Microsoft Exchange Server, but would only consult Exchange for the users who fail the authentication against the internal list.

**Note:** For details of IBM Mobile Connect's support for Microsoft Exchange Server, please see the section: **Using IBM Mobile Connect with Microsoft Exchange Server**, p.37.

## To edit a user

Call up the **User Properties** form, by doing any one of the following:

- On the configuration tree (in the left pane of the IBM Mobile Connect Admin window), ensure that the Users branch is expanded (by clicking its '+'). Click on the user you want to edit, then click the 'Properties' push button on the toolbar:




- On the configuration tree, click on the user you want to edit. Then, from the Edit menu, select Properties.
- On the configuration tree, click on the user you want to edit, then press ALT-ENTER.
- On the configuration tree, right-click on the user you want to edit, then select Properties from the context menu that appears.
- Double-click on the user you want to edit.

Once the **User Properties** form has appeared, edit the details, and click OK.

## To delete a user

Click on the user in the configuration tree, then use any one of the following methods:

- Click the 'Delete' push button on the toolbar: 
- Press the Delete key on your computer's keyboard.
- From the Edit menu, select Delete.
- Right-click on the user, and select Delete from the context menu that appears.

**Note:** To delete multiple users, click on the Users item in the configuration tree (the parent to the Users' branch). The right-hand pane will then contain a list of all the users. On this list, select the users you want to delete, then delete them by using any of the above methods.




## Arranging the users into 'groups'

Many of the end users will be performing similar tasks to one another when they connect to IBM Mobile Connect. When this happens, these users can be grouped together so that the 'Actions' (and so forth) that IBM Mobile Connect automatically performs when they connect, will only need to be defined once for that particular group of users. In this way, the administrator can place the sales team in one group, the admin team in another group, the delivery staff in another group, and so on. This avoids having to define the same sets of 'Actions' (and any related settings) over and over again, and makes the management of the system far more straightforward.

**A user may be a member of only one group.**

### To create a 'group'

Call up the **Group Properties** form by doing any one of the following:

- Click the 'New Group' push button on the toolbar: 
- From the 'Insert' menu, select 'Group'.
- On the configuration tree, right-click on the 'Group' item, then select 'New Group' from the context menu that appears.

The **Group Properties** form has the following tabs: 'General', 'Triggers', 'Tags', and 'Email'. The Triggers, Tags, and Email tabs are introduced elsewhere (please see the sections: **What are 'tags'?**, p.147; **'Triggers' and how to set them**, p.201; and: **PIM Synchronization**, p.157).

### The 'General' tab

The 'Group Name' field is mandatory. This gives the group name that will appear on the configuration tree. The 'Description' field is optional. The 'Users' section gives a list of the users who are currently in this group. For a newly created group this section will not yet have any names entered in it.

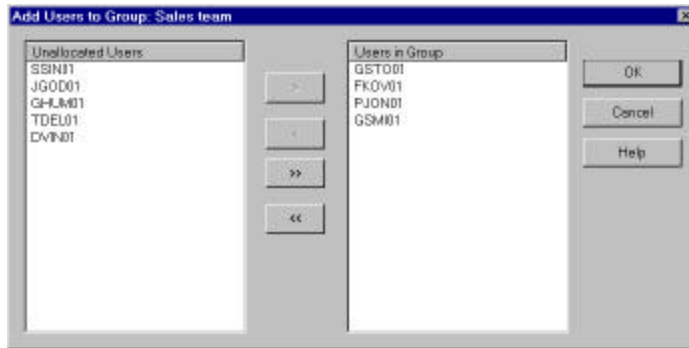
**Note:** A User must be in a group in order for the user to be able to connect to the IBM Mobile Connect service. If the user is not in a group, an 'invalid user' message will be given on the client when the user attempts to connect.

To highlight this situation, each time you save an IBM Mobile Connect configuration file, if there are any users who are not currently assigned to a group, a warning will be given, listing all the users who are not assigned to a group.

## To add users to a group

While the **Group Properties** form is visible (see above), click Users....

The **Add Users to Group** form will then appear. This form is used to either add new users to the current group or remove users from the group.



The form's left-hand list-box contains all new users who have not yet been allocated to a group (or any current users who have been removed from one group, and not yet allocated to another group) and the right-hand list-box contains all users currently allocated to this group.

## To transfer users from one list to another

- To remove a user from the 'unallocated users' list and place them in the current group, double click on the username.
- To transfer one (or more) users, select the user (or range of users) and click the '>' push button.
- To move all unallocated users into this group, click the '>>' push button.
- To return users to the 'unallocated users' list, click the '<' or '<<' push buttons for single or all users respectively.

# User authentication within IBM Mobile Connect

From version 2.1 onwards, IBM Mobile Connect can authenticate users against information held in Lotus Notes or Microsoft Exchange Server. This means that the system administrator no longer needs to input and maintain separate lists of users for IBM Mobile Connect.

## The authentication method must supply the Group name


Each time a user connects to IBM Mobile Connect, the system first looks to see what 'Group' this user is a member of. It then performs whatever information-transfers have been set up for this Group. And since IBM Mobile Connect's functioning is determined by which 'Group' a user is a member of, then the lists that are used to authenticate the users must somehow tell IBM Mobile Connect which Group each user belongs to. For this reason, when external user-authentication is being used, the IBM Mobile Connect Group name must somehow be extracted from the Lotus Notes or Microsoft Exchange Server information.

## Using tags within authentication plugins

As well as the IBM Mobile Connect Group name, groupware authentication could also be used to set other 'tags' (variables) for each user. This would be done by looking up fields in a groupware database, or (with Lotus Notes) even using a formula to 'calculate' the contents of the tag, dependent on data in the groupware database. These tags would then be available to use throughout IBM Mobile Connect—within any of IBM Mobile Connect's Actions, for example.

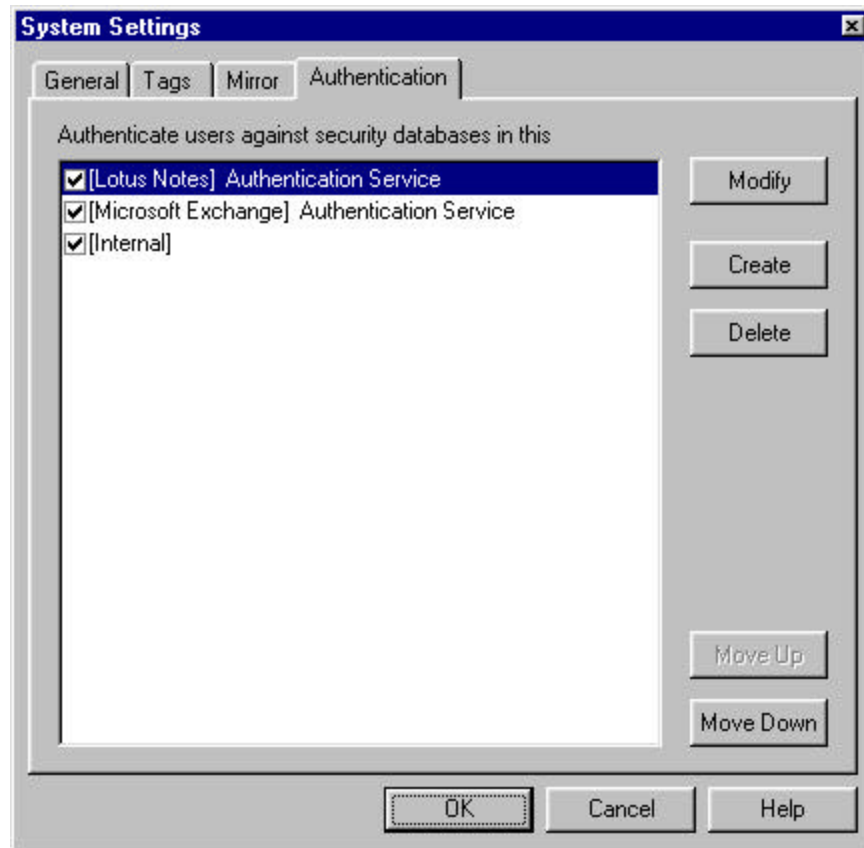
## To define the method of authentication

Call up the **System Settings** form by doing one of the following:

- On the configuration tree, click on the 'Connect Configuration' item, then click the 'Properties' push button on the toolbar: 
- On the configuration tree, click on the 'Connect Configuration' item, then, from the 'Edit' menu, select 'Properties'.
- On the configuration tree, right-click on the 'Connect Configuration' item, then select 'Properties' from the context menu that appears.

The **System Settings** form will then appear. Select the 'Authentication' tab:

## The 'System Settings' form, 'Authentication' tab



The tab's window shows a list of authentication 'plugins' (see below).

Every time a user connects to IBM Mobile Connect, the system attempts to authenticate the user by consulting the plugins listed in this window. The plugin at the top of this list will be consulted first. If this plugin does not authenticate the user, then the following plugin in the list is consulted. This process is repeated until either the user has been authenticated, or the end of the list has been reached. If the last plugin in the list fails to authenticate the user, the authentication will fail and an error message will be given on the IBM Mobile Connect client.

### The plugin check-boxes

Each plugin in the list has a check-box against it. Uncheck a plugin to disable it. While unchecked, the plugin will no longer be consulted.

### To create an authentication plugin:

On the 'Authentication' tab, click Create. The **Authentication Service** dialog will appear. The dialog's window will show two or three entries:

- Internal
- Lotus Notes
- Microsoft Exchange

### **Internal authentication**

To authenticate users against a list held internally in IBM Mobile Connect, Click on the 'Internal' entry and click OK. The dialog will close and the [Internal] authentication plugin will be entered in the list of plugins.

On the main panel of the IBM Mobile Connect Admin module, the internal list of users is displayed in the configuration tree. These users can either be entered one by one, or an entire list can be imported at once (please see the sections: **Adding new users...**, p.90; and: **Site Wizard - IBM Mobile Connect Users**, p.55).

Once the [Internal] plugin has been entered in the list of authentication plugins, it will no longer appear in the 'Authentication Service' dialog (since IBM Mobile Connect can only hold a single list of users internally, and the authentication can only be carried out in a single, straightforward way, without all the options that are available with the groupware authentication methods).

### **Lotus Notes and Microsoft Exchange Server authentication**

To authenticate users against lists held on either of these groupware databases, do the following. While the 'Authentication Service' dialog is showing, click on the required groupware product and click OK.

- If 'Lotus Notes' was selected, the **Notes Authentication Settings** form will appear.
- If 'Microsoft Exchange' was selected, the **Exchange Server Authentication** form will appear.

## User authentication against Lotus Notes

The 'Notes Authentication Settings' form, 'General' tab:

The screenshot shows the 'Notes Authentication Settings' dialog box with the 'General' tab selected. The dialog has three sub-sections for authentication settings. The first section, 'Lotus Notes Authentication Plugin', is active and contains fields for 'Plugin Name' (Authentication Service), 'Default Group Name' (Starter Group), and checkboxes for 'User Requires an ID file' (checked), 'User May Change Password' (unchecked), 'Mobile May Store Password' (unchecked), and 'Allow Database Replication' (unchecked). Below these are fields for 'ID File' (server.id) and 'Password' (masked with asterisks). The second section, 'Notes Connector ID File Details', is disabled and contains fields for 'ID File' (connect.id) and 'Password' (masked with asterisks). The third section, 'Automatic Cross-Certification', is also disabled and contains fields for 'ID File' and 'Password'. At the bottom are 'OK', 'Cancel', 'Apply', and 'Help' buttons.

Generally, you only need to define the 'Notes authentication settings' once, and these settings could be used for all users of IBM Mobile Connect. But there are situations where you might need to define more than one set of authentication settings. For instance, some of your IBM Mobile Connect users may have Notes ID files, and some may not have Notes ID files. To enable IBM Mobile Connect to support a mixed community of these users (some with ID files, and some without), it would be necessary for you to define two separate sets of Notes authentication settings. Then, when users who don't have a Notes ID file connect, they would authenticate against one set, and users who do have a Notes ID file would authenticate against another set.

To enable you to do this, you are given the opportunity of calling each set of settings by a unique name (the plugin name).

### Plugin Name

A unique name that will be used for this particular set of authentication settings.

Currently, the set of authentication settings that you define are not a 'plugin' as such. They are a set of settings that you define within IBM Mobile Connect and then save using a unique name, if you desire (the plugin name). But these settings are referred to

as a 'plugin' because they may be provided as a plugin in the future.

### **Default Group Name**

In order for IBM Mobile Connect to perform its information transfers, it must know which Group each user belongs to. But when IBM Mobile Connect attempts to authenticate a user against information held by groupware, it's possible that the groupware may not be able to supply the name of the IBM Mobile Connect 'Group' that that user is a member of. In this situation, IBM Mobile Connect would assign that user to this plugin's default Group.

In the 'Default Group Name' field, you should enter the name of the Group that you would like IBM Mobile Connect to use for a user when the current plugin authenticates the user but does not supply a Group name for that user.

For example, if you set the 'Default Group Name' to 'Starter Group', then all users who are authenticated by the current plugin will be a member of the Starter Group, unless the plugin says otherwise for a particular user (that is: for that user, it extracts a valid Group name from a Notes database, which happens to be different from 'Starter Group').

### **User Requires an ID file**

Check this check-box if all the users that this plugin refer to have a Notes ID file.

**IMPORTANT.** The Notes ID file must reside on the same server as IBM Mobile Connect. If the Notes ID files are not stored on the same server, they should all be copied into a folder on the IBM Mobile Connect server. You must then tell Notes and IBM Mobile Connect where these copies of the ID files are stored. To do this, you should do the following:

1. Within the Notes public Name and Address Book, you should choose an unused field and, for each user, enter in this field the path and name of the IBM Mobile Connect copy of their Notes ID file. (Alternatively, you could create a new field in the Notes public Name and Address Book and add it to the 'Person' document in the public Address Book database.)
2. Within the IBM Mobile Connect Admin program, call up the **Notes Authentication Settings** form (the present form). Click the 'Tags' tab. You need to define the '\$NOTESAUTH\_ID\_FILE' tag. If this tag already exists, select it and click Modify, otherwise, click Create, and in the 'Tag Name' field of the form that appears, select the '\$NOTESAUTH\_ID\_FILE' tag from the drop-down list. In the 'Return Value' field, enter the name of the field that you set up in step 1 above (this should be a field in the Notes public Name and Address book).

### **Mobile May Store Password**

Check this check-box to enable the IBM Mobile Connect client to store on the mobile, any password that the end-user enters.

### **User May Change Password**

Check this check-box to enable the end-user of a mobile to change their Lotus Notes password on the IBM Mobile Connect client.

Currently, this option is only available for users who are not using a Notes ID file.

## User authentication within IBM Mobile Connect

### Allow Database Replication

This check-box is checked by default. Unchecking the box enables you to override the settings on the **Notes Replication Settings** form.

The **Notes Replication Settings** form is used to specify the 'automatic replication' settings for each Database Action (the form is found on the 'Detail' tab of the **Database Action Properties** form when the 'Server Type' is set to 'Lotus Domino/Notes'. In the 'Notes Settings' section of the 'Detail' tab, click Configure...).

When the check-box is **not** checked on the **Notes Authentication Settings** form, this would disable the 'automatic replication' for any users who are authenticating using the current Notes authentication plugin. Using this check-box enables you to either allow or not allow the 'automatic replication' settings for different users within the same Database Action.

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### The 'Lotus Notes Authentication Plugin' section:

When an IBM Mobile Connect Notes authentication plugin is being used to authenticate users against lists held by Lotus Notes, the process is briefly as follows: The IBM Mobile Connect client on the mobile sends a username and password to IBM Mobile Connect; the IBM Mobile Connect plugin then looks in a Notes database for the required information and returns that information to IBM Mobile Connect. But in order for the IBM Mobile Connect authentication plugin to be able to access a Notes database, the plugin itself must have a Notes ID file.

#### ID File/ Password

Enter the location and password of the Notes ID file for the IBM Mobile Connect authentication plugin that you're currently defining. This ID file should have been previously set up within Lotus Notes. It is essential for the plugin to have a Notes ID file in order for the plugin to work.

**IMPORTANT:** This ID file must have been given the rights to create Personal/Shared Folders in each user's mailbox. This is needed for the following reason.

When a user deletes a mail item from their Inbox on the mobile device, IBM Mobile Connect creates a folder called 'Connect Deletes' in the user's mailbox on the server, and (on the server) moves the deleted item from the Inbox to this Connect Deletes folder. This is done so that if any mail item is deleted accidentally on the mobile device, the user can retrieve the item from the Connect Deletes folder on the server.

---

### When the IBM Mobile Connect users don't have a Notes ID file

When the IBM Mobile Connect users (that the current plugin authenticates) don't have a Notes ID file, then IBM Mobile Connect would need to be running on a **Notes Server** that is part of a **Notes Domain**.

#### Use Authentication ID File for Notes Connector

This check-box is only available when the 'User Requires an ID File' check-box is **not** checked.



The 'Connector' ID file is used when IBM Mobile Connect performs an automatic replication of a user's MailFile (or any other database) onto the IBM Mobile Connect server. Since no user ID files are being used (in the current authentication plugin), IBM Mobile Connect must use some other Notes ID file in order to perform the replication. This ID file must have sufficient privilege to replicate databases onto the IBM Mobile Connect server.

When the 'Use Authentication ID File for Notes Connector' box is checked, IBM Mobile Connect uses the 'Lotus Notes Authentication Plugin' ID file to perform database replications. If the box is **not** checked, the following two fields become available:

### The 'Notes Connector ID File details' section:

#### **ID File/ Password**

Enter the location and password of the Notes ID file that's to be used to perform automatic replication of the users' databases.

---

#### **Automatically Cross-Certify User IDs if required**

This check-box is available if the above option: 'User Requires an ID file' is checked.

Normally a user can only gain access to the particular Notes server that their Notes ID file was created for. But if your organization has a number of different Notes servers, and a particular set of users within IBM Mobile Connect might need to access Notes databases on more than one Notes server, then this might cause access problems.

If the above check-box is checked, then when IBM Mobile Connect attempts to open a Notes database and an error occurs due to a particular user not being certified onto that server, then IBM Mobile Connect will attempt to automatically certify the user onto your other Notes servers.

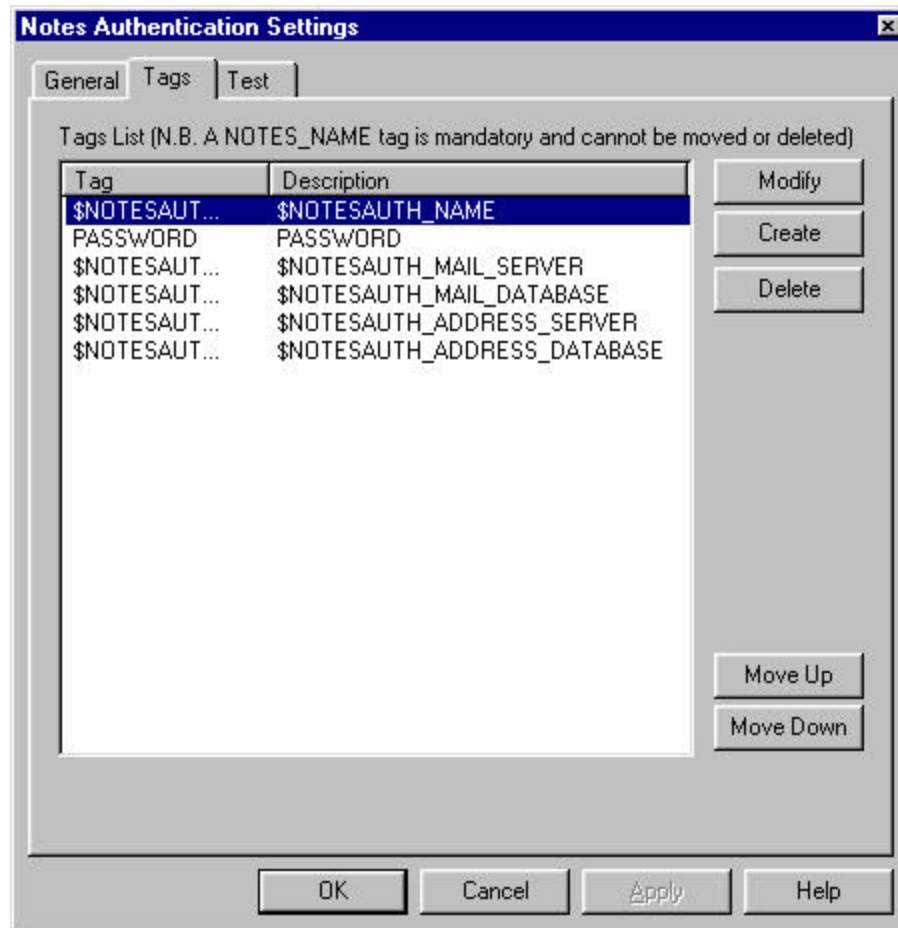
To allow IBM Mobile Connect to do this, it needs to be supplied with the details of a 'certifier' ID file:

### The 'Automatic Cross Certification' section:

#### **ID File/ Password**

The location and password of the 'certifier' ID file.

'Notes Authentication Settings' form, 'Tags' tab:



In IBM Mobile Connect, tags are used throughout the system. At various places within IBM Mobile Connect, tags may be defined by the system administrator. These then act as 'variables' that are available elsewhere within IBM Mobile Connect (see the section: **What are 'tags'?**, p.147).

In authentication plugins, tags can be used (for instance) to set the IBM Mobile Connect Group that a user belongs to, by extracting this information from a Lotus Notes database. Tags could also be used to return any other information that could be looked up in a Notes database for a particular user.

### The 'Tag / Description' window

The window shows a list of the tags that have been defined for the current plugin. Each time the plugin is run, the tags will be set in sequence, depending on their order in the list. The list will be processed from the top down.

#### Order of tags

**Note:** Once a tag has been set, it may be used in the definition of any of the tags that are lower down in the list. In this way, if any tag is going to be used within the definition of another tag, then the order of the tags in this list is important. For instance, a tag that appears lower in the list, may not be used within the definition of a tag that's in a higher position in the list, since the 'lower' tag will not yet have

been set, and therefore contains no value.

To change a tag's position in the list, click Move Up, or Move Down.

## To define a new tag

- Click Create.
- The **Lotus Notes Authentication Plugin Tags** form will appear.

## The 'Lotus Notes Authentication Plugin Tags' form

### Tag Name

Use the drop-down list box to select one of the system-defined tags, or enter the name of your custom-designed tag.

IBM Mobile Connect is provided with the following system-defined tags for use with Lotus Notes:

- NOTES\_NAME (the Lotus Notes user name that the current IBM Mobile Connect user is known by within Lotus Notes)
- PASSWORD (the user's HTTP password within Notes)
- GROUP (the IBM Mobile Connect Group that the current user belongs to. An appropriate 'Return Value' needs to be entered by the system administrator—see below)
- NOTES\_ID\_FILE (The location of the user's Notes ID file. An appropriate 'Return Value' needs to be entered. **NOTE:** This file must reside on the IBM Mobile Connect server. See the note for the 'User Requires an ID file' field on the 'General' tab.)
- NOTES\_MAIL\_SERVER
- NOTES\_MAIL\_DATABASE
- NOTES\_ADDRESS\_SERVER

## User authentication within IBM Mobile Connect

- NOTES\_ADDRESS\_DATABASE
- NOTES\_JOURNAL\_SERVER
- NOTES\_JOURNAL\_DATABASE

These tags are provided in the drop-down list. When each one is selected, the fields on the form are filled in with the most probable values. The values should be edited to suit your particular organization's system.

### The 'NOTES\_NAME' tag

The 'NOTES\_NAME' tag must be defined within a Notes authentication plugin. This tag is essential since it will provide the plugin with the user's Lotus Notes username. The tag does this by taking the username that the IBM Mobile Connect user enters on the client (%USERNAME%), and looking up that user's Lotus Notes username. This username will then be used for any further lookups that the plugin makes for the current user. Thus, in the list of tags on the 'Tags' tab, the first entry is always: 'NOTES\_NAME'. The tag will return in one of three states:

1. The username cannot be found. In this case, the current plugin will fail the authentication, and IBM Mobile Connect will go on to the next authentication plugin to attempt to authenticate the user with that plugin.
2. The username is found, but the tag is returned 'blank' (containing an empty string). If this happens, the user is listed in the Notes database as a valid user, but the user does not have permission to use IBM Mobile Connect.
3. The username is found, and the user has permission to use IBM Mobile Connect. In this case, the user's Lotus Notes username will be placed in the tag: 'NOTES\_NAME'.

**Note:** if any other tags are defined (as well as the 'NOTES\_NAME' tag), and any one of these other tags fails to return a value, this will also cause the authentication to fail.

### Description

A description of the tag.

### Password is encrypted using @password

This check-box is available when the IBM Mobile Connect 'PASSWORD' tag is being defined. When this check-box is checked, Lotus Notes will encrypt the password before returning it to IBM Mobile Connect, so that the contents of the 'PASSWORD' tag will be an encrypted string.

### Lookup Value

The value that's going to be searched against on the Notes database. In general this will be the username that the IBM Mobile Connect user entered on the mobile device (that is: %USERNAME%).

#### Example 1: Setting the Group name

As an example of when the 'Lookup Value' might not be set to:

'%USERNAME%', suppose that in the current plugin, you've already set the 'GROUP' tag. When you come to define the 'NOTES\_ADDRESS\_SERVER' tag, for instance, you might select '%GROUP%' as the Lookup Value. This might mean that in Lotus Notes you've only got to define which Notes Mail Server is being used for each IBM Mobile Connect Group, instead of for every single IBM

Mobile Connect user. This would obviously greatly reduce the amount of time taken to setup and maintain the system.

### **Example 2: Users who do not have a Notes ID file**

With IBM Mobile Connect users who do not have a Notes ID file, IBM Mobile Connect needs some way of validating the password that they enter on their mobile. This password must be looked up in a Notes database. But the user cannot gain access to a Notes database, since they don't have a Notes ID file.

One solution to this problem, would be to use the HTTP password (the 'internet' password). This password is held in the 'names.nfs' database (the general address book that's open to everyone). But this solution may be undesirable from the security point of view.

A better solution might be set up a parallel, private Notes database containing the passwords. The database could be on the same Notes server, and might be called: 'password.nfs', and it would only allow IBM Mobile Connect to access it. When defining the 'PASSWORD' tag, the 'Lookup Value' could be set to '%USERNAME%', or possibly: '%NOTES\_NAME%' (this tag will have previously been set for this plugin, and is therefore available to use in the definition of any of the tags that follow it in the list of tags for this particular plugin). And the 'Notes Database' field would be set to 'password.nfs'.

### **Notes Server**

The name of the Notes server that contains the Notes database that the current tag refers to.

If this field is left blank, then this means that the Notes server is running on the same machine that the IBM Mobile Connect service is running on.

### **Formula**

Any of the last four fields on this form may contain a formula written in LotusScript, rather than an actual string value. The formula must return the data that's required by that field.

Check this check-box to indicate that the field contains a formula. It's important to check this check-box when you're using a formula, so that IBM Mobile Connect knows that the field contains a formula. Otherwise IBM Mobile Connect would present the formula to Notes as though the formula were a simple string.

### **Notes Database**

The name of the Notes database against which the lookup is going to be performed.

### **Notes View Name**

The 'view' to be used for the above database lookup. The view field is mandatory. It is desirable to specify a view in order to reduce the data that needs to be searched, and thus increase the speed of the lookup.

### **Return Value**

The field within the above 'view' to be looked up. The tag will return the contents of this field (that is: the tag will be set to whatever the contents of this field are).

## User authentication within IBM Mobile Connect

### **Formula**

Using a LotusScript formula is particularly useful for the 'Return Value' of a tag. This enables you to set the tag much more flexibly.

For instance, when setting the 'GROUP' tag, if the 'JobTitle' field in the Notes database is set to either 'supervisor', 'team leader', or 'section manager', then you might choose to set the tag to 'Management', and if the 'JobTitle' field contained any other value, the tag would be set to: 'Worker'.

## The 'Notes Authentication Settings' form, 'Test' tab:

This tab is used to test that the current IBM Mobile Connect authentication plugin can connect to Notes in the way you intended. This kills two birds with one stone; it checks that your Notes client on the IBM Mobile Connect server is configured correctly and also that the information you would expect to be returned by the authentication is correct.

To test the connection, enter the username and password for a particular user and click Authenticate.

This should return a list of all the tags defined by the current authentication plugin and their values. (**Note:** for security, password fields are shrouded).

If the connection has been successful, you should get a panel similar to the one below:

Tag	Description
USERNAME	john smith
PASSWORD	*****
\$NOTESAUTH_NAME	jsmith
\$NOTESAUTH_MAIL_SERVER	CN=WESTWARD1/O=NTR
\$NOTESAUTH_MAIL_DATABASE	mail\jsmith
\$NOTESAUTH_ADDRESS_SERVER	CN=WESTWARD1/O=NTR
\$NOTESAUTH_ADDRESS_DATABASE	mail\jsmith_ab
\$NOTESAUTH_AUTHIDFILE	server.id
\$NOTESAUTH_AUTHIDFILEPWD	*****
\$NOTESAUTH_XCERTIDFILE	*****
\$NOTESAUTH_XCERTIDFILEPWD	*****
\$NOTESAUTH_REPLICATEIDFILE	server.id
\$NOTESAUTH_REPLICATEIDFILEPWD	*****
\$NOTESAUTH_AUTOXCERT	0
\$NOTESAUTH_LOGONBYFORMULA	0
\$NOTESAUTH_USERREQUIRESIDFILE	0
\$NOTESAUTH_AUTOREPLICATE	0
\$NOTESAUTH_USEAUTHID	1

## User authentication against Microsoft Exchange Server

### The 'Exchange Server Authentication' form

The screenshot shows the 'Exchange Server Authentication' dialog box. The title bar is blue with white text. The main area is light gray. The 'Name' field contains 'Authentication Service'. The 'Exchange Server' field contains 'Exchange'. The 'Default Group' dropdown menu is set to 'Starter Group'. The 'Device Options' section is a gray-bordered box containing three checkboxes: 'User may change password', 'Device may store password', and 'Attempt to resolve Exchange Addresses using Account below's Address Book'. Below these are 'Account' and 'Password' text boxes. The 'Tags' section is a gray-bordered box containing a table with two columns: 'Tag Name' and 'Exchange Property'. To the right of the table are three buttons: 'Modify...', 'Create...', and 'Delete'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

#### **Name**

In this field, you should enter a description for the 'plugin' that you're about to define on the current **Exchange Server Authentication** form.

#### **Exchange Server**

Enter the name of your Microsoft Exchange server.

#### **Default Group**

This drop-down list box contains the name of the IBM Mobile Connect Group that all users will be assigned to if the authentication process does not supply a Group name for those users.

If no Group name is specified here, and the authentication process does not supply a Group name for a particular user (but authenticates the username and password, and so on), then IBM Mobile Connect will fail the authentication for that user, since IBM Mobile Connect must assign a user to a Group in order to carry out any information transfers whatsoever.

The drop-down list contains all the Groups that have been defined for the current IBM Mobile Connect configuration file. One of these should be selected as the default Group.

#### **User may change password**

Check this check-box to enable the end-user of a mobile to change their Microsoft



Exchange Server password on the IBM Mobile Connect client.

### **Mobile device may store password**

Check this check-box to enable the IBM Mobile Connect client to store on the mobile, any password that the end-user enters.

---

### **Attempt to resolve Exchange Addresses using Account below's Address Book**

Check this check box if the end users are logging on using their Exchange 'Alias' name, and you've decided to place all the users in a single Exchange Address Book (see the section: **The available log-on methods**, p.40).

### **Account/Password**

If the above check box is checked, enter the details of the Exchange account that the Address Book belongs to.

The 'Account' field should contain the complete path to the user account, including the Windows NT domain name. For example:

"NT Domain\NT username"

---

## **The 'Tag Name/ Exchange Property' window**

This windows contains a list of the tags that are defined for the current authentication plugin.

In IBM Mobile Connect, tags are used throughout the system. At various places within IBM Mobile Connect, tags may be defined by the system administrator. These then act as 'variables' that are available elsewhere within IBM Mobile Connect (please see the section: **What are 'tags'?**, p.147).

In authentication plugins, tags can be used (for instance) to set the IBM Mobile Connect Group that a user belongs to, by extracting this information from the Microsoft Exchange Server database.

### **Tag Name**

The 'Tag Name' item in the list is the IBM Mobile Connect property that's being set (for instance, the IBM Mobile Connect Group name of each user who connects to IBM Mobile Connect).

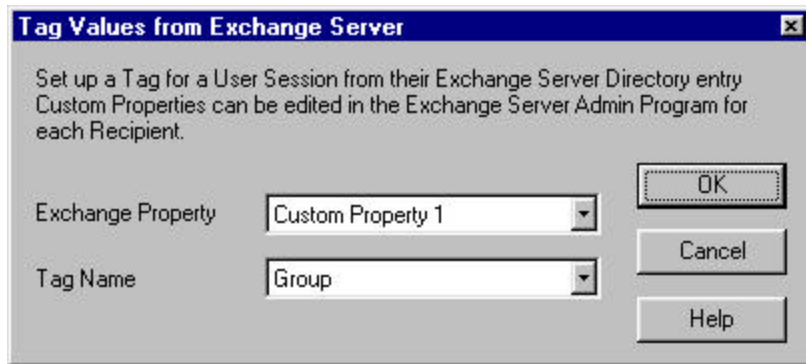
### **Exchange Property**

The 'Exchange Property' item in the list shows the 'property' within the Microsoft Exchange Server database that the authentication plugin will use to assign to the current tag.

## **To create a new tag**

On the **Exchange Server Authentication** form, click Create. The **Tag Values from Exchange Server** dialog will appear. The dialog has two drop-down list boxes:

## User authentication within IBM Mobile Connect



### Exchange Property

Select the required 'Exchange Property' from the drop-down list. Microsoft Exchange Server has ten 'properties' which may be defined for each user. Within the Microsoft Exchange Server administration program, these are located on the 'Custom Attributes' tab of the Mailbox **Properties** form for each user.

For example, suppose that in your organization you've used the Microsoft Exchange Server 'Custom Attribute 3' field to list the user's occupation. This field might read: 'Manager', for example. If this were the case, and you wanted all your 'Manager' Microsoft Exchange Server users to be assigned to the same Group in IBM Mobile Connect, which you might have called 'Managers', then you would set the 'Exchange Property' field to 'Exchange Property 3', and you would set the 'Tag Name' field to 'Group'.

**Note:** For the above example to work, the IBM Mobile Connect 'Managers' Group must have been previously set up within IBM Mobile Connect. Also note that the string value contained in the tag is case sensitive. Therefore, unless the Microsoft Exchange Server 'Custom Property' and the IBM Mobile Connect Group name are identical string values, with the case of all letters matching, then the authentication plugin will not return a value for that particular user's Group, and the user will therefore be assigned to the default Group.

### Setting the 'Custom Attribute' descriptions within Exchange

Within the Microsoft Exchange Server administration program, on the Custom Attributes tab, the description that appears beside each Custom Attribute can be set by the system administrator. For instance, if you're using 'Custom Attribute 3' to contain the Group within IBM Mobile Connect that each user belongs to, then you might like to set the description to 'Group' instead of the default: 'Custom Attribute 3'.

To do this, start the Microsoft Exchange Server administration program and in the tree structure, click on the 'configuration' for the site. In the list that appears, double-click 'DS Site Configuration'. Select the 'Custom Attributes' tab. On this tab, the description that appears alongside each Custom Attribute can be set.

### Tag Name

Select the required IBM Mobile Connect property that the current tag is defining.

Once these two fields are set, click OK. The dialog will close, and the tag will then be listed in the 'Tag Name/ Exchange Property' window on the **Exchange Server**

**Authentication** form.

To return to the 'Authentication' tab of the **System Settings** form, click OK.

## Microsoft Exchange Server, 'Public Folder' syncing

Public folder synchronization can be set up in IBM Mobile Connect by using a normal Database Action. The quickest way to do this is to let PIM Wizard create a Database Action, which would synchronize with the connected-user's personal Exchange Server 'Contacts' folder, and then change the 'Folder Name' field of the Database Action so that it synchronizes into the Public Folder instead. Here's an example of how you would do this:

Suppose you've created a new 'Contacts' folder (which you've called 'All Contacts') under the 'All Public Folders' folder in Exchange Server.

1. Using the IBM Mobile Connect PIM Wizard, you would then set up a 'Contacts' synch to the connected-user's personal folder (see the section: **PIM Synchronization**, p.157). This would create a range of 'PIM' Actions that synchronize the mobile's built-in applications with the corresponding fields in Exchange Server. Only one of these PIM Actions is required for our present purposes ('Contacts' for Windows CE mobiles, or 'Address' for Palm OS mobiles). The other PIM Actions may be deleted, if required.
2. Double click the 'Contacts' (or 'Address') PIM Action. The **PIM Action Properties** form will appear.
3. Click Edit PIM Properties. This will convert the PIM Action into a normal Database Action, and display the **Database Action Properties** form.
4. On the 'General' tab, the 'Server' section has a field labelled: 'Folder Name'. Currently, this will contain the value: 'Contacts'. Change this value to: '\\Public Folders\\All Contacts:IPM.Contact'

**Note:** there is no need to put 'All Public Folders' into this path.

The screenshot shows the 'Database Action Properties' dialog box with the 'General' tab selected. The fields are as follows:

- Name: Public Folder Contacts Sync
- Description: All Company Contacts
- Action: Two Way Synchronise (dropdown menu)
- FlexSync:
- Server section:
  - Server Type: Microsoft Exchange Server (dropdown menu)
  - Server Name: Default Server Name (dropdown menu)
  - User Name: (empty text box)
  - Password: (empty text box)
  - Use Tag:
  - Folder Name: \\Public Folders\\All Contacts:IPM.contact (dropdown menu)
  - Load Table: (button)
- Changes:  Inserts,  Updates,  Deletes
- Mobile section:
  - Plugin Name: CE Contacts Plugin (dropdown menu)
  - Properties: (button)
  - Table Name: ConnectCEMail10.dll@Contacts Database (text box)
  - Changes:  Inserts,  Updates,  Deletes

Buttons at the bottom: OK, Cancel, Help.

If you add any new folders under All Contacts, the 'Folder Name' field in the **Database Action Properties** form above might become, for example:

\\Public Folders\All Contacts\New Folder:IPM.Contact

The 'IPM.Contact' part is to tell IBM Mobile Connect server what type of folder it is synching to. If you are doing synchs to a different type of Exchange Server folder, the IPM values are:

- 'IPM.Note' for email items
- 'IPM.Appointment' for calendar items
- 'IPM.Task' for task items
- 'IPM.Contact' for contacts
- 'IPM.StickyNote' for Notes



# Using IBM Mobile Connect with Lotus Notes—some issues in greater detail

## 1: Changing the 'defaults' that Site Wizard sets up

Site Wizard enables you to set up your Notes synchronizations within seconds. Once you've pointed Site Wizard at the Notes Name and Address Book (NAB) and completed the other panels in Site Wizard, your system will then be set up so that each user's details will be automatically retrieved from Notes by IBM Mobile Connect each time that user connects. This is done by using an IBM Mobile Connect 'authentication' plugin (Site Wizard sets up the plugin for you). Within the plugin, various 'tags' (variables) are defined. The tags correspond to particular fields in the Notes NAB database. When each user connects, these tags are then set to the contents of those fields for that particular user. Various things can be achieved by customizing the authentication plugin even further. One way to do this, is to change the tags so that they correspond to different fields in the Notes NAB (or to fields in some other database).

### The default 'tag' settings that Site Wizard sets up

By default, IBM Mobile Connect uses the '\$Users' view in the NAB to identify the username entered on the mobile device. If the user is found, the password that has been entered is then checked against the password in the 'HTTPPassword' field.

The '\$Users' view in Notes offers a number of different ways for a user to be authenticated. For example, for 'John Smith' in the domain 'Bristol/COMPANY' with a short name of 'jsmith', any of the following could be used:

- First Name (John)
- Last Name (Smith)
- First Name and Last Name (John Smith)
- Full Notes Name (John Smith/Bristol/COMPANY)
- Full Canonical Name (CN=John Smith/OU=Bristol/O=COMPANY)
- Last Name and First Name (Smith John)
- Short Name (jsmith)

Users should enter sufficient detail to avoid ambiguity. In general their Notes name is sufficient (John Smith) however if more than one of these exist, use the Full Notes Name (John Smith/Bristol/COMPANY).

The mail server to be used is retrieved from the 'MailServer' field in the user's person document, and the mail database from the 'MailFile' field in the same document.

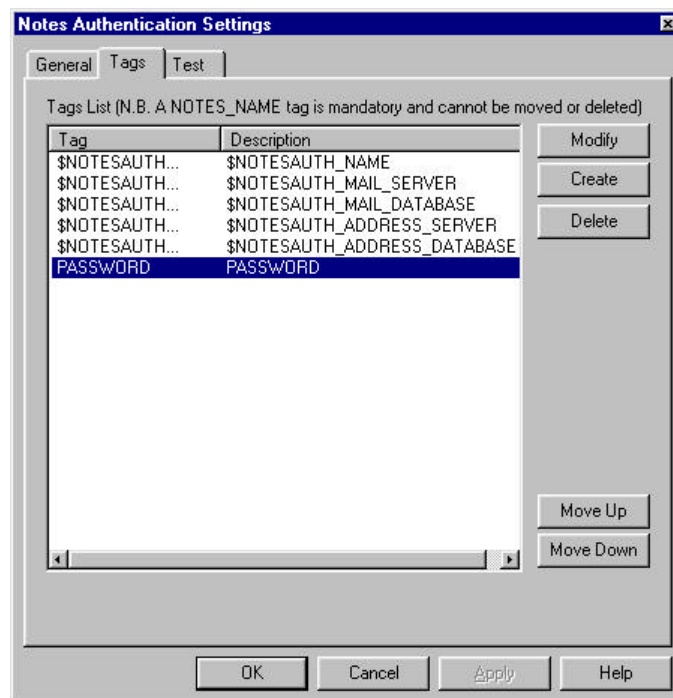
## Tuning the defaults

Once you've set up the authentication with a Notes NAB, you might consider changing some of the default settings. Here are four examples of changes you could make:

- 1) Working from a local copy of the mail file
- 2) Putting the user password into a separate database
- 3) Changing the view to use when looking up the user
- 4) Defining an IBM Mobile Connect group from the name and address book

To do most of these things, you just need to edit the tags which were created by Site Wizard. To do this, take the following steps:

1. In the IBM Mobile Connect Admin program, double click on the root node: 'Connect Configuration'. The **System Settings** form will appear.
2. Select the 'Authentication' tab.
3. Double click on the entry: '[Lotus Notes] Authentication Service'. The **Notes Authentication Settings** form will appear.
4. Select the 'Tags' tab:



The window on the 'Tags' tab shows a list of the tags that have already been defined. To modify one of the tags, you should select the tag and click Modify. The **Lotus Notes Authentication Plugin Tags** form will then appear for the selected tag. In the following screenshot, the form is displaying the details for the 'PASSWORD' tag:



There are five key fields on the form:

### Lookup Value

This is the value that will be matched in the Notes database. Generally this will be a further tag (variable) which is substituted for the value of the present tag (the tag specified in the Tag Name field) just before the search is executed. You can use any IBM Mobile Connect tag as the lookup value as long as it has been defined before this search. That is: you can use the result of the previous tag search to find the next tag. An example might be to find the IBM Mobile Connect group name based upon the department of the user.

### Notes Server

This is the Notes server which will be used for the search. This, like the rest of these fields, may be:

- Plain Text (that is: 'BRISTOL/COMPANY' or 'blank' for local)
- A tag (that is: '%NOTESESERVER%' where '%NOTESESERVER%' has been defined as a tag previously)
- A LotusScript formula (which may contain tags) the result of which returns the Notes Server (that is: '@if(Location="New York","NY/COMPANY";"Bristol/COMPANY")'). Note: If you want to define a formula you must check the checkbox to the left of the multi-line edit box.

### Notes Database

The Notes database where you want to search.

### Notes View Name

The name of the view on the Notes database which will be used for a fast indexed search to find the Notes document matching the Lookup Value.

### Return Value

The value that needs to be returned from the Notes document (that is: 'MailServer').

On the above screenshot, you will also see that the checkbox 'Password is encrypted

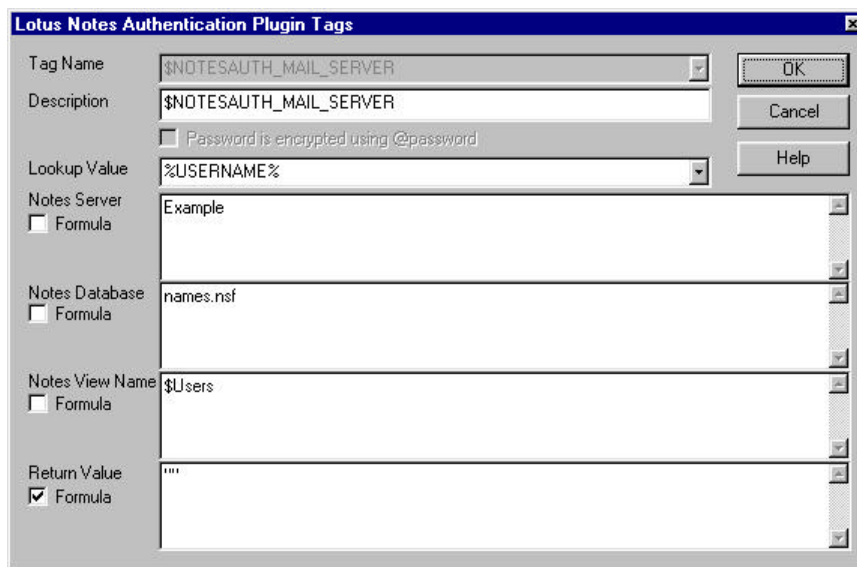
## Using IBM Mobile Connect with Lotus Notes—some issues in greater detail

using '@password' is enabled. By default, IBM Mobile Connect stores passwords on the Notes database in an encrypted format using the Lotus Notes password encryption algorithm. You may optionally turn off the encryption. If this is turned off, the 'HTTPPassword' field may not be used to hold the password, as this is automatically encrypted by Notes when the document is edited with the Notes Person (or Business Card) form.

Let's work through the 4 examples that were mentioned above:

### Example 1: Working from a local copy of the mail file

To work from a local copy of a database, you need to ensure that the value returned to the tag is 'blank'. The easiest way to do this is to declare the 'Return Value' for the tag as a formula which returns a zero length string (that is: ""):



The screenshot shows the 'Lotus Notes Authentication Plugin Tags' dialog box. The 'Tag Name' is '\$NOTESAUTH\_MAIL\_SERVER'. The 'Description' is '\$NOTESAUTH\_MAIL\_SERVER'. The 'Lookup Value' is '%USERNAME%'. The 'Notes Server' is 'Example'. The 'Notes Database' is 'names.nsf'. The 'Notes View Name' is '\$Users'. The 'Return Value' is '""'. The 'Return Value' is set to 'Formula'.

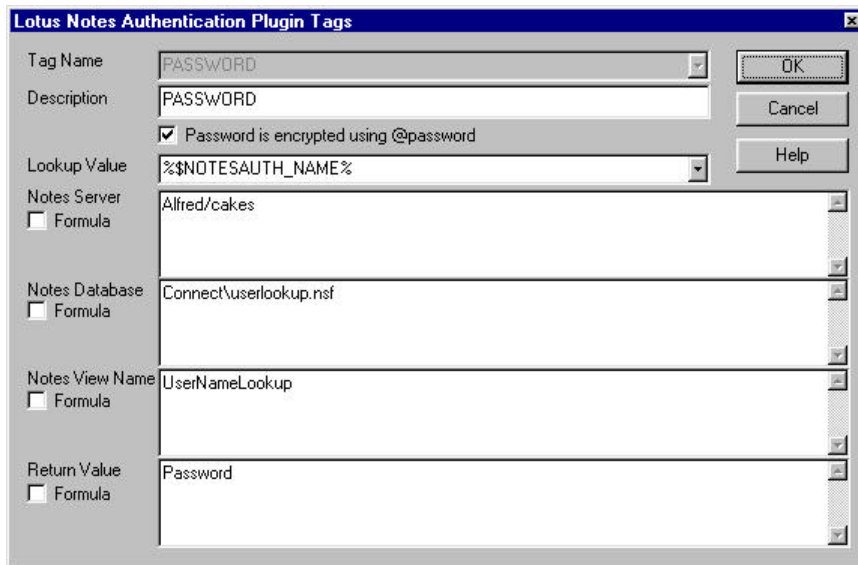
Tag Name	\$NOTESAUTH_MAIL_SERVER	OK
Description	\$NOTESAUTH_MAIL_SERVER	Cancel
	<input type="checkbox"/> Password is encrypted using @password	Help
Lookup Value	%USERNAME%	
Notes Server	Example	
<input type="checkbox"/> Formula		
Notes Database	names.nsf	
<input type="checkbox"/> Formula		
Notes View Name	\$Users	
<input type="checkbox"/> Formula		
Return Value	""	
<input checked="" type="checkbox"/> Formula		

## Example 2: Putting the user password into a separate database

If you want to use a different Notes database to hold the password field (that is: for security or other reasons), then for the 'PASSWORD' tag, you simply need to define the fields: 'Notes Server', 'Notes Database', 'Notes View Name', and 'Return Value' so that they point to and work with the new database.

Say you've created a database on the server 'alfred/cakes' in location 'connect\userlookup.nsf' which has two fields 'UserName' and 'Password' where the 'UserName' field contains the full Canonical user name. Also, you've created a view sorted in ascending order on the 'UserName' field called 'UserNameLookup'.

On the **Lotus Notes Authentication Plugin Tags** form for the 'PASSWORD' tag, enter the following values:



The screenshot shows the 'Lotus Notes Authentication Plugin Tags' dialog box. The 'Tag Name' is 'PASSWORD'. The 'Description' is 'PASSWORD'. The checkbox 'Password is encrypted using @password' is checked. The 'Lookup Value' is '%\$NOTESAUTH\_NAME%'. The 'Notes Server' is 'Alfred/cakes'. The 'Notes Database' is 'Connect\userlookup.nsf'. The 'Notes View Name' is 'UserNameLookup'. The 'Return Value' is 'Password'. There are 'OK', 'Cancel', and 'Help' buttons on the right side.

Tag Name	PASSWORD
Description	PASSWORD
<input checked="" type="checkbox"/> Password is encrypted using @password	
Lookup Value	%\$NOTESAUTH_NAME%
Notes Server <input type="checkbox"/> Formula	Alfred/cakes
Notes Database <input type="checkbox"/> Formula	Connect\userlookup.nsf
Notes View Name <input type="checkbox"/> Formula	UserNameLookup
Return Value <input type="checkbox"/> Formula	Password

The password will now be validated against the new database rather than the 'HTTPPassword', which is the default.

### Example 3: Changing the view to use when looking up the user

If you want to use a different view when looking up the user (to tighten up the user name that's accepted, or to use your own custom view), you simply need to change the 'Notes View Name' field in all the standard tags:

- \$NOTESAUTH\_NAME
- PASSWORD
- \$NOTESAUTH\_MAIL\_SERVER
- \$NOTESAUTH\_MAIL\_DATABASE

to the new view name (that is: change '\$Users' to '\$People' to validate only against the full Notes Canonical name).

### Example 4: Defining an IBM Mobile Connect group from the name and address book

To define the IBM Mobile Connect group, you need to create a new tag, called 'GROUP', which derives its value either from a field on the Notes database, or as the result of a formula. To do this, take the following steps:

1. While the 'Tags' tab of the **Notes Authentication Settings** form is showing, click **Create**. A blank **Lotus Notes Authentication Plugin Tags** form will appear.
2. In the 'Tag Name' combo box, select the drop-down list, and click on the tag name: 'GROUP'. The default values will be automatically entered in the form's remaining fields. You now need to edit these:
3. In the 'Lookup Value' field, enter the value you want to search by. Typically this is '%USERNAME%', which is the Lotus Notes login that the user entered on the mobile device.
4. In the 'Notes Server' field, enter the Notes server which contains the database with the GROUP information. Typically this will be the same as the mail server.
5. In the Notes Database field, enter the Notes database where you want to search for the group. Typically this will be: 'names.nsf'.
6. In the 'Notes View Name' field, enter the view on the database. Typically this will be: '\$Users'
7. In the 'Return Value' field, enter the field that contains the IBM Mobile Connect group name (that is: 'MobileUserGroup'). Alternatively, you could enter a formula that returns the group name. To do this, check the 'Formula' check-box, and type the formula into the field (that is: '@if(Department = "Sales":"Marketing":"Management";"Senior Group";"Default Group")' This formula would return: 'Senior Group' if the user's department were either 'Sales', 'Marketing' or 'Management'; otherwise it would return: 'Default Group'.) Whichever method is used, IBM Mobile Connect would then be controlled by the group that's returned by this tag.
8. Click OK.

### Things to watch out for when changing the default settings

## Using IBM Mobile Connect with Lotus Notes—some issues in greater detail

- Accessing and retrieving information from a Notes database is a relatively slow process. You should try to keep database accesses to a minimum. In particular, group accesses to the same database together. IBM Mobile Connect does not ‘re-search’ for a document once it has found it unless the server, database, view or lookup value have changed.
- Always check the connection and the tags returned using the ‘Test’ tab of the **Notes Authentication Settings** form.
- Make sure that you use an appropriate view for the search. Users generally don’t like entering their full Canonical Notes name. Choose a view that allows users to enter a natural name (that is: John Smith/COMPANY rather than CN=John Smith/O=COMPANY).
- Using too many databases will slow down authentication and increase demand on system resources. Try to use only one or, at the most, two databases. Consider consolidating multiple databases into one local one.

## 2: Accessing Lotus Notes databases without a Notes ID file

From V2.1 of IBM Mobile Connect, it's now possible for users to access their Notes mail database without giving IBM Mobile Connect their Notes ID file. This article discusses the implications and benefits of this approach over the more conventional route of using ID files (which is also supported in IBM Mobile Connect).

### Why would you want to do this?

The key reason for avoiding connection to users' mail databases with their ID files is to reduce the administrative burden for IBM Mobile Connect installation, administration and end users.

If you want IBM Mobile Connect to use a user's Notes ID file to access that user's Notes mail database, then it is necessary to ensure that the most up to date ID file is available on the IBM Mobile Connect server for IBM Mobile Connect to use for the connection. Although the process of posting new ID files on the IBM Mobile Connect server can be easily automated, in practice it requires a user to remember to post their new ID file when they change their password. (In R5, users will be able to change their ID file passwords by using the IBM Mobile Connect client, and have their new ID file automatically mailed to their workstation. However, in R4 this is not possible.)

In either case (Notes access *with* or *without* using a Notes ID file), all the user information that IBM Mobile Connect accesses, is extracted from a Notes database and is not held within IBM Mobile Connect. Further, even the username and password that IBM Mobile Connect uses to access a user's Notes mail database, is not held by IBM Mobile Connect but is entered on the mobile device by the user themselves, and is then passed directly to Notes (by the IBM Mobile Connect Notes authentication plugin).

When you choose to use Notes access *without* giving IBM Mobile Connect the users' Notes ID files, then each user's password must be stored centrally, in a field in a Notes database. By default, the passwords would be held in the Notes Name and Address Book (NAB), though you can easily customize the location into another database. This customization allows administrators to store users' passwords in a non-public database, which is more secure. The passwords are stored in the Notes database either 'in the clear' (not recommended) or encrypted using the Notes hashing function @password. This means that IBM Mobile Connect is fully compatible with Notes-based access into the password field.

If the passwords are held in a Notes database, users can change their password from the mobile device. This would not be possible with R4 if IBM Mobile Connect were using Notes access *with* users' Notes ID files.

**Note:** When IBM Mobile Connect accesses a Notes database on behalf of the user, it fully ‘spoofs’ the user’s connection. This means that the Notes database will act as if the user themselves entered the information. This is of course essential for workflow applications which depend on the \$UpdatedBy field.

## Using a separate Notes database to hold the password field

The main reasons for placing users’ passwords in a separate database, other than the public NAB are:

- The separate database can be secured to ensure normal NAB administrators cannot clear and replace the password for a user.
- By holding a list of users and their passwords in a separate database, you can easily restrict access to IBM Mobile Connect to only those in the secondary database.
- A user can have a different password to their HTTP password for accessing IBM Mobile Connect. This is particularly useful when you want to restrict access to the system based upon password.

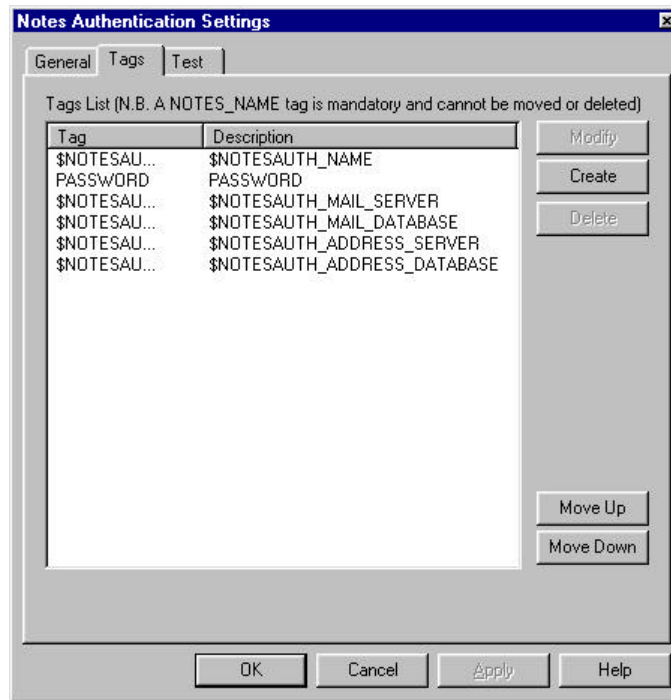
To set up the secondary database, you need to create a new database with at least two fields. One contains a user’s full canonical name and the other their password. You may of course include other information in the database, such as the location of the user’s personal address book and journal file; the IBM Mobile Connect group to which they belong; and other information that’s specific to IBM Mobile Connect but is not readily available in the Notes public NAB.

In this secondary database, you will need to create a view, sorted by the username, to allow fast access to the password document. In general, it is also best if you make all the fields that you might want to use in IBM Mobile Connect ‘summary’ fields. This improves the performance of IBM Mobile Connect’s Notes authentication. Lastly, you will need to set up the Access Control List (ACL) for the database to allow just IBM Mobile Connect, and other authorized users, to access the database. If you want, you can also give user-level access to the individual password documents so as to allow users to maintain their own passwords through a Notes client.

Once you’ve set up the database, created the fields, created the view, populated the fields using an action (or typing in the information) and set the security, you then need to tell IBM Mobile Connect where the database is located and which fields to return. To do this, take the following steps:

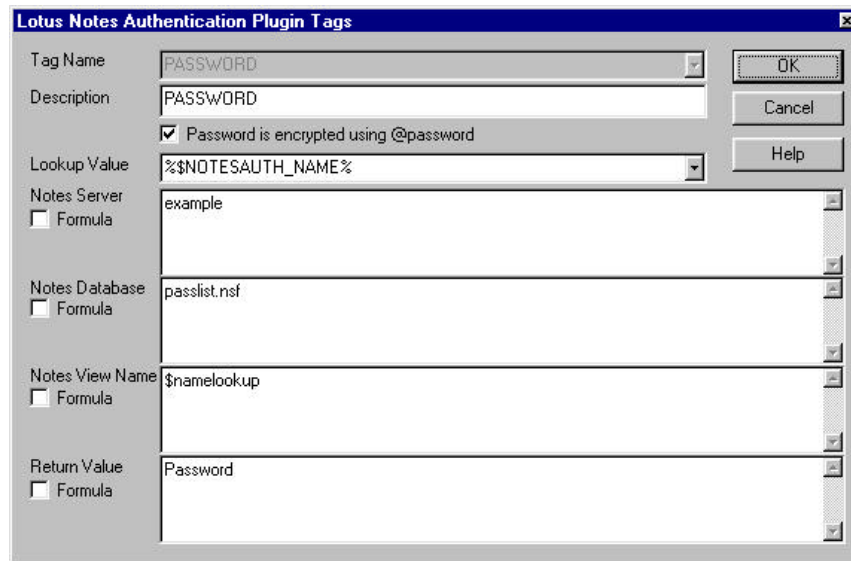
1. Double-click on the root node in the Admin tree (labelled: ‘Connect Configuration’). The **System Settings** form will appear.
2. Select the ‘Authentication’ tab.
3. Double click on the ‘[Lotus Notes] Authentication Service’ line in the authentication services list.

4. Select the 'Tags' tab:



5. If you are only going to be looking up the password in a separate database, select the password entry in the tags list and use the 'Move Down' push button to move the password to the bottom of the list.
6. If you will be retrieving other information as well, move the password to the bottom of the list and then move all the other items to be retrieved from the same database below the password entry. This reduces the number of accesses that IBM Mobile Connect needs to make to the Notes database.
7. Double click on the PASSWORD tag, or select it and click Modify. The **Lotus Notes Authentication Plugin Tags** form will appear for the 'PASSWORD' tag:





8. Change the 'Lookup Value' from '%USERNAME%' to '%\$NOTESAUTH\_NAME%' by selecting it from the combo box.
9. Change the 'Notes Server' to the server with the password file.
10. Change the 'Notes Database' to the database you have just created.
11. Change the 'Notes View Name' to the name of the view to look up the information.
12. Change the 'Return Value, to the field holding the password.
13. If you have any other tags which will be read from this database, for example the IBM Mobile Connect 'group', you need to set the Lookup Value, Notes Server, Notes Database and Notes View Name to be the same as the ones you've just entered.
14. Save the information and restart the IBM Mobile Connect service.

IBM Mobile Connect will now use the separate database to find and maintain the password.

### What About the Security Implications?

In order for IBM Mobile Connect to access a user's mail database or any database without the user's Notes ID file, IBM Mobile Connect must have been given permission in the ACL of the database to have at least Editor access with the ability to delete documents. Typically this permission is granted by adding IBM Mobile Connect to a group which has the relevant access to the mobile users' mail databases. If the group hasn't been created, you may add IBM Mobile Connect to the default mail template ACL and use Notes replication to update the ACL's of individual databases (if this has been enabled).

In short, unless you give it permission, IBM Mobile Connect cannot connect to a database without a Notes ID file.

However, you should note that the Notes ID file that's associated with the IBM Mobile Connect account in Notes should only be located in a secure location

## Using IBM Mobile Connect with Lotus Notes—some issues in greater detail

on the IBM Mobile Connect server (+ backups in secure storage). The Notes ID file should be treated in the same way as a Certifier ID file would be treated. In addition, it is generally a good idea for powerful Notes ID files, such as the IBM Mobile Connect Notes ID file, to use a two part password so that no one person knows the complete password (that is: user 1 knows the first 6 characters and user 2 knows the second 6 characters). Since the password only needs to be typed into the IBM Mobile Connect Admin file once, this is not an administrative burden and enhances the security of the system. **Note: you would either keep a copy of each part of the password in a secure location or ensure that more than one person knew each of the passwords, but not both.**

### What About Encrypted Documents?

As you probably know, a user's private key for the decryption of encrypted documents, such as mail, is held in their Notes ID file. So without the user's Notes ID file, it is not possible to decrypt their mail. When working without Notes ID files, the text of any field which is encrypted is returned as '<encrypted>'. Any encrypted portion of the document, such as title, from, and so on, is returned as normal. This has the benefit of ensuring that encrypted mail is not replicated to a potentially insecure device such as a mobile computer.

If you have users who want to receive encrypted mail on their mobile device, you will need to use Notes ID files for those users.

### How to mix *ID file* and *no-ID file* access

The easiest way to set a mix of users for *ID file* and *non-ID file* access into their mail boxes (or other databases), is to set up two IBM Mobile Connect authentication plugin entries. Each time a user connects, IBM Mobile Connect would then call the first authentication plugin. If the user is not authenticated against that plugin, it would then call the next, until either the user is authenticated or there are no more plugins (when it would return the message: 'Invalid User Name' to the user).

The first authentication plugin would be set up to only find those users who don't require ID file access. The second plugin would be set up for those users who needed ID files to decrypt encrypted documents.

Of course, you could also choose to allow all users to have ID file-based access. Bear in mind though that in this case all users would need to keep a copy of their Notes ID files on the IBM Mobile Connect server.

### 3: Using IBM Mobile Connect to Replicate Lotus Notes Address Books

In Lotus Notes, the Personal Address Book is held on your PC. Whilst this is great if you are only using a PC, if you use IBM Mobile Connect to extend the reach of your Notes databases onto handheld devices, a problem occurs: IBM Mobile Connect doesn't have access to the databases on your PC. So what do you do?

This section describes a number of methods for putting your address book onto a Notes server so that you can access it using IBM Mobile Connect. Using similar techniques, other personal databases such as the Journal can be successfully deployed using IBM Mobile Connect.

#### Create replica copies in the user's mail directory

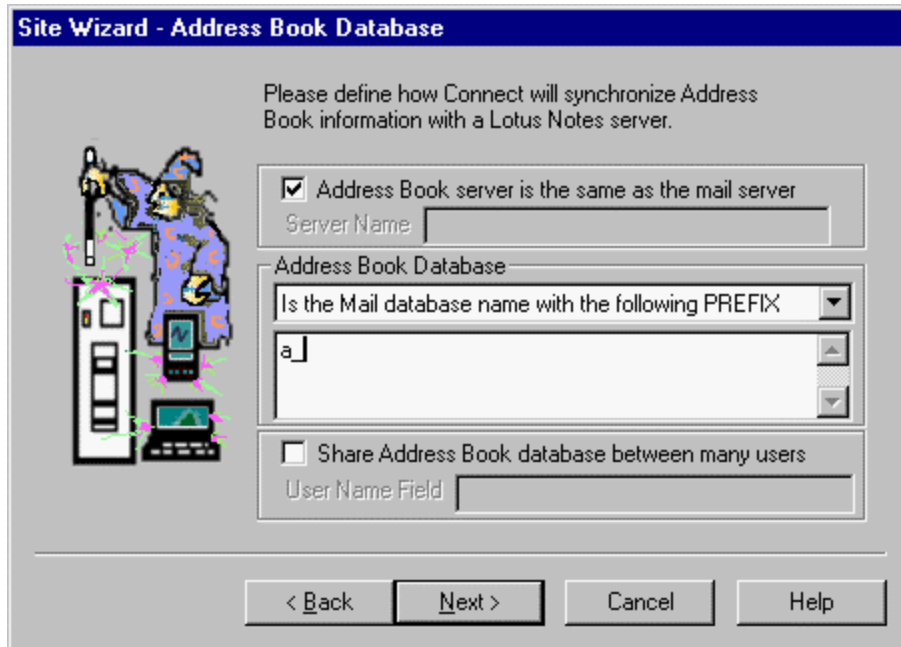
For the majority of companies, this is the simplest solution. If users want to be able to replicate their personal address books to their handheld devices, all they need to do is create a replica copy of their personal address book on their mail server in their mail directory. They should name the replica file in a standard way; generally we recommend that they prefix or append an identifier to the mail file name. That is: for a mail file 'jhodges.nsf' you might call the address book replica: 'jhodges\_a.nsf'.

By giving the address book replica the same name and location as the mail file but with a standard prefix or suffix, you make the setup and administration of replica address books easy from three key perspectives:

- It is easy to explain to a user how and where to put their address book replica and how to name the file (you have to rename the replica copies of the files as they can't all be called names.nsf!). Alternatively, you can create a scheduled action which does this for them and keeps the replica up to date. Remember, the location and name of the mail file is stored in the users public document in the fields 'MailServer' and 'MailFile'.
- If files need to be moved, either between servers or just between directories on a single server, moving the mail file and the address book replica at the same time simplifies administration.
- IBM Mobile Connect will automatically create a LotusScript formula to locate each user's personal address book on the server without you having to explicitly specify the path and file name of the address book replica for each user (a big plus).

## Creating the Personal Address Book synchronization

The simplest way to create a personal address book synchronization using IBM Mobile Connect is by using Site Wizard to create a new Admin configuration file. During the Wizard process, ensure that you check the ‘Contacts’ or ‘Address’ check box on the Groupware Applications pane. If you do, you will see the following pane:



The screenshot shows a dialog box titled "Site Wizard - Address Book Database". The main text reads: "Please define how Connect will synchronize Address Book information with a Lotus Notes server." On the left side, there is a graphic of a knight on a horse. The configuration options are as follows:

- Address Book server is the same as the mail server  
Server Name: [text box]
- Address Book Database  
Is the Mail database name with the following PREFIX: [dropdown menu]  
a\_ [text box]
- Share Address Book database between many users  
User Name Field: [text box]

At the bottom, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

This pane will automatically create two authentication ‘tags’ for you to create the path to the address book replica. The tags are called ‘\$NOTESAUTH\_ADDRESS\_SERVER’ and ‘\$NOTESAUTH\_ADDRESS\_DATABASE’. The first will return the value held in the field ‘MailServer’. The second will return name of the address book replica which is derived using a LotusScript formula from the mail file directory and name.

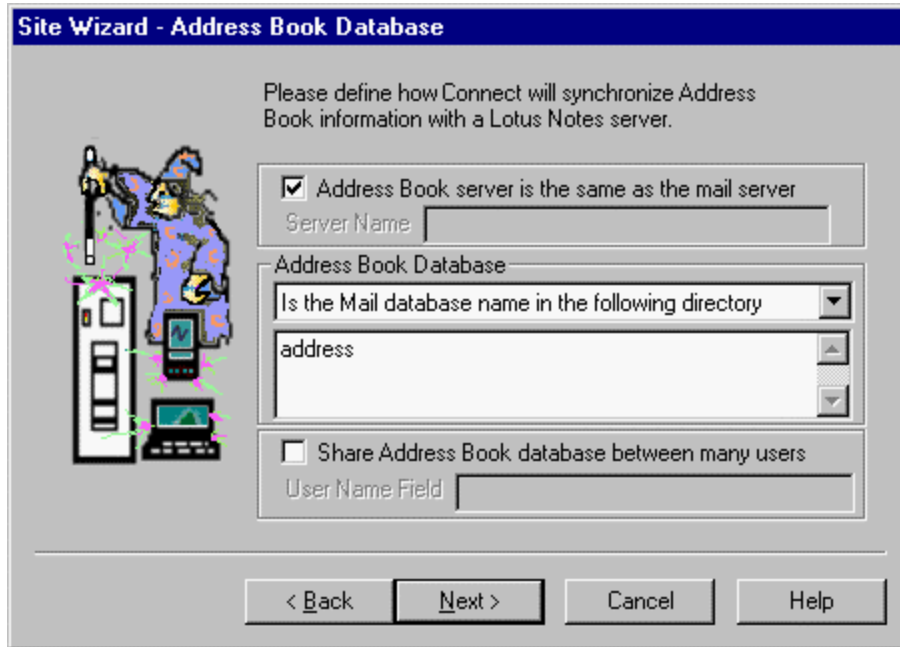
(Below is the script generated to prefix ‘a\_’ to the mail file name)

```
@if(@contains(MailFile;"\\");@leftback(MailFile;"\\")+\"a_\"+@rightback(MailFile;"\\");@if(@contains(MailFile;"/");@leftback(MailFile;"/")+\"a_\"+@rightback(MailFile;"/");\"a_\"+MailFile))
```

That’s all there is to it! Once your users have replicated their Personal Address Books to their mail servers, they’ll be able to share the replica copy with IBM Mobile Connect (and any other users for that matter) and synchronize with their handheld computer from anywhere in the world.

## Create replica copies in another directory

This is largely the same solution as the previous one, except that you can specify that the replica files will be stored in a separate directory to the mail file. In this case, the replica copy should be given the same name as the mail file (for simplicity).



This time, the address replica database name returned by ‘\$NOTESAUTH\_ADDRESS\_DATABASE’ for the mail file ‘mail\jhodges’ will be ‘address\jhodges’

(The script generated is listed below)

```
@if(@contains(MailFile;"\\");"address"+"\\"+@rightback(MailFile;" \\");@if(@contains(MailFile;"/");"address"+"/" +  
@rightback(MailFile;"/");"address\\"+MailFile))
```

## Consolidate into one or more central databases

In larger organizations, it may be preferable to manage the Personal Address Book storage on one or more Notes servers, and to consolidate the thousands of address databases into one or two larger databases, thus avoiding the overhead of ~1MB per database created. This is more complex to set up than the individual replicas but can offer greater administrative control.

The idea behind this method of working, is to create one database that contains the address lists of more than one user. The entries for each user are defined by a field which contains the full canonical name of the user owning the entry. Otherwise, each entry is identical to a person document in a Personal Address Book. Each user has a replica copy of this database as their Personal Address Book and performs a formula replication with the central server to update their records.

To set up this way of working, the administrator will need to perform the following steps:

- Create a new database based upon the Personal Address Book template
- Apply security to the new template so that a user can only view documents where they are listed in the \$UpdatedBy field.
- Get users to rename 'names.nsf', create a replica copy of the new database on their machines as 'names.nsf' and apply a replication filter to only replicate where \$UpdatedBy contains the canonical name of the user.
- Copy their old Personal Address Book data into this new replica.

What will happen is that only the records for that user will be replicated to the central database. When you set up the IBM Mobile Connect Site Wizard, you will create a filter on the central address book which will only download the addresses for the user.

**Site Wizard - Address Book Database**

Please define how Connect will synchronize Address Book information with a Lotus Notes server.

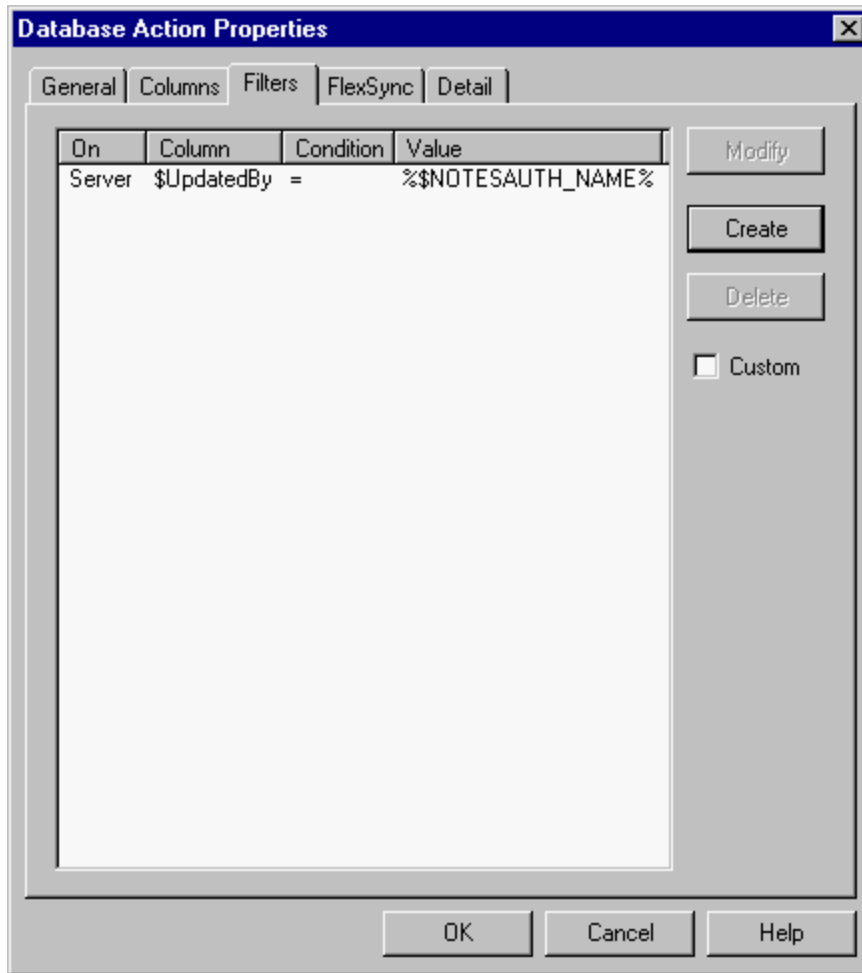
Address Book server is the same as the mail server  
Server Name

Address Book Database  
Is held in the following Notes database

Share Address Book database between many users  
User Name Field

< Back   Next >   Cancel   Help

This automatically creates the following filter entry:



Now, whenever an entry is created on the local Personal Address Book, the entry will be replicated into the central database, where it will be picked up by the next handheld computer synchronization. If a new entry is made on the handheld computer, the entry will be written into the central store and the updated field set to the canonical name of the currently logged in handheld user. On the next replication, the document will be replicated back to the local Personal Address Book.

## Copy the data into the mail database

This option is potentially the most complex but offers significant advantages for very large organizations. In particular, if the address information is copied into the mail database, no further databases need to be created or sized to accommodate centrally stored address information. The incremental increase in the mail file is likely to be within the bounds of corporate sizing limits. The mail file could be used directly as the personal address book if the mail template is modified alternatively. The data within the mail file (which is stored as 'Person' documents) would normally be hidden.

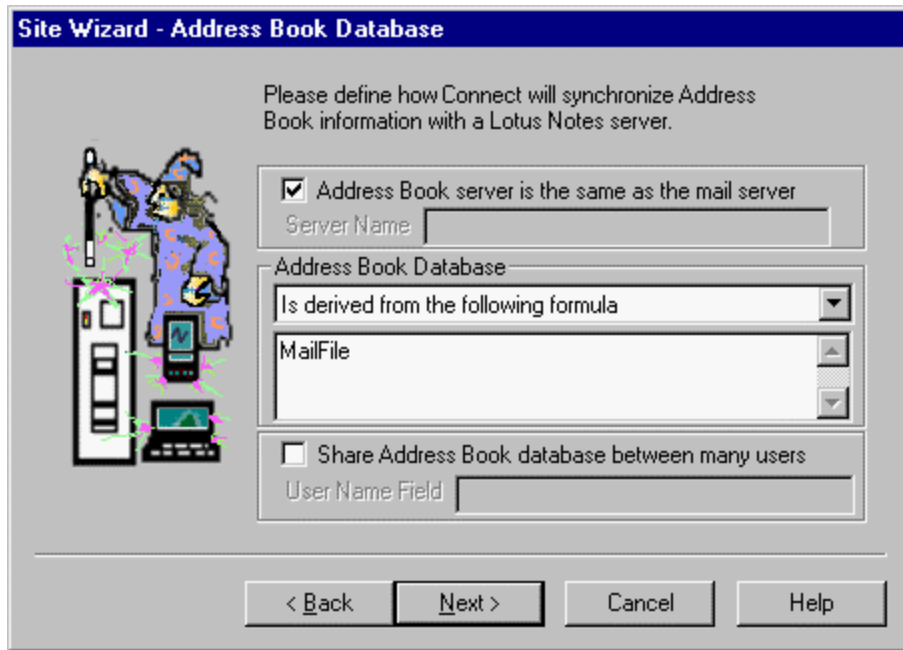
In order to copy information from the local Personal Address Book into the mail file, you will need to create a scheduled agent which runs on the user's PC. The purpose of the agent is to emulate Notes replication without requiring the mail file to be a replica copy of the Personal Address Book. In pseudo code the following steps need to be performed:

1. Get the date last pseudo-replicated from the address book
2. Get the date last pseudo-replicated from the mail file
3. Select the list of 'Person' documents from the address book which have been modified since the last pseudo-replication date in the mail file
4. For each document returned, check the following. Remember to perform comparisons by unid and to set the unid of any newly created documents:
  - If the document has been deleted, check that the modification date of the document in the mail file is less than the modification date in the address book. If it is, delete from the mail file, otherwise resolve the conflict.
  - If the document has been inserted/updated, check that the modification date of the document in the mail file is less than the modification date in the address book or that it doesn't exist. Insert/Update in the mail file if ok, otherwise resolve the conflict.
5. Write the last pseudo-replication date into the mail file
6. Repeat the process the other way from the mail file to the address book.

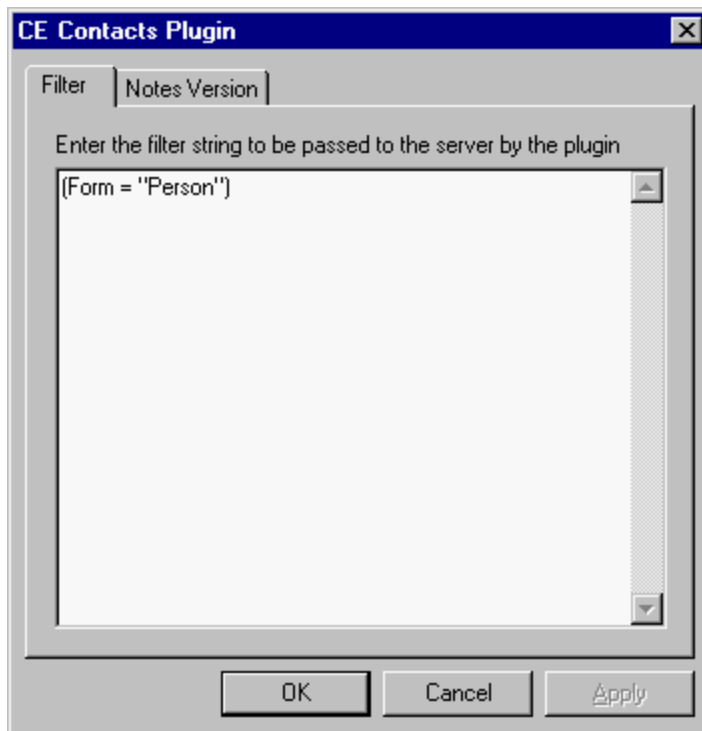
If the mail file is held on a server, no further actions will be required, otherwise, you will need to replicate the mail file with the server copy of the mail file for the changes to be visible to handheld computers.

When creating a new Admin configuration file using the IBM Mobile Connect Site Wizard, simply set the address book database to the mail file database as follows:





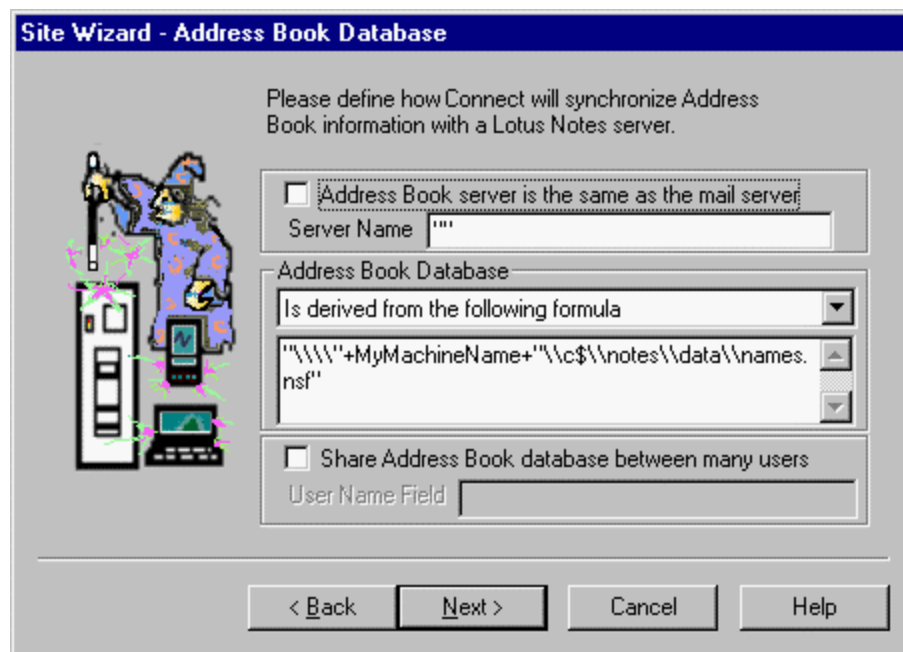
This will return the mail file as the address database name, but the following formula will be applied to retrieve just personal address documents:



## Provide a network path to the local machine

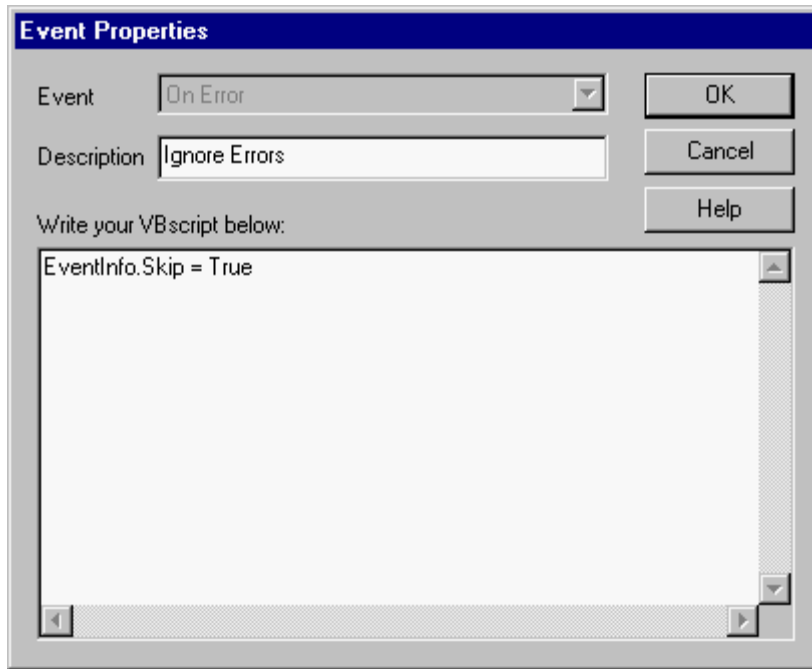
One last option is to share the Notes data directory on the user's machine and allow IBM Mobile Connect to synchronize directly with the Personal Address Book over your corporate LAN. This has the advantage of only requiring that users share their local Notes data directories in a standard way (or use a general administrative share). However, the user's machine will need to be left switched on if the user is out of the office. Typically this option will be used when the user is generally in the office and synchronizes through their PC.

When setting this up with IBM Mobile Connect, you will need to leave the address server name blank and build the address database name from the UNC name of the users machine together with the path and name of their local personal address book (that is: `\\JSMITH\c$\notes\data\names.nsf` or `\\134.54.121.33\c$\notes\data\names.nsf`).



It would also be recommended that Notes errors such as file not found whilst sync'ing the address book are ignored using VB script, to avoid 'Completed With Errors' messages if the user's PC is not switched on:

Using IBM Mobile Connect with Lotus Notes—some issues in greater detail



## 4: The Lotus Notes 'timeout' configuration '.INI' file

This '.INI' file resides in the Windows folder. Its filename is: 'notestimeoutconfig.ini'.

The INI file is used by IBM Mobile Connect when it is communicating with a Lotus Notes database. The file contains a list of some IBM Mobile Connect routines, and specifies a 'timeout' for each of these routines (in milliseconds). This 'timeout' value tells IBM Mobile Connect how long it should wait for a response from the Lotus Notes database. If the timeout value is reached, and no response has been received, then that particular routine will be terminated.

Administrators do not need to employ this INI file if they decide not to. If the INI file is not present, then IBM Mobile Connect will use its default value for the 'timeout' period of each of the routines covered by the INI file. The default value is 300 seconds.

The INI file is intended to be used by experienced administrators who are perhaps administering a large site, where slow network response times may sometimes cause problems. If IBM Mobile Connect's default timeout period is being reached on some of these routines, then the administrator can utilize the INI file to set a higher value for the timeout period of that particular routine.

The INI file (which should be called: 'notestimeoutconfig.ini') should take the following form:

```
[setup]
NotesOpenSession = 3600000
NotesCloseSession = 3600000
NotesGetNote = 3600000
NotesSetNote = 3600000
NotesOpenDatabase = 3600000
NotesQueryDatabase = 3600000
NotesDeleteNote = 3600000
NotesCloseDatabase = 3600000
NotesInterFunctionTimeout = 3600000
```

In the example above, each of the timeout periods has been set to one hour. Each of the entries is now briefly described.

### **NotesOpenSession**

This routine opens a session with a Lotus Notes server.

### **NotesCloseSession**

This routine closes a session.

**NotesGetNote**

This routine makes a request to Lotus Notes for an email, or a Calendar entry, or a Task, and so on.

**NotesSetNote**

This routine creates or updates an entry in a Lotus Notes database.

**NotesOpenDatabase**

This routine opens a particular Lotus Notes database for use.

**NotesQueryDatabase**

This routine performs various synchronization tasks with the opened database.

**NotesDeleteNote**

When data from a Lotus Notes database has been deleted on the mobile device, IBM Mobile Connect uses this routine to make the corresponding deletes in the server-side database.

**NotesCloseDatabase**

This routine closes the session with a currently open Lotus Notes database.

**NotesInterFunctionTimeout**

This entry in the INI file is concerned with the communication between the IBM Mobile Connect server and the 'ConnectNotes' process (which is a piece of IBM Mobile Connect code that acts as an intermediary between the IBM Mobile Connect service and Lotus Notes). While the IBM Mobile Connect service is using the ConnectNotes process, if the ConnectNotes process is waiting for information from the IBM Mobile Connect service, and it does not receive this information within the NotesInterFunctionTimeout period, the ConnectNotes process will terminate.

In the rare instances where the IBM Mobile Connect server crashes, the NotesInterFunctionTimeout value is used to terminate the ConnectNotes process, otherwise the ConnectNotes process would continue to wait for a response from the IBM Mobile Connect server.



# Creating 'Actions' and 'Action Sets'

## What are 'Actions', 'Action Sets' and 'Triggers'?

IBM Mobile Connect is primarily concerned with the automatic transfer of information between remote Palm OS mobiles and a corporate server. How does the system administrator set up these transfers?

### First, define the 'Actions' and 'Action Sets'

Suppose that whenever a user from your 'sales' group (for example) connects, you would like IBM Mobile Connect to synchronize a particular Pilot database (PDB) with the corresponding columns of a database on one of your servers. You would first define this transfer as a 'Database Action' (please see the section: **Database Actions**, p.177). You would perhaps name this Database Action: "Synchronize sales database". You would then place this Database Action in an 'Action Set'. This Action Set would also contain all the other transfers that you would like IBM Mobile Connect to perform every time a user in your sales group connects. The Action Set could contain other Database Actions, and also File Actions, and so on. You might call this Action Set: "Sales connection" (for example).

### Then set a 'Trigger'

Once you've defined all your Actions, and grouped them into Action Sets, you then need to tell IBM Mobile Connect how frequently to 'run' a particular Action Set. You do this by defining a 'Trigger'.

**A 'Trigger' is the name that IBM Mobile Connect gives to an 'instruction' that tells the system how frequently to 'trigger' (or activate) each particular Action Set.**

You would probably want the majority of the activity that the system is performing, to consist of the running of Action Sets that are being activated every time an end user connects. But you would also need to design Action Sets that are intended to be activated at other frequencies, such as once a week (to perhaps perform regular backups), or that are only activated when a mobile computer has changed ownership (so that you can backup all the old user's information from the mobile and set up the mobile for the new user).

To define the Trigger (please see the section: **'Triggers' and how to set them**, p.201), you would first give the Trigger a name (in our present example, you might perhaps use the same name as the Action Set: "Sales connection"). You would then choose the Action Set that this Trigger 'runs' ("Sales connection" in our present example). And lastly, you would tell the Trigger how frequently to 'run' (or activate) this particular Action Set. In the 'Run' field (of the form that sets up Triggers), you're presented with a drop-down list of options. For our present example, you would choose the 'On Every Connect' frequency.

## Creating 'Actions' and 'Action Sets'

This transfer is now defined, so that whenever a member of the sales group connects, IBM Mobile Connect will look through its Triggers (which are its 'instructions' that tell it how frequently to run each Action Set) and see that it has one for the sales group. IBM Mobile Connect will see that this Trigger tells it to now 'run' our "Sales connection" Action Set, which (amongst other things) contains our Database Action (called "Synchronize sales database") which synchronizes a particular Pilot database (PDB) on the mobile with the corresponding columns of a database on the server.

The above example is merely intended to introduce the concept of Triggers, but to set up the example on a system that contains a number of different user groups (as well as the 'sales' group), you would need to be aware of a further concept. This is covered below:

### Triggers operate on 'groups'

A Trigger runs its default Action Set for all groups on the system, except for those groups where you've specified otherwise.

You define a Trigger to 'run' a particular Action Set. Each time this Trigger is then activated, it will, by default, run this Action Set for all groups of users on the system. However, for a particular Trigger, you may want it to run a different Action Set for a certain group, and perhaps another Action Set for a further group, or you may want it to do nothing for certain other groups. You can do this by modifying the Trigger at the 'group level' (please see the section: **To modify a trigger at the 'group' level**, p.204). If this is done, the Trigger would then run its default Action Set for all groups on the system, except for those groups where you've specified otherwise (either given an alternative Action Set, or selected <none>).

## 'Actions' and 'Action Sets' for Palm OS mobiles

### Actions

Within IBM Mobile Connect, an 'Action' is the mechanism used to transfer information between a mobile and a central server. These are the basic types of Action:

- File Action
- Database Action
- Script Action

**File Actions** are used to transfer PDBs (Pilot Databases) or PRCs (Pilot Resources) between a Palm OS mobile and the IBM Mobile Connect service (or vice-versa).

**Database Actions** are used to synchronize a PDB on the Palm OS mobile with any ODBC data source that's accessible by the IBM Mobile Connect service—or with major groupware products, such as Lotus Notes.

**Script Actions** enable the system administrator to use VBScript to (amongst other things) directly program some of the underlying IBM Mobile Connect objects. This gives the administrator the ability to extend IBM Mobile Connect in any way required. In practice though, these Actions are rarely needed, and they'll be covered later, in the section: **'Events' and 'Script Actions'**, p.235.



## Action Sets

An 'Action Set' is a collection of Actions which the system administrator groups together for convenience. The Action Set can then be activated at certain frequencies, such as when:

- a user connects to the system
- a change of ownership has occurred (a user logs on with a mobile that is still allocated to another user)
- a regular time period has elapsed (once a day, once a week, and so on)
- a user requests a pre-defined Action (such as 'submit expense claim').


All the Actions in a particular Action Set should apply to a particular 'group' of users (who've all been placed in that particular group because they all require similar processing to one another). Using this approach, saves the administrator from having to unnecessarily define the same transfers over and over again.

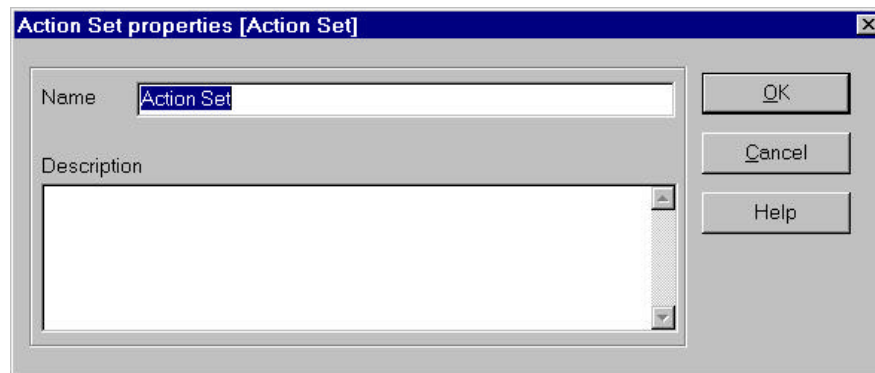
For details of how Action Sets are automatically 'run', please see the section: **'Triggers' and how to set them**, p.201.

As a particular 'Action Set' is just a name that you will give to a particular group of Actions (which will be 'run' sequentially when the Action Set is activated), the only information that you need to enter for an Action Set is a unique name and (optionally) a description.

## To create a new Action Set

Call up the **Action Set properties** form by doing any one of the following:

- Press the 'New Action Set' push button on the toolbar: 
- From the 'Insert' menu, select 'Action Set'.
- On the configuration tree, right-click on the 'Action Sets' item, then select 'Actions', and then 'New Action Set' from the context menu that appears.





Once the **Action Set properties** form has appeared, change the default name ("Action Set") to the name that you would like to appear in the configuration tree for this Action Set.

### The processing-order within an Action Set

Once Actions have been added to an Action Set (such as File Actions, Database Actions, and so on), the Actions will be listed on the configuration tree in the order that they'll be processed in. To view the list of Actions within any Action Set, click that Action Set's '+' symbol on the configuration tree. The list of Actions will then be displayed. The list will be processed from the top, down.

This processing-order also applies to the sub-branches (if any) of each individual Action within the Action Set.

### To change the processing-order of an Action within an Action Set

- On the configuration tree, highlight the Action that you want to move.
- Click the 'Move Up' or 'Move Down' push button on the toolbar:  or 
- From the 'Edit' menu, select 'Move Up' or 'Move Down'.

If a move in either of these directions is not available, then that push button will be greyed out.

The order of items under the 'System Events', 'Groups', and 'Users' branches is of no significance. However, the 'move' push buttons are still enabled for these lists, so as to allow you to place the items in each list, in the order that best aids your management of that list.

## What are 'tags'?

In IBM Mobile Connect, a 'tag' is simply a string variable which can be used in the data field of any Action (these are sometimes called 'macros', or 'variables'). The system administrator gives the tag a name, then defines the actual string that IBM Mobile Connect is to substitute for the tag whenever any processing is done.

Typically, tags are used to substitute folder locations, database names, and so on, to avoid having to maintain the same information in many different places, and then having to amend all the copies of a particular item, when that item changes in one of the locations. Also note that tags can be altered dynamically during a connection, by using VBScript (see the section: **Customizing IBM Mobile Connect with VBScript, Example 3: Manipulating tag values**, p.249).

Tags are identified within fields by a preceding and terminating '%' character. For example:

```
%USER%
```

Tags can form part of a larger string and will be expanded accordingly. For example:

```
f:\data\%USER% \sales
```

For the user 'jsmith', this would become:

```
f:\data\jsmith\sales
```

**Note:** tags may not be embedded within other tags. Suppose we define a tag, which we call: 'Default File Location', and we set it to: 'f:\temp'. Suppose we then define another tag, which we call: 'Current File Location', and we set it to: '%Default File Location%'. If we then use the tag 'Current File Location' in a field, as follows:

```
%Current File Location% \sales
```

when IBM Mobile Connect processes this, the field would become:


```
%Default File Location% \sales
```

But what we intended, was the following:

```
f:\temp\sales
```

### To define a tag

Call up the **System Settings** form by doing one of the following:

- On the configuration tree, click on the 'Connect Configuration' item, then click the 'Properties' push button on the toolbar: 
- On the configuration tree, click on the 'Connect Configuration' item, then, from the 'Edit' menu, select 'Properties'.
- On the configuration tree, right-click on the 'Connect Configuration' item, then select 'Properties' from the context menu that appears.

The **System Settings** form will then appear. Select the 'Tags' tab, then click Create. The **Tag Values** form will then appear.

### The 'Tag Name' field

Enter whatever string you would like to use for this tag's name.

**Note:** The following system-defined tags may not be used as tag names:

Tag	Description
USER	The username entered by the user who's currently connected.
PASSWORD	The password entered by the user who's currently connected.
GROUP	The IBM Mobile Connect 'group' of the user who's currently connected.
CE_CPU	The Processor type of the CE mobile. For Windows CE mobiles, this may be, for example: "SH3" or "MIPS", and so on. For EPOC and Palm OS mobiles, there is no equivalent system-defined tag. This tag is useful for application installation on Windows CE mobiles.

### The 'Default Value' field

Enter the 'actual' string that's to be substituted for this tag.

Tags can only be defined at the System level, but can be overridden for individual groups of users (see below). If this tag is overridden in a particular group, then for each of the users in that group, the 'Default Value' of the tag would be changed to whatever changed value you specify. The 'Default Value' would remain the same for all users in the other groups.


Note that the Default Value is made available to (and can be modified by) VBScript. See the section: **Customizing IBM Mobile Connect with VBScript, Example 3: Manipulating tag Values**, p.249.

### The 'Password' check box

If the tag is to be used for passwords then check the 'Password' check box. This will suppress the tag value from viewing in other panels.

## To change the Default Value of a tag at the Group level

Call up the **Group Properties** form by doing any one of the following:

- On the configuration tree, click on the required Group, then click the 'Properties' push button on the toolbar: 
- On the configuration tree, click on the required Group, then, from the Edit menu, select 'Properties'.
- On the configuration tree, right-click on the required Group, then select 'Properties' from the context menu that appears.

The **Group Properties** form has three tabs: 'General', 'Triggers', and 'Tags'. Select the 'Tags' tab, then select the tag to be changed and click Modify. The **Tag Values** form will appear. Change the tag's value to the new string, and click OK.


## The Enable/Disable command

The Enable/Disable command is used to temporarily disable the selected user/s, group, Action, or Action Set. Once any item has been disabled, it will appear on the Admin program's configuration tree with a red cross through it.

You might need to disable an Action, Action Set, user, or group, if you want to temporarily prevent these items from being active while you're making changes to your system and you don't want these items to be able to affect the system. Or you might want to temporarily disable them for any number of other reasons.


### To disable an item

On the Admin program's configuration tree, click on the item that you want to disable. To disable the selected item, do any of the following:

- Click the 'Enable/Disable' push button on the toolbar: 
- On the Edit menu, select 'Enable/Disable'.

### To re-enable a disabled item

On the Admin program's configuration tree, click on the disabled item that you want to re-enable. To re-enable the selected item, do any of the following:

- Click the 'Enable/Disable' push button on the toolbar: 
- On the Edit menu, select 'Enable/Disable'.

# File Actions

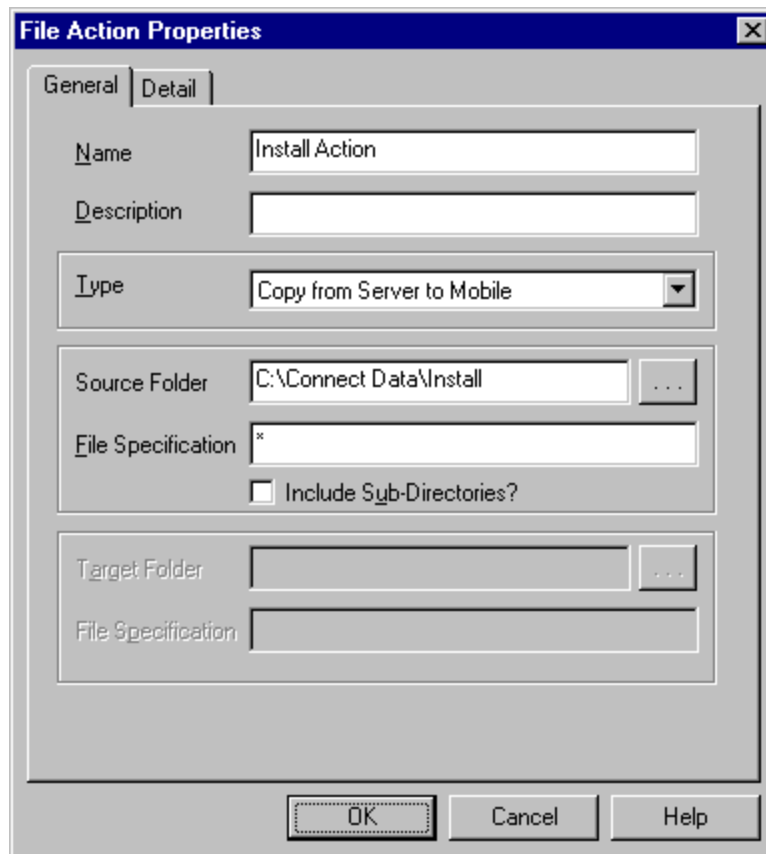
File Actions are used to transfer files between the mobile and a folder which the IBM Mobile Connect service has access to. The transfer can be done in either direction.

## To add a new File Action to an Action Set

On the configuration tree, click on the Action Set which is to contain the new File Action and click the 'New File Action' push button on the toolbar (or select 'New'/'New File Action' from the context menu, or 'Insert'/'File Action' from the main menu). To edit an existing File Action, double click on the File Action in the configuration tree.

The **File Actions Properties** form will appear. The form has two tabs: 'General' and 'Detail'. The 'General' tab is used to define the nature of the file transfer. The 'Detail' tab is used to fine tune the process.

## The 'File Action Properties' form, 'General' tab



The screenshot shows the 'File Action Properties' dialog box with the 'General' tab selected. The 'Name' field contains 'Install Action'. The 'Description' field is empty. The 'Type' dropdown menu is set to 'Copy from Server to Mobile'. The 'Source Folder' field contains 'C:\Connect Data\Install'. The 'File Specification' field contains '\*'. The 'Include Sub-Directories?' checkbox is unchecked. The 'Target Folder' and 'File Specification' fields are empty. The 'OK', 'Cancel', and 'Help' buttons are visible at the bottom.

### Name

This field is mandatory. Enter a unique name for this File Action within its parent

## File Actions

Action Set. This is normally a brief descriptive label, for example: 'Upload Brochures'.

### Description

This field is optional. Enter a more detailed description for the File Action.

### Type

A choice should be selected from the pull-down list. The choice that's selected in the 'Type' field determines which of the remaining fields on this tab are enabled.

### Deleting 'files' on the mobile

Only two options are available in the 'Type' field: 'Copy from Mobile to Server' and 'Copy from Server to Mobile'. The option to 'Delete from Mobile' is not available. This is because an IBM Mobile Connect File Action does not support the deleting of 'files' on the Palm OS mobile. A Database Action should be used to delete PRCs or PDBs from the mobile.

---

## The fields available when 'Type' is set to: 'Copy from Server to Mobile'

### Source Folder

Enter the location of the files that are to be copied. Or use the browse push button.

**Note on browse push button:** For the browse feature to work correctly, the Admin program should be running on the server under the same security context as the IBM Mobile Connect service. Otherwise, just enter the path directly.

### File Specification

Enter the file specification of the files to be copied. Normal MS-DOS wildcard characters can be used.

### Include Subfolders?

Check this box to enable subfolders of the specified folder to be copied as well.

---

## The fields available when 'Type' is set to: 'Copy from Mobile to Server'

### Source Folder/ File Specification

These fields are greyed out for a mobile-to-server transfer. Every database on the Palm OS device (PDB's or PRC's) will be transferred, except for those specified in the 'Exclude these (Database Names on Mobile)' window on the 'Detail' tab.

To exclude databases from the transfer, select the 'Detail' tab, and enter the database's name in the 'Exclude these (Database Names on Mobile)' window by clicking Create.

### Target Folder

Enter the target folder on the server. Or use the browse push button. (see '**Note on browse push button**' above)



## The 'File Action Properties' form, 'Detail' tab

The screenshot shows the 'File Action Properties' dialog box with the 'Detail' tab selected. The 'If target folder does not exist?' dropdown is set to 'Create folder'. The 'When to Copy' dropdown is set to 'Always'. The 'File Types' dropdown is set to 'All'. The 'Exclude these (Database Names on Mobile)' section has a list box with 'Database Name' and buttons for 'Modify', 'Create', and 'Delete'. The 'Allow Deletes?' checkbox is unchecked. The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

The fields on this tab will be enabled or disabled, depending on the 'Type' setting on the 'General' tab.

### If target folder does not exist?

This option is only available when the 'Type' field on the 'General' tab is set to: 'Copy from Mobile to Server'.

This drop-down list box tells IBM Mobile Connect what action to take when it's performing a copy, but the specified target folder does not exist. The following options are available:

- 'Create folder'. This option creates the folder, then continues with the File Action.
- 'Skip this folder'. This option does **not** create the target folder, and therefore does **not** copy any files or further subfolders to this particular folder (if any *were* to be copied). The current File Action will therefore be terminated and the next Action in the current Action Set will be performed. The error is not reported.
- 'Error'. This option does the same as the 'Skip this folder' option, only it reports the error:

When an error (such as the above) occurs, the error is recorded in the IBM Mobile Connect 'Connection Log' (see the section: **The Connection Log and Error Logging**, p.227). Also, on the client, at the end of the synchronization session, the message will be given: 'Session completed with errors'.

## File Actions

An administrator may view the error by using the IBM Mobile Connect Admin program's reporting facility. On the Admin program's 'View' menu, select: 'Reports/ Error Information Reports' (for more information, see the section: **Reports**, p.207).

### Allow Deletes?

This option is only available when the 'Type' field on the 'General' tab is set to: 'Copy from Mobile to Server'.

This check-box specifies whether files can be deleted from the server in order to make the contents of the destination the same as the contents of the source.

### When to Copy

This drop-down list box allows the IBM Mobile Connect service to optimise file transfers by offering the option to only copy files with a later timestamp. There are two options:

- Always.
- When source has later modification date.
- When source has different modification date.

### File Types

This drop-down list box specifies the 'file' types to be included in the copy operation. The following options are available:

- 'All'.
- 'Only Applications'. Only copy PRCs from the Palm OS mobile to the server; or .PRC files from the server to the mobile (depending on the 'Type' setting on the 'General' tab).
- 'Only Data'. Only copy PDBs from the mobile to the server; or .PDB files from the server to the mobile.
- 'Only When Backup Flag set'. (Only valid for Type: 'Copy from Mobile to Server'.) Only copy databases that have their 'backup' flag set. This flag is automatically set by Palm OS whenever a PDB is written to.
- 'Only IBM Mobile Connect Mirror files'. (Only valid for Type: 'Copy from Server to mobile'.) Only copy IBM Mobile Connect Mirror files to the mobile (see the section: **Database Actions: Reducing network traffic—the 'mirror' file**, p.177).

### Exclude these (Database Names on the mobile)

This list box contains the names of any 'databases' on the Palm OS mobile which are not to be included in this File Action. (This option applies in both directions.) The databases will not be overwritten by a database of the same name in a 'server to mobile' copy; and the database will not be included in a 'mobile to server' copy.

For a full description of the differences between the Palm OS 'filing system' and the DOS filing system, and how Palm OS 'databases' differ from files in the Windows or DOS systems, see the section: **Using IBM Mobile Connect with Palm OS mobiles**, p.15.

### To enter a new item into the 'Exclude' list

1. Click Create. The **New Data Item** dialog will appear.
2. Enter the name of the database.

3. Click OK.



# PIM Synchronization

IBM Mobile Connect can automatically set up all the database transfers that are necessary for PIM (personal information manager) synchronization. Simply run PIM Wizard (see below), and IBM Mobile Connect will automatically define a series of Database Actions (see the section: **Database Actions**, p.177). These Database Actions will synchronize the built-in applications on the mobile with server-based groupware, such as Lotus Notes or Microsoft Exchange Server.

The PIM Wizard's functions are also included as part of Site Wizard (see the section: **The Site Wizard**, p.45), so that whenever you run Site Wizard, you'll also be given the option of setting up PIM synchronization. Setting up PIM synchronization from within Site Wizard has exactly the same effect as running PIM Wizard. The difference is that Site Wizard creates an entirely new IBM Mobile Connect configuration file (.acf file), whereas PIM Wizard is used to add new (or extra) PIM synchronizations to an existing IBM Mobile Connect configuration file.

## Using PIM Wizard


PIM Wizard is used when you have an existing IBM Mobile Connect configuration file, with your existing mobile computing system set up on it, which may already contain some Database Actions that perform PIM synchronizations, but you now want to quickly set up some further PIM synchronizations. PIM Wizard automatically defines the new Database Actions that are required to do this.

Note that before running PIM Wizard, you should already have your user authentication method defined (see the section: **User authentication within IBM Mobile Connect**, p.99). You will be using one or both of the following methods:

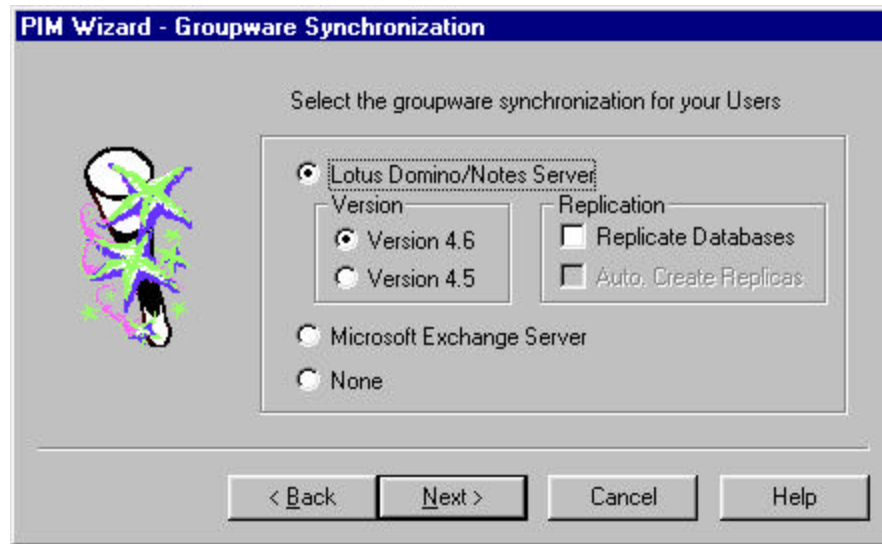
- Internal authentication. You will have a list of users defined within IBM Mobile Connect. In this case, you should examine the **User Properties** form for each user, to ensure that the appropriate groupware details are entered for each user.
- Groupware authentication. The appropriate authentication plugin will be set up for your users. These are listed on the **System Settings** form, 'Authentication' tab.

## PIM Synchronization

### To run PIM Wizard

1. Click on the Action Set that you want to set up the new PIM synchronizations in.
2. Click on the 'PIM Wizard' push button on the toolbar: 
3. Follow the PIM Wizard's on-screen instructions.

### PIM Wizard - Groupware Synchronization



Select one of the following options:

- Lotus Notes/Domino Server
- Microsoft Exchange Server
- None

If the 'Lotus Notes/Domino Server' option is selected, you should then select the appropriate version of Notes, and also specify whether replication should be carried out by IBM Mobile Connect:

#### Replication

##### **Replicate Databases**

If this check-box is checked, automatic replication is enabled. In this case, a copy of the Notes database should exist on the same server that the IBM Mobile Connect service is running on (for more details, please see the section: **User authentication against Lotus Notes**, p.102).

##### **Auto. Create Replicas**

If this checkbox is checked, IBM Mobile Connect will automatically create its local copy of the Notes database when required.

### After running PIM Wizard

**Note:** Once PIM Wizard has created your new PIM synchronizations, you must ensure that the Action Set that contains the synchronizations is activated by a Trigger (for a full understanding of Triggers, see the sections: **Creating 'Actions' and 'Action**

**Sets**', p.143, and: **'Triggers' and how to set them**, p.201).

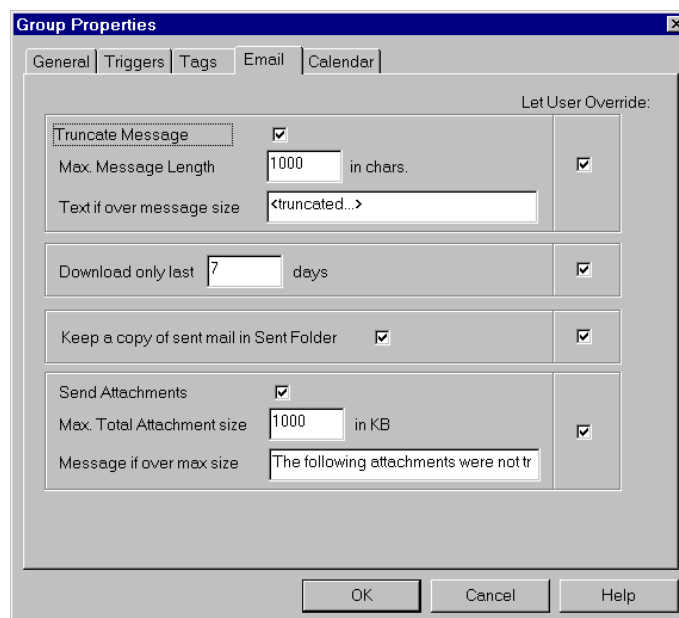
When you first create a Trigger, it activates the same Action Set for all groups of users. But it is possible to modify the Trigger at the group level, so that, for any particular group, the Trigger activates a different Action Set. If you used an existing Trigger and Action Set when you defined your new PIM synchronizations, you should ensure that the Trigger has not been modified at the group level to run an Action Set other than the one that contains your new PIM synchronizations.

# Modifying the PIM 'Email' settings for a particular group of users

To modify the email settings for a particular group, do the following:

- On IBM Mobile Connect Admin's configuration tree, right-click on the required group.
- Select 'Properties' from the context menu that appears. The **Group Properties** form will appear.
- Select the form's 'Email' tab.

## The 'Email' tab



The screenshot shows the 'Group Properties' dialog box with the 'Email' tab selected. The dialog has a title bar with 'Group Properties' and a close button. Below the title bar are tabs for 'General', 'Triggers', 'Tags', 'Email', and 'Calendar'. The 'Email' tab is active. The main area is titled 'Let User Override:' and contains several settings:

- Truncate Message:** A checkbox is checked. Below it, 'Max. Message Length' is set to '1000' in chars. 'Text if over message size' is set to '<truncated...>'. A checkbox to the right is checked.
- Download only last:** A text box contains '7' days. A checkbox to the right is checked.
- Keep a copy of sent mail in Sent Folder:** A checkbox is checked. A checkbox to the right is checked.
- Send Attachments:** A checkbox is checked. Below it, 'Max. Total Attachment size' is set to '1000' in KB. 'Message if over max size' is set to 'The following attachments were not tr'. A checkbox to the right is checked.

At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

This tab allows the system administrator to set various parameters involving the transfer of email in both directions between the mobile and server.

### Let user Override

The tab also allows the administrator to specify whether the end-user of the mobile has the option of overriding the settings, and choosing a value of their own. This option can be activated or deactivated for each field independently (by either ticking or un-ticking the appropriate box).

On the mobile, the end-user can call up the corresponding form by selecting 'E-Mail' from the 'Options' menu when the IBM Mobile Connect client is running.

If the administrator has decided not to allow the end-user the option of overriding any of the email settings, then the corresponding fields will be greyed out on the client's **E-Mail Options** form.

### Truncate Message

This option only applies to transfers in the 'server to mobile' direction. Emails being



sent from the mobile are not affected by this option's settings.

When this check-box is ticked, if an email is longer than the length specified in the *Max. Message Length* field, the email will only be transferred up to the character that corresponds to the 'Max. Message Length'. The remaining text of the email will not be transferred to the mobile. The missing ending of the email text will be replaced with the text specified in the *Text if over message size* field.

**Download only last**

This field specifies the maximum age (in days) of emails to be transferred. Suppose that when an end-user connects, it's been 14 days since they last connected. If this field is set to '7', then only the emails received in the last 7 days will be transferred.

**Keep a copy of sent mail in Sent Folder**

This option only applies to transfers in the 'mobile to server' direction. In order to conserve memory on the mobile, this option can be used to instruct the built-in mail application on the mobile to not keep a copy of sent emails.

If this check-box is ticked, a copy of any sent emails will be kept in the Sent Folder on the mobile.

If this check-box is not ticked, the mobile will not keep a copy of emails that are transferred from the mobile to the server.

**Send Attachments**

This option only applies to transfers in the 'server to mobile' direction. Emails being sent from the mobile are not affected by this option's settings.

If this check-box is ticked, any attachments that an email has, will be transferred to the mobile along with the email. The *Max. Total Attachment size* field specifies the total size of attachments that will be transferred with each email.

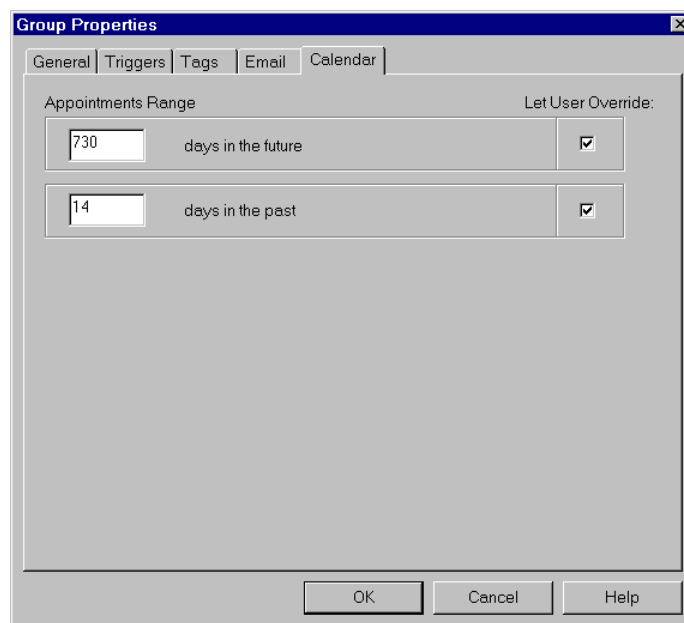
If this check-box is not ticked, and an email has attachments, the email will be transferred to the mobile without its attachments.

## Modifying the PIM 'Calendar' settings for a particular group of users

To modify the 'Calendar' settings for a particular group, do the following:

- On IBM Mobile Connect Admin's configuration tree, right-click on the required group.
- Select 'Properties' from the context menu that appears. The **Group Properties** form will appear.
- Select the form's 'Calendar' tab.

### The 'Calendar' tab



The screenshot shows the 'Group Properties' dialog box with the 'Calendar' tab selected. The dialog has a title bar with a close button. Below the title bar are tabs for 'General', 'Triggers', 'Tags', 'Email', and 'Calendar'. The 'Calendar' tab is active. The main area is titled 'Appointments Range' and contains two rows of settings. The first row is for 'days in the future' with a text box containing '730' and a checked 'Let User Override' checkbox. The second row is for 'days in the past' with a text box containing '14' and a checked 'Let User Override' checkbox. At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

This tab allows the system administrator to set the range of days between which Calendar entries can be made. Only entries in the specified range will be transferred to and from the mobile.

**Note:** On the mobile, if a Calendar entry is made outside the range of days specified on this tab, the entry will be lost. The entry will not be transferred to the server, and will be lost from the mobile when the user connects. When the user makes such a Calendar entry on their mobile, **NO WARNING WILL BE GIVEN TO THEM BY THE IBM MOBILE CONNECT CLIENT.**

#### Let User Override


The tab also allows the administrator to specify whether the end-user of the mobile has the option of overriding the settings, and choosing a value of their own. This option can be activated or deactivated for each field independently (by either ticking or un-ticking the appropriate box).

On the mobile, the end-user can call up the corresponding form by selecting 'Calendar' from the 'Options' menu when the IBM Mobile Connect client is running.

If the administrator has decided not to allow the end-user the option of overriding any of the Calendar settings, then the corresponding fields will be greyed out on the client's **Calendar Options** form.

# Modifying a PIM synchronization after it's been created

A PIM synchronization that's been defined by Site Wizard or PIM Wizard will appear in IBM Mobile Connect Admin's configuration tree alongside the symbol: 


Once this synchronization has been modified by the system administrator, its symbol on the configuration tree will change to the usual Database Action symbol: 

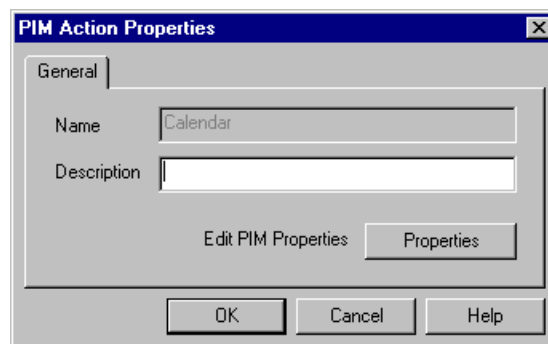
The PIM synchronizations that the Site Wizard and PIM Wizard define have been extensively tested. If you modify any of these synchronizations, they will revert to regular IBM Mobile Connect Database Actions, and you will then be using a 'PIM' Database Action that has not been tested. If you do this, you should extensively test your modified 'PIM' Database Action to ensure that no data will be lost under any circumstances.

**CAUTION:** To avoid the need to perform this extra testing yourself, it's advisable to not modify PIM synchronizations after they've been automatically set up by PIM Wizard or Site Wizard.

## To modify a PIM synchronization

Call up the **PIM Action Properties** form by doing any of the following:

- On the configuration tree, click on the required 'PIM' Database Action, then click the 'Properties' push button on the toolbar: 
- On the configuration tree, click on the required 'PIM' Database Action, then, from the Edit menu, select 'Properties'.
- On the configuration tree, right-click on the required 'PIM' Database Action, then select 'Properties' from the context menu that appears.




Once the **PIM Action Properties** form has appeared, click Properties.

A dialog will appear, cautioning you that if you proceed, this may result in this Action not working. As long as you've fully read the section: **Modifying a PIM synchronization after it's been created**, including the **CAUTION**, and you're still certain that you want to modify the PIM synchronization, then click Yes.

Otherwise, click No. This will cancel the request.

The 'caution' dialog will close, returning you to the **PIM Action Properties** form. If you selected 'Yes', the 'Properties' push button will now be greyed out. To close the **PIM Action Properties** form, click OK.

The **Database Action Properties** form will appear, showing the details of the PIM synchronization. Modify the 'PIM' Database Action as required (see the section: **Database Actions**, p.177). When you've completed your modifications, click OK. This will close the form.

On the configuration tree, you'll notice that the symbol alongside this 'PIM' Database Action has now changed to the usual Database Action symbol: 

This indicates that the synchronization that was automatically defined by either Site Wizard or PIM Wizard has now been modified and that you should carry out whatever tests are necessary to ensure that your modified 'PIM' Database Action works in the way that you intend, and that no data will therefore be lost.



# The Replication Wizard


The IBM Mobile Connect Replication Wizard works in conjunction with certain synchronization plugins. The Wizard is used to quickly set up a Database Action that performs synchronizations between any server-based ODBC data source and an application on the mobile. The mobile application must have an IBM Mobile Connect plugin, and the plugin must support the Replication Wizard.

Currently IBM Mobile Connect is shipped with the following synchronization plugins which support the Replication Wizard:

- DB2e plugin (which synchronizes an IBM DB2 Everywhere database).
- ADO plugin (which synchronizes Microsoft ActiveX Data Objects. This plugin is only available when you're synchronizing **Windows CE** mobiles).

## To start the Replication Wizard

Within the IBM Mobile Connect Admin program, on the 'Connect Configuration' tree, expand the 'Action Sets' item. Either create a new Action Set (by right-clicking on the 'Action Set' item), or click on an existing Action Set. (The Action Set you've chosen will contain the new Database Action that the Replication Wizard is about to set up.) Now do any of the following:

- Click the 'Replication Wizard' push button on the toolbar: 
- Click the Insert menu, then select 'Replication Wizard'.

The Replication Wizard will appear. While running the Replication Wizard, click the 'Next' or 'Back' push buttons to move forwards or backwards through its dialogs.

## Using the Replication Wizard to set up synchronizations with supported mobile apps

The Replication Wizard can only be used to set up synchronizations with mobile applications that have an IBM Mobile Connect synchronization plugin that supports the Replication Wizard.

To set up the necessary Database Action to perform these synchronizations, you should start the Replication Wizard (see the section: **To start the Replication Wizard**, p.167). The following dialogs will appear:

### Replication Wizard

The screenshot shows the 'Replication Wizard' dialog box. It has a title bar with the text 'Replication Wizard' and a close button. The dialog contains several fields and buttons:

- ODBC Data Source:** A dropdown menu with 'Connect Demo Data' selected.
- UserID:** A text box containing '%USER%'.
- Password:** An empty text box.
- Server Table Name:** A dropdown menu with 'dbo\_customer' selected.
- Mobile Table Name:** A text box containing 'dbo\_customer'.
- Mobile System:** A section containing:
  - System Type:** A dropdown menu with 'DB2e Plugin' selected.
  - Download Mobile System Plugin Automatically:** A checked checkbox.
  - Connect Install:** A text box containing 'E:\Program files\Connect' and a browse button ('...').
- Buttons:** At the bottom, there are four buttons: '< Back', 'Next >', 'Cancel', and 'Help'. The 'Next >' button is highlighted with a dashed border.

#### ODBC Data Source

The name for the ODBC data source. This may be selected from the drop-down list or typed in directly. Entries are added to the drop-down list by clicking the **ODBC Data Sources** icon in **Control Panel** (or programmatically).

#### User ID

Enter the username to be used to access the ODBC data source. This could be either a single 'generic' username which all users use to access the ODBC data source, or you could use an IBM Mobile Connect tag to form part of, or the entire, username. For instance, using the system-defined tag '%USER%' would enter each user's IBM Mobile Connect login name as the database username. Or you could define a tag at the system level, and modify it within each group, so that the users of each group would be using a different username to log on to the database. For more information, please see the section: **What are 'tags'?**, p.147.



**Password**

Enter the password to be used to access the ODBC data source.

**Note**: the Replication Wizard does not support the use of IBM Mobile Connect tags for the password field. If you'd like to use tags for the Password field, you would need to complete the Replication Wizard, and then manually edit the Database Action that the Replication Wizard has created. The corresponding Password field can be found on the 'General' tab of the **Database Action Properties** form.

**Server Table Name**

Enter the name of the table (or view) that you want to synchronize the mobile table with, or select a table name from the drop-down list. The drop-down list is loaded with the names of the tables that are available in the data source that's listed in the **ODBC Data Source** field above.

**Mobile Table Name**

Enter the name of the table (or database) on the mobile that you want to synchronize with the server data source. When you first select the field, the Replication Wizard will automatically enter the value that you entered in the 'Server Table Name' field above. This is merely entered as a suggestion, and it may be edited, or changed to any value you choose.

---

**The 'Mobile System' section:****System Type**

This field should contain the name of the IBM Mobile Connect plugin for the mobile database application that you want to synchronize with. The value should be selected from the drop-down list. Only plugins that support the Replication Wizard can be entered here. The drop-down list will contain all the current plugins that support the Replication Wizard.

**Download Mobile System Plugin Automatically**

This checkbox is checked by default. If the box is checked, when a synchronization takes place, if the appropriate IBM Mobile Connect client plugin is not installed on the mobile device, the plugin will be automatically downloaded to the device.

**Connect Install**

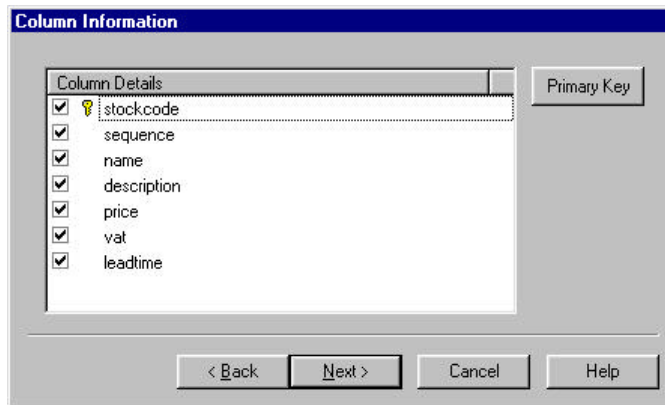
This field should contain the path to the installation of IBM Mobile Connect on the Windows server.

When all the fields are complete, click Next. The following dialog will be displayed:

### Column Information

The 'Column Details' window contains a list of all the columns that are available in the server table that was entered in the 'Server Table Name' field on the previous dialog.

Each field has a check-box beside it. All checked fields will be included in the synchronization. Uncheck any field to exclude it from the synchronization.



#### Primary Key

One column must be selected as a primary key. If IBM Mobile Connect can determine which column(s) in the server table acts as the primary key(s), then this will be indicated in the list by having a key symbol (🔑) placed beside the entry. If IBM Mobile Connect cannot determine this, then a warning will be given:

WARNING: Cannot find primary key(s) from table description

This will be the case where the server database driver does not support the ODBC feature that enables the primary key(s) to be determined from the table description. In these instances, the 'primary key' selection must be made manually on the **Column Information** form. To do this, click on the appropriate column's entry within the list and click Primary Key.

**Note:** Within IBM Mobile Connect, the term 'primary key' doesn't have the conventional meaning that it has in relational databases. For more information, please see the section: **Primary keys within IBM Mobile Connect**, p.178.

Click Next. The following dialog will be displayed:

## Server Details

The screenshot shows a dialog box titled "Server Details". It is divided into two main sections. The first section, "Subset Server Rows", contains two dropdown menus separated by an equals sign. The first dropdown menu is set to "name" and the second is set to "%User%". The second section, "Sync Type", contains three radio buttons: "2-Way Synchronization" (which is selected), "Synchronize to Mobile", and "Synchronize to Server". At the bottom of the dialog, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

### Subset Server Rows

Use these two fields to set up filters. 'Filters' are a mechanism that the system administrator can use to restrict the amount of data that is part of the synchronization process. For example, if a company wanted their west coast sales team to carry contacts and copy quotations only for customers on the west coast rather than carrying the whole contacts and quotations databases, they would define a filter 'area = WESTCOAST'.

**Note:** On the current dialog, the filtering is done on the server data source, and only a single column can be used to filter the source data. If you would like to filter the mobile data source (for transfers in the direction: mobile to the server), or if you would like to use more than one column to filter the source data, you would need to complete the Replication Wizard, and then manually edit the Database Action that the Replication Wizard has created. Filters are created or edited on the 'Filter' tab of the **Database Action Properties** form.

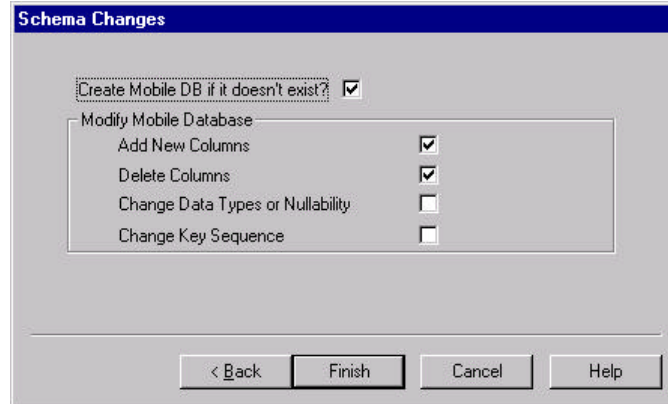
### Sync Type

Select the appropriate 'type' for the synchronization. The 'type' indicates the direction of the data transfer. The following choices are available:

- 2-Way Synchronization.
- Synchronize to Mobile (transfer data in the direction: from server to mobile).
- Synchronize to Server (transfer data in the direction: from mobile to server).

Click Next. The following dialog will be displayed:

## Schema Changes



### **Create Mobile DB if it doesn't exist?**

If the mobile database does not exist, and this option is *not* checked, IBM Mobile Connect will terminate the current Database Action, and then continue with any further Actions in the current Action Set. If this option *is* checked, IBM Mobile Connect will create the database on the mobile and then continue with the synchronization.

---

### **The 'Modify Mobile Database' section:**

When IBM Mobile Connect is either creating or modifying a database on the mobile, the following options are available:

#### **Add New Columns**

When this box is checked, IBM Mobile Connect is permitted to add new columns to the mobile database. When the Database Action (which this Wizard will set up) performs its synchronization, any columns that are required for the synchronization but do not currently exist in the mobile database, will be added to the mobile database.

#### **Delete Columns**

When this box is checked, IBM Mobile Connect is permitted to delete existing columns from the mobile database when necessary. When the Database Action (which this Wizard will set up) performs its synchronization, any columns that are *not* required for the synchronization but do currently exist in the mobile database, will be deleted from the mobile database.

#### **Change Data Types or Nullability**

This field is only available when the DB2e plugin is being used.

When this box is checked, IBM Mobile Connect is permitted to change the following properties of an existing mobile database: any columns within the database may have their 'DataType' and/or their 'Nullable' fields changed. These fields will be changed to the values specified on the **Database Action Properties** form, 'DB2 Info' tab.

#### **Change Key Sequence**

This field is only available when the DB2e plugin is being used.

When this box is checked, IBM Mobile Connect is permitted to change the key sequence for an existing mobile database. The key sequence will be changed to the order specified on the **Database Action Properties** form, 'DB2 Info' tab.

---

### Finish

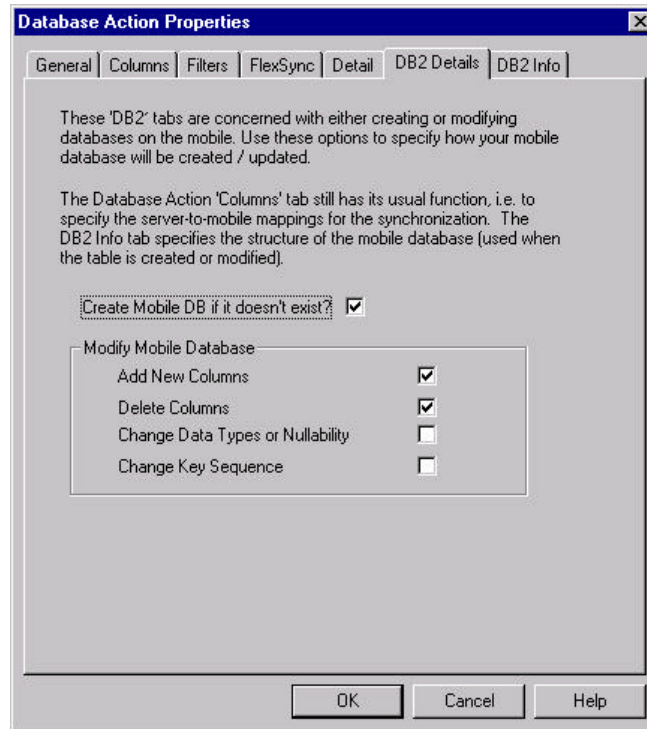
When the above selections are set as you require, click Finish. Replication Wizard will create a Database Action that performs the required synchronizations. The Database Action will be placed within the Action Set that you selected before starting the Replication Wizard. To examine or edit the created Database Action, either double click on it, or right-click on it and select 'Properties'. The **Database Action Properties** form will appear.

The DB2e and ADO plugins provide a user interface for the system administrator. This interface is provided in the form of two extra tabs that appear on the **Database Action Properties** form. These are described below:

### The 'Database Action Properties' form, 'DB2 Details' tab

When using the DB2e plugin within a Database Action, the plugin provides two extra tabs that appear on the Database Action Properties form.

The 'DB2' tabs are only concerned with either creating or modifying databases on the mobile (they're used in place of the 'create database' option that's usually available on the form's 'Detail' tab). The form's 'Columns' tab still has its usual function of specifying the server-to-mobile mappings for the synchronization.



#### **Create Mobile DB if it doesn't exist?**

If the mobile database does not exist, and this option is *not* checked, IBM Mobile Connect will terminate the current Database Action, and then continue with any further Actions in the current Action Set. If this option *is* checked, IBM Mobile Connect will create the database on the mobile and then continue with the synchronization.

---

#### **The 'Modify Mobile Database' section:**

When IBM Mobile Connect is either creating or modifying a database on the mobile, the following options are available:

##### **Add New Columns**

When this box is checked, IBM Mobile Connect is permitted to add new columns to the mobile database. When the Database Action performs its synchronization, any columns that are required for the synchronization but do not currently exist in the mobile database, will be added to the mobile database.

**Delete Columns**

When this box is checked, IBM Mobile Connect is permitted to delete existing columns from the mobile database when necessary. When the Database Action performs its synchronization, any columns that are *not* required for the synchronization but do currently exist in the mobile database, will be deleted from the mobile database.

**Change Data Types or Nullability**

When this box is checked, IBM Mobile Connect is permitted to change the following properties of an existing mobile database: any columns within the database may have their 'DataType' and/or their 'Nullable' fields changed. These fields will be changed to the values specified on the 'DB2 Info' tab.

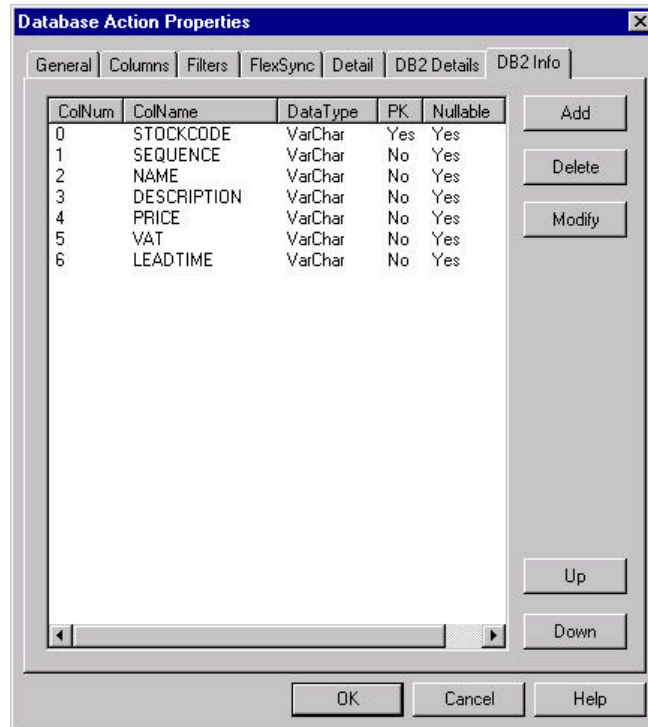
**Change Key Sequence**

When this box is checked, IBM Mobile Connect is permitted to change the key sequence for an existing mobile database. The key sequence will be changed to the order specified on the 'DB2 Info' tab.

### The 'Database Action Properties' form, 'DB2 Info' tab

When a database is going to be either created or restructured on the mobile device, this tab's window shows the structure that will be used for the database. The order of the columns in the list indicates the priority of the columns when they are used in a key sequence.

**Note:** the options on this tab will only be available when the following check-box is checked on the 'DB2 Details' tab: 'Create Mobile DB if it doesn't exist?'



#### **Add**

To add a column to the end of the list, click Add. The **Column Details** dialog will appear. Enter the details and click OK.

#### **Delete**

To delete the currently selected column from the list, click Delete.

#### **Modify**

To edit the currently selected column, click Modify. The **Column Details** dialog will appear. Edit the details and click OK.

#### **Up/ Down**

To change the priority of the currently selected column in the list, click Up or Down.



# Database Actions

## IBM Mobile Connect's handling of synchronization

### Automatic database synchronization

'Automatic database synchronization' is a process whereby IBM Mobile Connect performs a 'difference' between the mobile database and the server database and works out the changes that need to be made to the target to make it identical to the source.

The IBM Mobile Connect service will insert, update and delete information as required in the target database (the system administrator can define which changes are allowed in the databases). The automatic database synchronization guarantees that the data on the mobile database is identical with the corresponding items of data within the server database.

### Reducing network traffic—the 'mirror' file

IBM Mobile Connect uses a 'mirror' file to keep track of the state of the database on the mobile. A mirror file is maintained on the server for each remote user of the system. Each mirror file is, in effect, a copy of that user's database on the mobile.

Also, other techniques are used to determine which items in the mobile's database have changed since that user last connected.

When the user next connects to IBM Mobile Connect, IBM Mobile Connect uses a combination of that user's mirror file, these other techniques, and also the original data sources on the corporate network, to do a two-way synchronization of the data with the minimum of network traffic.

The system administrator can define the mapping between the columns on the server database and the mobile database and also restrict the total amount of data to be synchronized using programmable filters. This also reduces network traffic.

In addition to the database synchronization facilities, IBM Mobile Connect allows the administrator to truncate and delete databases on the mobile computer.

## Setting up a new Database Action

Generally, the system administrator will go through the following steps when setting up a new Database Action:

1. Choose the direction of the synchronization (mobile to server, vice versa, or two-way).
2. Set up the data source on the server and the mobile.
3. Define the changes that are allowed on the ‘target’ database/s (inserts, updates, deletes).
4. Provide a mapping between the columns on the server and mobile databases and define the primary key.
5. Define any filters that will be used to restrict the amount of data to be processed at either end.
6. Indicate the action to be performed if the mobile database doesn’t exist.

### Primary keys within IBM Mobile Connect

The relational model defines a primary key as a column (or set of columns) which will uniquely identify a row in a table.

Within IBM Mobile Connect, the phrase ‘primary key’ refers to a set of columns which uniquely define a row in a dataset available to IBM Mobile Connect—*not necessarily to a relational database*.

**Columns defined as primary keys within the context of IBM Mobile Connect do not have to be declared as primary keys within a relational database.** The values *must* be unique within the context of IBM Mobile Connect only. Usually, however, the two will be the same.

When using an IBM Mobile Connect primary key which relates to part of a relational database primary key, ‘target’ filters may be used to complete the primary key. For example, consider a salesperson generating orders on the mobile device. The primary key on the mobile might be a serial number (1; 2; 3; ...) relating to the order number. However on the server, the primary key is the column *salesperson’s\_initials* and the *serial\_number* (SP,1; SP, 2; SP, 3; ... [where *salesperson’s\_initials* = ‘SP’]). By setting a filter on the columns *salesperson\_initials*, both the primary keys on the server and mobile are maintained.

### Null fields in database transfers

Many databases allow NULL values to be specified for a field. Such NULL values indicate that no data has been attached to the field in question, and this situation should not be confused with null or empty strings.

If a database that IBM Mobile Connect synchronizes with, does not allow NULL values then an error would occur in certain cases. These are listed below:

1. When a column in the server-side database has not been paired up with an equivalent column in the mobile-side database:  
The pairing-up of columns would normally be done either directly (using the

'Columns' tab of the **Database Action Properties** form in the IBM Mobile Connect Admin program) or indirectly as a filter (using the 'Filters' tab of the **Database Action Properties** form). But if this pairing-up of a column isn't done, then IBM Mobile Connect would assign a NULL value to the missing field (the field with the NULL value is, in effect, an imaginary field. The field does not exist, and therefore cannot be accessed). And since the database that has the NULL value assigned to it, doesn't allow NULL values, then when an attempt is next made to update that database, an error of some sort will occur.

2. A column in a server-side database is paired with a column in a mobile-side database, but this column is not present on the mobile side:

This could be the case, for instance, in a **Windows CE** standard database where mobile columns ("properties") can be allocated (or not) to individual records. An application could create one record with properties 1, 2 and 3 and another record with properties 2, 3 and 4. In such a case, property 1 would simply not exist for the second record (nor property 4 for the first).

This could also be the case with a **Palm OS** database (or custom CE database) where an IBM Mobile Connect plugin could be written so as not to return a value for a particular column (how this would occur would depend on the application which created the database and how it stored such NULL values).


In both these cases, IBM Mobile Connect would assign these absent properties as NULLs on the server side.

## ODBC Connection options

ODBC drivers exist for many types of database and vary to some extent in how they implement the standard. Connection to ODBC data sources in IBM Mobile Connect is managed automatically by IBM Mobile Connect. IBM Mobile Connect interrogates the data source and determines the best way to access it. If you wish to override this default behaviour then use the 'Details' tab on the **Database Action Properties** form (see the section: **To add a new Database Action to an Action Set**, p.180).

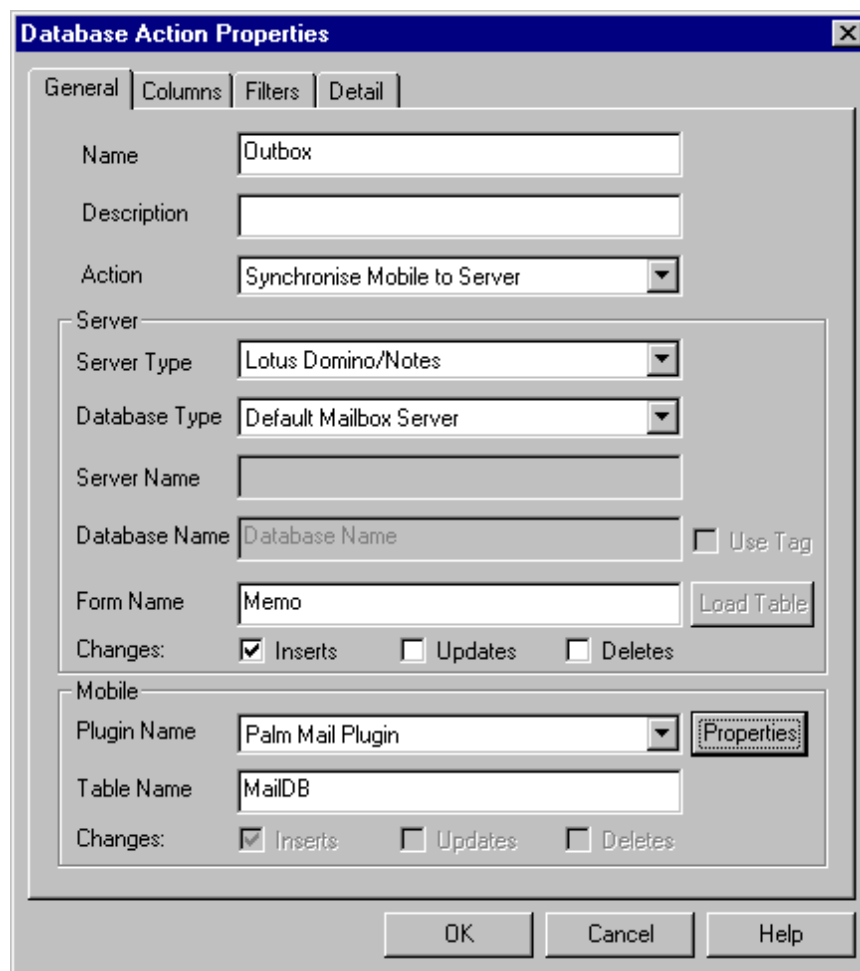
## To add a new Database Action to an Action Set

Call up the **Database Action Properties** form by doing the following. On the configuration tree, select the **Action Set** that's to contain the new **Database Action**. Then do any of the following:

- Click the 'New Database Action' push button on the toolbar: 
- From the 'Insert' menu, select 'Database Action'.
- Right-click on the Action Set and select 'New' / 'New Database Action' from the context menu that appears.

To edit an existing Database Action, double click on the item in the configuration tree.

## The 'Database Action Properties' form, 'General' tab



The screenshot shows the 'Database Action Properties' dialog box with the 'General' tab selected. The dialog has a title bar with a close button. Below the title bar are four tabs: 'General', 'Columns', 'Filters', and 'Detail'. The 'General' tab contains the following fields and controls:

- Name:** Text box containing 'Outbox'.
- Description:** Empty text box.
- Action:** Dropdown menu showing 'Synchronise Mobile to Server'.
- Server:** A group box containing:
  - Server Type:** Dropdown menu showing 'Lotus Domino/Notes'.
  - Database Type:** Dropdown menu showing 'Default Mailbox Server'.
  - Server Name:** Empty text box.
  - Database Name:** Text box containing 'Database Name' with a 'Use Tag' checkbox to its right.
  - Form Name:** Text box containing 'Memo' with a 'Load Table' button to its right.
- Changes:** Checkboxes for 'Inserts' (checked), 'Updates', and 'Deletes'.
- Mobile:** A group box containing:
  - Plugin Name:** Dropdown menu showing 'Palm Mail Plugin' with a 'Properties' button to its right.
  - Table Name:** Text box containing 'MailDB'.
  - Changes:** Checkboxes for 'Inserts' (checked), 'Updates', and 'Deletes'.

At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

### Name

A name for this particular Database Action. The name should be unique within the parent Action Set. This is normally a brief descriptive label, for example: 'Download Quotes'. (This field is mandatory.)

### Description

A more detailed description for this Database Action. (This field is

optional.)

### Action

This field determines either the direction of data-transfer between the mobile and server databases, or the action to be performed on the mobile database. There are five options: 'Synchronize Server to Mobile', 'Synchronize Mobile to Server', 'Two-way Synchronize', 'Truncate Database on Mobile', or 'Delete Database on Mobile'.

## The 'Server' section of the form

### Changes

These check-boxes are available when the server database is a target database. The check-boxes specify the changes that are allowed on the server database. Typically, this facility is used to prevent deletes or updates being applied to a 'production' database from a mobile, ensuring data integrity. The options are:

#### Insert

If this option is checked, information can be inserted into the target database. Otherwise all inserts are ignored.

#### Update

If this option is checked, information can be updated on the target database. Otherwise all updates are ignored.

#### Delete

If this option is checked, information can be deleted from the target database. Otherwise all deletes are ignored.

The other fields within the Server section of the form, vary depending on the setting in the **Server Type** field. This field has these possible settings: 'Relational Database (ODBC)', 'Microsoft Exchange Server' or 'Lotus Domino/Notes'.

---

## The fields available when the **Server Type** field is set to 'Relational Database (ODBC)'

### Data Source

The name for the ODBC data source. This may be selected from the drop-down list or typed in directly. Entries are added to the drop-down list by clicking the **ODBC Data Sources** icon in **Control Panel** (or programmatically).

### User Name

Enter the username to be used to access the ODBC data source. This could be either a single 'generic' username which all users use to access the ODBC data source, or you could use an IBM Mobile Connect tag to form part of, or the entire, username. For instance, using the system-defined tag '%USER%' would enter each user's IBM Mobile Connect login name as the database username. Or you could define a tag at the system level, and modify it within each group, so that the users of each group would be using a different username to log on to the database. For more information, please see the section: **What are 'tags?'**, p.147.

### Password

Enter the password to be used to access the ODBC data source. Either type this

## Database Actions

directly, or use a tag (see above).

### Use Tag

If a tag is being used to hold password details then this box should be checked. The contents of the **Password** field will then be treated as a tag instead of the literal text.

### Table Name

Enter the name of the table (or view) that you want to synchronize the mobile table with, or select a table name from the drop-down list (see the following entry).

### Load Table

To load the **Table Name** drop-down list with the names of the tables that are available in the data source that's listed in the **Data Source** field above, click Load Table.

---

## The fields available when the **Server Type** field is set to 'Lotus Domino/Notes'

### Database Type

Select the database type from the drop-down list. The available options are:

- Default Mailbox Server
- Default Address Server
- Notes Database

## What are the Default Mailbox and Default Address Servers?

If 'Lotus Notes' authentication is being used, the 'Default ... Server' options refer to the server that's identified on the **Notes Authentication Settings** form (please see the section: **User lists and IBM Mobile Connect**, p 90).

If 'internal' authentication is being used, the 'Default ... Server' options refer to the corresponding entries on the 'Lotus Notes Detail' tab of the **User Properties** form (please see the section: **User lists and IBM Mobile Connect**, p 90).

### Server Name

This field is only available when the 'Database Type' field is set to 'Notes Database.'

Enter the name of the Notes server that contains the database that you want to synchronize.

### Database Name

This field is only available when the 'Database Type' field is set to 'Notes Database.'

Enter the name of the Notes database that you want to synchronize. The name should be given relative to that particular Notes server's data directory. If the database is not in the data directory, you should enter the full path to the database, relative to the data directory.

### Form Name

Enter the name of the Lotus Notes form that is to be synchronized with.

**Note:** For IBM Mobile Connect to be able to synchronize with Lotus Notes, it is

essential that at least the Lotus Notes client is installed on the same Windows server that the IBM Mobile Connect service is installed on. If this is not done, the synchronization will not work. (See the section: **Using IBM Mobile Connect with Lotus Notes**, p.33)

---

## The fields available when the **Server Type** field is set to 'Microsoft Exchange Server'

### Server Name

Select the name of the Exchange Server from the drop-down list.

- If 'Exchange' authentication is being used, the 'Default Server Name' selection refers to the server that's identified on the **Exchange Server Authentication** form (please see the section: **User lists and IBM Mobile Connect**, p 90).
- If 'internal' authentication is being used, the 'Default Server Name' selection refers to the corresponding entry on the 'Exchange Detail' tab of the **User Properties** form (please see the section: **User lists and IBM Mobile Connect**, p 90).

### Folder Name

Enter the name of the Exchange folder to be synchronized with, or select an Exchange folder from the dropdown list.

The dropdown list provides the five standard Exchange folders (Calendar, Contacts, Tasks, Inbox, Outbox). The other entries in the list are provided to indicate the syntax:

- '\ ' indicates a folder relative to the root of the default message store (that is: Personal Mailbox)
- '\\ ' indicates the name of a message store (typically 'Public folders')
- ':' indicates the message class (that is: IPM.note, IPM.task, or some custom value)

---

## The 'Mobile' section of the form

### Plugin Name

You must have a plugin for any application on the Palm OS mobile that you want IBM Mobile Connect to be able to synchronize with. plugins are the IBM Mobile Connect equivalent of 3Com Palm's 'conduits'.

The plugins are available from IBM; third-party vendors; or they can be written in-house using the IBM Mobile Connect Software Developers Kit (due for release shortly).

Once a plugin has been installed in IBM Mobile Connect, it will be available from the **Plugin Name** drop-down list box.

IBM Mobile Connect is supplied with plugins for the built-in applications on the mobile which enable the applications to be synchronized with any server-based data source that's supported by IBM Mobile Connect (to quickly set up these synchronizations, please see the section: **PIM Synchronization**, p.157).

IBM Mobile Connect is also supplied with the following plugin:

- Satellite Forms Plugin (for details on the different versions of Satellite Forms and

## Database Actions

their corresponding IBM Mobile Connect plugins, see the section: **Appendix B: Satellite Forms and IBM Mobile Connect**, p.265)

- Palm Generic Plugin (for details on how to use this generic plugin, see the section: **Appendix A: Using the Palm Generic String Plugin**, p.261)
- DB2e plugin, which synchronizes an IBM DB2 Everywhere database (for details on how to quickly set up DB2e synchronizations, see the section: **The Replication Wizard**, p.167)

## Properties

Some plugins have a user-interface element to enable the system administrator to adjust certain settings for that plugin. If the currently selected plugin has an 'admin' user interface, the Properties push button will be active. Click the push button to call up the user interface.

Some plugins provide their 'admin' user interface in the form of an extra tab or tabs that appear on the **Database Action Properties** form (for example, the DB2e plugin uses this method.)

## Table Name

Enter the name of the database on the mobile that you want to synchronize with the server data source. The plugin that's selected in the 'Plugin Name' field may automatically enter a value in the 'Table Name' field. This is merely entered as a suggestion, and it may be edited, or changed to any value you choose.

## Changes

These check-boxes are only available when the mobile database is a target database. They indicate the changes that are allowed on the mobile database.

### Insert

If this option is checked, information can be inserted into the target database. Otherwise all inserts are ignored.

### Update

If this option is checked, information can be updated on the target database. Otherwise all updates are ignored.

### Delete

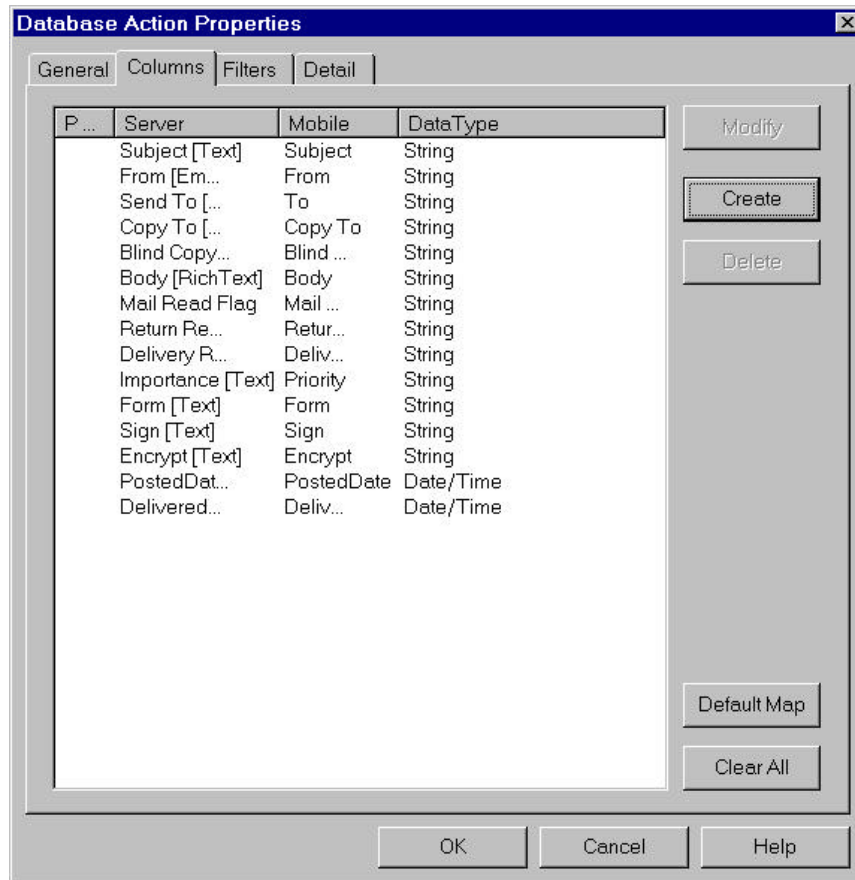
If this option is checked, information can be deleted from the target database. Otherwise all deletes are ignored.

## Tip

**Tag substitution** can be used for any field in the system. In particular, it could be used to keep multiple copies of a database on one machine (space permitting) to help speed up the transfer of ownership between users where users require different databases (see the section: **What are 'tags'?**, p.147).



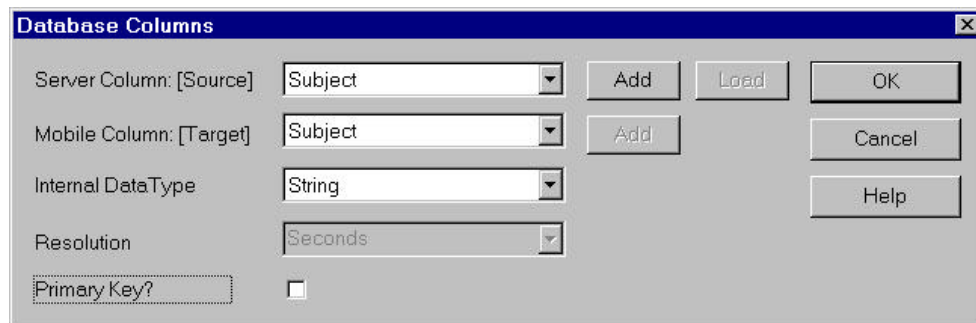
## The 'Database Action Properties' form, 'Columns' tab



The 'Columns' tab is used to define how the columns on the server database map to the columns on the mobile database.

### To create a new column-mapping

To add a new entry to the list of database column-mappings, click Create. The **Database Columns** dialog box will be displayed.



#### Server Column

From the drop-down list, choose the name of the column (or field) in the server database table (or view). This may be left blank if the mobile column will not be transferred but will only be used for filtering.

## Database Actions

**Note:** On the **Database Columns** form, at least the ‘Server Column’ or the ‘Mobile Column’ field must be entered. It is valid to only enter one of the two columns when defining columns to be used in filters.

### Add

To add new choices to the ‘Server Column’ drop-down list, click Add. The **Add Server Column Properties** form will appear.

---

### The ‘Add Server Column Properties’ form:

When the **Server Type** field on the ‘General’ tab is set to: ‘Relational Database (ODBC)’:

#### Column Name

Enter the name of the column in the server database.

#### Server Type

This field is not available when specifying columns of an ODBC server database, as IBM Mobile Connect does not require this information in order to synchronize ODBC data.

---

When the **Server Type** field on the ‘General’ tab is set to: ‘Microsoft Exchange Server’:

#### Column Name & Server Type

For people who are making their own Microsoft Exchange Server ‘Public Folder’ applications, IBM Mobile Connect is able to synchronize with your custom-created properties. In Exchange Server, a ‘property’ is represented by a 32 bit number. The first 16 bits are the ‘property number’ and the last 16 bits are the ‘property type’. To enter the name of your custom-created property, use one of the following methods:

1. Select one of the standard properties from the dropdown list (that is: PR\_BODY).
2. Type the entire 32 bit number into the field (enter the value in decimal or hexadecimal, using the standard notation for hexadecimal). After you’ve entered the number, the ‘Server Type’ field will be automatically completed with the appropriate data type.
3. Type the property number (the first 16 bits of the field), and select the ‘type’ from the **Server Type** drop-down combo box.

---

When the **Server Type** field on the ‘General’ tab is set to: ‘Lotus Domino/Notes’:

#### Column Name

Enter the name of the field that’s to be synchronized. This should be a field in the Notes form that was entered in the ‘Form Name’ field on the ‘General’ tab.

#### Server Type

From the drop-down list box, select the data type for the above column in the Notes database.

---

**Mobile Column**

From the drop-down list, choose the name of the column in the mobile database. The names that are available in this list will be determined by whichever plugin is being used by this particular Database Action. The entry may be left blank if the server column will not be transferred but will only be used for filtering.

**Add**

This push button is **not** available when the Database Action is using a plugin that supplies its own list of all the columns that are available on the associated mobile application. This is the situation with some of the plugins that synchronize with the built-in mobile applications. When such a plugin is supplied with all the columns of its associated application already mapped, then the 'Add' push button would not be available (see the **Plugin Name** field on the 'General' tab).

To add new choices to the 'Mobile Column' drop-down list, click Add. The **Add Mobile Column Properties** form will appear.

---

**The 'Add Server Mobile Properties' form:****Column Name**

Enter the name of the column in the mobile database.

**Mobile Type**

From the drop-down list, select the data type for the above column.

---

**Internal Data Type**

This field specifies the data type to be used in the inner workings of IBM Mobile Connect.

Ordinarily, the data type is suggested by the plugin. But this field enables the Admin program to set the data type to some other value. Sometimes problems can arise when converting certain data types into other types (that is: decimal to string, and so on), and the ability to specify the data type to be used within IBM Mobile Connect, is provided to overcome this occasional problem.

There are five possible values: 'String', 'Date/Time', 'Long Integer', 'Short Integer', or 'Binary'.

The IBM Mobile Connect service will automatically convert between the data type of the ODBC (or other) data source and the mobile's data type. However, please ensure that the conversions would make sense.

**Primary Key**

The primary key checkbox indicates whether the columns form part of the primary key. For more information on primary keys, please see the section '**Primary keys within IBM Mobile Connect**', p.178.

When the contents of each field contain the desired setting, click OK. This will close the dialog box and create the new column.

## Database Actions

### To modify an existing database column

1. From the 'Database Action Properties' form, select the 'Columns' tab.
2. On the list of database columns, either double click on the column to be modified, or click on the column and click Modify.
3. The **Database Columns** dialog box will appear. Edit the details, and click OK.

### To delete a database column

1. From the 'Database Action Properties' form, select the 'Columns' tab.
2. On the list of database columns, click on the column to be deleted.
3. Either click the tab's 'Delete' push button, or press the keyboard's Delete key.

## The 'Database Action Properties' form, 'Filters' tab



Filters can be used to target the exact information that's synchronized with each mobile. This reduces the amount of data that's transferred to and from the mobile, and also reduces the amount of data that needs to be stored on the mobile.

## The two types of filters

### Standard filters

As well as determining the data that is retrieved from the device or server, filters are also used when creating new records.

A filter defines the subset of the server database that IBM Mobile Connect is syncing with. Therefore when a new record is created on the mobile, it must fall into this subset and hence must have the correct values for the filter fields.

For example, suppose a server contains a database of customers. One of the fields in the database is: 'SalesPerson'. The value in this field would indicate which salesperson that particular customer is a client of. The value might be the salesperson's username. The following filter has been set up on the 'Filters' tab:

SalesPerson = %USER%

When a salesperson connects, they enter their username on the IBM Mobile Connect

## Database Actions

client. Because the above filter has been set up, only customers that are clients of that particular salesperson will be synchronized with that salesperson's mobile. (On the mobile, there is no need to store the SalesPerson field, since the 'salesperson' is determined to be whoever the 'owner' of the device is.) Suppose that a new Customer is created on a mobile device. For the new record to be synchronized with the server, it must follow the sync rules and be part of the server subset. In particular, it must have SalesPerson = %USER%. But the SalesPerson field is not present in the mobile database. In this situation, since a filter has been set on the 'Filters' tab of: SalesPerson = %USER%, IBM Mobile Connect would create the new record in the server database, setting the SalesPerson field to the value contained in %USER%.

### Custom filters

Custom filters allow you to create your own query of the server database (see below). The text entered is passed to the server 'as is', and any standard server filters are ignored. Therefore, in terms of querying the server, the custom filter overrides the standard filters. Usually this would mean that any standard filters that you have defined need to be incorporated into your custom filter.

However, you may wish to use both custom filters and standard filters due to the extra functionality mentioned above (under the heading: **Standard filters**). When a new record is created on the mobile device, no information from the custom filter will be used to create the new server entry. But any standard filters are still processed for such new rows, and so field values will be created using them.

Hence, when you have both custom and standard filters defined in the same Database Action, the following rules apply:

- Custom filters alone are used when querying the server database.
- Standard filters alone are used when adding new records to that database.

---

## To define a database filter

1. Select the 'Filters' tab of the **Database Action Properties** form.
2. Click Create. The **Database Filter** dialog box will appear. The dialog box has the following fields:

### Filter On

This drop-down list-box has two available options: 'Mobile' or 'Server'.

### Column

The 'Column' field's drop-down list-box will only display columns that have been 'declared' in the Columns tab of the **Database Action Properties** form.

From the drop-down list, select the column that is to be filtered.

### Condition

From the drop-down list, select the condition for the filter. If the '=' condition is selected, enter the comparison value in the edit box.

**Tip:** If the filter's comparison value is not constant, you can use a tag.

When the three fields contain the desired settings, click OK. This will close the dialog box and create the filter.

## Defining custom filters

When you're synchronizing with an ODBC, or a Lotus Notes, database, you have the option of defining a custom filter. The filter would be written as either a SQL 'WHERE' clause (for ODBC syncs), or written using a LotusScript 'SELECT' statement (for Lotus Notes syncs).

## To define a custom database filter

1. Select the 'Filters' tab of the **Database Action Properties** form.
2. Check the 'Custom' checkbox.
3. Write your custom script in the edit box.

## Writing a custom filter for an ODBC database

The statement should begin with a space. Then write your filter as you would immediately after the SQL 'WHERE' statement.

**Tip:** It might be easier to maintain this if you use a tag. You set the default values for tags by using the **System Settings** form.

### Example:

Suppose you had a CONTACTS table which had COMPANY\_ID as a field. You only want CONTACT records which contain companies which are for your SALES\_EXEC\_ID. You could use a tag called SALES\_EXEC\_ID which is set up at the start of the connection to hold the ID for the connected user. These tag values could have been gathered from the mobile at the start of the connection, so that the query is dynamic.

In the edit box, you'd type:

```
COMPANY_ID IN (SELECT COMPANY_ID FROM COMPANY WHERE
SALES_EXEC_ID=%SALES_EXEC%)
```

(Note that there is a space at the start of this.)

You could simplify this to:

```
%FILTER%%SALES_EXEC%)
```

```
with %FILTER% = COMPANY_ID IN (SELECT COMPANY_ID FROM
CID_COMPANY WHERE SALES_EXEC_ID=
```

Essentially, IBM Mobile Connect itself will generate "SELECT A, B, C FROM X WHERE" and you can't hook into this, but what follows is programmable.

## Writing a custom filter for a Lotus Notes database

In the edit box, you should write a LotusScript 'SELECT' statement.

### Example:

Suppose you had a list of customers and orders in your Lotus Notes database, and you maintained the customer list through a form called 'Customers'. To sync just the customers, rather than the customers and orders, you would define a custom filter like:

## Database Actions

```
SELECT Form = 'Customers'
```

You need to use single quotes, or you will get a VBScript syntax error. It would be advisable to create a view in Notes and then test your SELECT statement using 'View Selection' in the 'View' design mode. Once you're happy with this, then transfer the string to the custom filter edit box in the **Database Action Properties** form within your IBM Mobile Connect configuration file.



## The 'Database Action Properties' form, 'Detail' tab

**ODBC Connection Options**

IBM Mobile Connect communicates with databases using ODBC. Within the ODBC standard, different databases may need to be accessed in different ways, especially if the database is to be updated. The type of access can be maintained using this field, allowing the connection to vary with different ODBC drivers.

Initially, the field will be set to 'default'. With the default connection type, IBM Mobile Connect automatically interrogates the ODBC database to determine which connection type it requires, and then IBM Mobile Connect 'talks to' the database using that connection type. The 'connection type' should be set to default for almost all data transfers, but you can override this default if you wish to set the connection type manually.

**Use Mirror Sync?**

This check-box is ticked by default. In most situations it's best to leave this option selected (see the section: **Reducing network traffic—the 'mirror' file**, p.177).

### Database Options

#### **Create Mobile Database if it does not exist?**

If the mobile database does not exist, and this option is *not* checked, IBM Mobile Connect will terminate the current Database Action, and then continue with any further Actions in the current Action Set. If this option *is* checked, IBM Mobile Connect will create the database on the mobile and then continue with the synchronization.

Usually this situation will not arise. But, for instance, it might be necessary to create a database when IBM Mobile Connect is being asked to update a database on the mobile, but IBM Mobile Connect finds that the database doesn't exist, yet you would still like it to continue with this current Database Action. But creating a mobile database is not something that most users will ever be involved in (since mobile applications that require a database, are usually supplied complete with the database), and this should only usually be done by people who are familiar with writing applications for the mobile.

When the 'Create Mobile Database' option is checked, the following two fields are active. Each field should contain a four character string.

#### **Creator ID**

Enter your 'Creator ID' here. With some mobile-device operating systems, the producer of the operating system keeps a register of these 'Creator IDs'. Check with the producer of your mobile's operating system to find out if you need to register your Creator ID.

#### **Type**

The most likely entry for the 'Type' field is: 'DATA'.

---

### Conflict Resolution

These settings are only active when the 'Action' field on the 'General' tab is set to 'Two Way Synchronize'.

#### **Conflict Resolution**

When IBM Mobile Connect compares the databases on the mobile and server, if it finds a discrepancy that can not be accounted for by the usual synchronization process, then it needs to know which files to modify on the server or mobile in order to ensure that both databases are identical after the current synchronization is complete.

The 'Conflict Resolution' drop-down list-box allows you to instruct IBM Mobile Connect what actions to take in this event. There are four options available: 'Priority to Server', 'Priority to Mobile', 'Leave unchanged', and 'Leave unchanged and log conflict'.

#### **Never Delete in Conflict**

Tick this check-box to prevent any data whatsoever from being deleted (on either the mobile or server) when a conflict is found.

---

### Notes Replication

This option is only available when the 'Server Type' field on the 'General' tab is set to

'Lotus Domino/Notes'.

To define the Lotus Notes replication settings, click Configure.... The **Notes Replication Settings** form will appear:

## Notes Replication Settings

### The 'Notes Replication Settings' form, 'General' tab

#### Summary buffers

In a Lotus Notes database, a summary buffer is a 15K block of data that is attached to each note (each record in the database). The summary buffer is read-only and it contains a copy of certain fields from the note. In order to read any of these fields, the summary buffer can be accessed instead of accessing the note itself. This is done to improve performance, since a summary buffer can be accessed up to 300 times faster than the note itself can be accessed. This is the mechanism that Notes uses for displaying views and lists.

In order to improve performance, IBM Mobile Connect can also read certain data from summary buffers. However, any field that takes part in a synchronization that is based on summary buffers only, must have a label of 'summary' (that is: must have been listed as a 'summary'). Also, certain fields cannot be placed in a summary buffer, such as the text of an email message. Therefore the technique is only of limited use.

#### Load from Summary Buffers Only

If this check-box is checked, only the fields that can be found in summary buffers will be read from the Notes database. All other fields will be left blank.

#### ACL Check

When IBM Mobile Connect's 'Notes authentication' option is being used, but IBM Mobile Connect is working without Notes ID files, IBM Mobile Connect checks the Notes ACL (Access Control List) to determine whether the IBM Mobile Connect user has permission to access the Notes database.

In effect, the 'ACL Check' option allows the system administrator to define how much time IBM Mobile Connect should spend on trying to look up what Lotus Notes 'groups' a user belongs to. In Notes, a user is a member of one or more groups, but each of these groups could be a member of other groups, which themselves could also be members of further groups. To find out every group that a user could be a member of, this tree structure must be explored completely. But in Notes the process of checking every level of this tree structure would be relatively slow, so the 'ACL Check' field gives the system administrator the ability to define how deep into the tree structure IBM Mobile Connect should check.

#### ACL Check

There are five options, ordered by speed of execution. The top option in the list would give the fastest performance, and the lowest option in the list would give the slowest performance:

- No check (default checking of the ACL).

## Database Actions

- User Name (just check the username, no groups. In most situations, this option would be used).
- 1 group (check the username and direct groups only).
- 2 groups (check the username, direct groups, and the first level of indirect group).
- All groups (explore to the deepest level. This process would be very slow).

---

## The 'Replication' section:

### Automatically Replicate

If this checkbox is checked, automatic replication is enabled. In this case, a copy of the Notes database should exist on the same server that the IBM Mobile Connect service is running on (for more details, please see the section: User authentication against Lotus Notes).

When the checkbox is not checked, the contents of every tab on the form will be greyed out.

### Replicate Before Session

When a user has connected to IBM Mobile Connect, and their synchronization session is about to begin, this setting determines whether a replication is carried out between the local copy of the database and the remote database. There are three options:

- No.
- One way (from the Notes Server database to the IBM Mobile Connect copy of the database).
- Two way (full bi-directional synchronization between the Notes Server database and the IBM Mobile Connect copy of the database).

### Replicate After Session

When a user has connected to IBM Mobile Connect, and their synchronization session has just finished, this setting determines whether a replication is carried out between the local copy of the database and the remote database. There are three options:

- No.
- One way (from the IBM Mobile Connect copy of the database to the Notes Server database).
- Two way (full bi-directional synchronization between the Notes Server database and the IBM Mobile Connect copy of the database).

### Replication Timeout in mins

If replication is still being carried out when the time limit has been reached (in minutes), the replication process will be terminated.

When a 'timeout' limit has been reached, the information that has already been replicated will be available to the mobile during the IBM Mobile Connect session, but any information that would have been replicated *after* the 'timeout' limit was reached, will be replicated in future sessions.

### Replication Priority

Since the replication will usually be a real-time process (with a user waiting 'on the other end of the line' for their data transfers to take place), this setting should

generally be set to 'High', so that the replication will take place as quickly as possible.

## The 'Notes Replication Settings' form, 'Classes' tab

### Select the Notes Classes to Replicate

The following options are available:

- All Notes (replicate every note in a Notes database between the Notes Server database and the IBM Mobile Connect copy of the database)
- All Non Data (replicate all notes which don't have data)
- No Data (replicate nothing at all)

### Default Documents Only

When this checkbox is checked, only the 'default documents' will be replicated between the two databases.

### Details

When the 'Notes Classes to Replicate' field is set to 'No Data', the 'Details' box becomes available. Use the checkboxes to select the items to be replicated.

## The 'Notes Replication Settings' form, 'Create' tab

This tab is only used when IBM Mobile Connect needs to create the local replica of the Notes database. This situation would arise if the local copy of the database has not already been created manually.

### Automatically Create Replica

If this checkbox is checked, IBM Mobile Connect will automatically create its local copy of the Notes database when required. Use the options on the tab to determine the items to be copied. Most of these are standard Notes items:

- Copy Access Control List (ACL)
- Create Full Text Index
- Local Encryption
- Maximum Database Size (MB) ('0' = no maximum)
- Disable Background Agents
- Disable Scheduled Replication
- Remove Old Documents
- Only Receive Summary Data ('attachments' are not replicated; and only the first 40K of Memo text is replicated)
- Replicate Deletions (if checked, deletions made on the local copy of the database will be replicated back to the Notes Server)

## The 'Notes Replication Settings' form, 'Formula' tab

This tab will be greyed out if the 'Automatically Create Replica' checkbox is not checked on the 'Create' tab.

In this tab's window, LotusScript can be used to enter a formula which restricts the amount of information that's copied from the Notes Server database. This would enable the replica database to be a subset of the Notes database, rather than the entire database.

## The 'Notes Replication Settings' form, 'Directories' tab

When you have a large number of users, you may want the local replicas to be placed on different drives. This tab enables you to store the local replicas in different locations based on the Notes Server from which the replication is being originated.

### **Default Replica Directory**

Specify the directory where all replicas will be stored (unless a different directory is specified elsewhere on this tab), or leave this field blank to specify that the 'Notes Data Directory' is to be used for this purpose.

### **Automatically Create Local Replica Names by**

When the local replica databases are given a name by IBM Mobile Connect, it's important to avoid using the name of any other Notes database that might already exist on the same server. In order to avoid this conflict arising, the present dropdown list-box is used to specify what names are used for the local replica databases that IBM Mobile Connect creates. Two options are available:

- Flattening Hierarchy ... (the names of the replica databases are created by combining the server name and the original database name)
- Creating Directories ... (the replica databases are stored in different directories for each user)

### **Local Replica Location Override**

To define the location where databases that are being replicated from a particular server are to be stored, click Create.





# 'Triggers' and how to set them

As mentioned elsewhere (in the section: **What are 'Actions', 'Action Sets' and 'Triggers'?**, p.143), 'Actions' is the term IBM Mobile Connect uses to describe a transfer of data between a mobile and the server (a File Action transfers files, a Database Action transfers the contents of a database, and so on).

Once you've defined all the 'Actions' that are needed to perform all the data-transfers you currently require, and you've grouped these Actions into 'Action Sets', you'll then need a way to tell IBM Mobile Connect how frequently to automatically 'run' these Action Sets.

This is the role that 'Triggers' perform. A 'Trigger' is simply an 'instruction' that the system administrator sets within IBM Mobile Connect to tell IBM Mobile Connect how frequently to 'run' a particular Action Set.


## Triggers operate on 'groups'

A Trigger runs its default Action Set for all groups on the system, except for those groups where you've specified otherwise.

You define a Trigger to 'run' a particular Action Set. Each time this Trigger is then activated, it will, by default, run this Action Set for all groups of users on the system. However, for a particular Trigger, you may want it to 'run' a different Action Set for a certain group, and perhaps another Action Set for a further group, or you may want it to do nothing for certain other groups. You can do this by modifying the Trigger at the 'group level' (see the section: **To modify a Trigger at the 'group' level**, p.204). If this is done, the Trigger would then run its default Action Set for all groups on the system, except for those groups where you've specified otherwise (either given an alternative Action Set, or selected <none>).

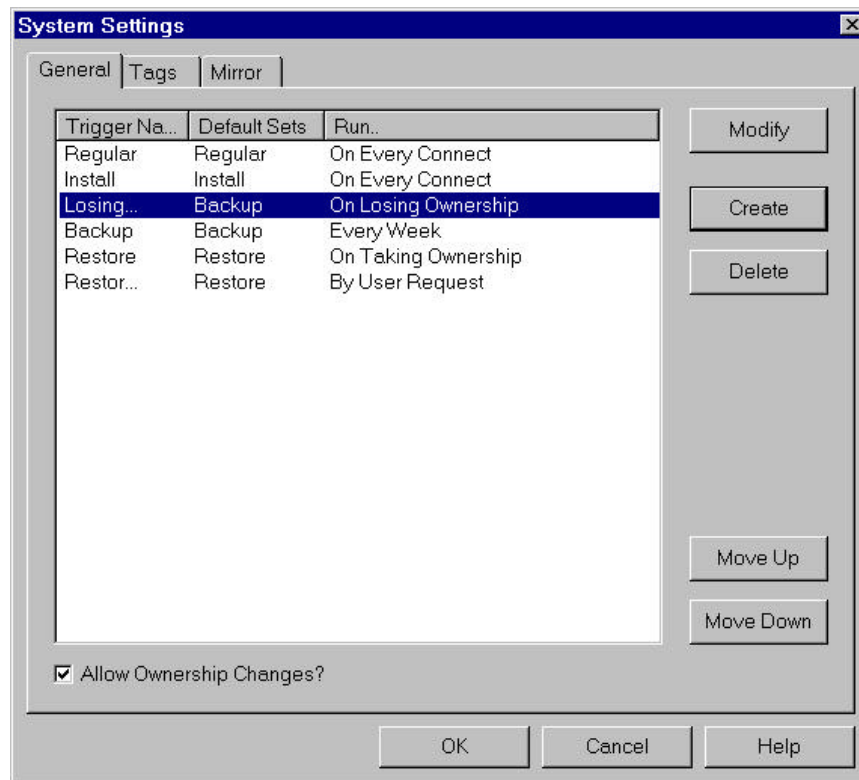
## To define, view, or amend a Trigger

Call up the **System Settings** form by doing any one of the following:

- On the configuration tree, highlight the 'Connect Configuration' item, then click the 'Properties' push button on the toolbar: 
- On the configuration tree, highlight the 'Connect Configuration' item, then, from the 'Edit' menu, select 'Properties'.
- On the configuration tree, right-click on the 'Connect Configuration' item, then select 'Properties' from the context menu that appears.

‘Triggers’ and how to set them

## The ‘System Settings’ form, ‘General’ tab



The ‘General’ tab’s window shows a list of all the Triggers that have so far been set up for the configuration file that’s currently loaded into the IBM Mobile Connect admin program.

### ‘Move Up’/ ‘Move Down’

To change the position of an item in the list, and hence its processing order, click Move Up or Move Down.

More than one Trigger can be set up to respond to the same ‘Run’ frequency (see below for a full description of these ‘Run’ frequencies), and the Action Sets (listed under ‘Default Sets’ on this current tab) will be activated in the order that their Triggers appear in, on the above list (top Triggers first).

### Allow Ownership Changes

The ‘Allow Ownership Changes’ option gives system administrators the power to define whether mobile computers may be used by more than one user. If the option is not set and a user tries to log into the IBM Mobile Connect service using a machine that is not allocated to them, the service will generate an error and refuse to allow the ownership change.

## To create a new Trigger, or modify an existing Trigger

While the 'General' tab of the **System Settings** form is being displayed, call up the **Triggers** form by clicking either Create or Modify.

### Trigger Name

A unique name for the Trigger within the list of Triggers. This is normally a brief descriptive label, for example: 'Accounts Regular'. (This field is mandatory)

### Default Action Set

Select an Action Set from the drop-down list. The Action Set that's then listed in this field will be run when this current Trigger is activated.

The first element of the drop-down list is <none>, which indicates that no Action Set has been selected. The following description explains when this would be used:

Triggers can be defined only on the **System Settings** form. However, although the Trigger needs to be defined at the 'system' level, the particular Action Set that any Trigger runs, may be altered at the 'group-of-users' level.

Hence, when no Action Set is selected, the Trigger performs no function, unless the user who's connected when this Trigger is activated, belongs to a group where this particular Trigger has been set to run *some* Action Set (other than <none>). This avoids the Trigger being activated by all users.

Conversely, an Action Set can be defined at the system level (the Default Action Set) but set to <none> for a particular group (or set of groups) to avoid the Action Set being run for those particular users.

For example, a Trigger that you set up to respond to the 'On Every Connect' frequency, might run an Action Set that copies the company procedures onto the mobile computer (this would act as the Default Action Set for this Trigger). However, the sales group also needs to synchronize quotation information. To accommodate this requirement, you change this Trigger at the Group level, so that it doesn't run the Default Action Set but runs an Action Set which also performs quotation synchronization.

## ‘Triggers’ and how to set them

**Note:** If a particular Trigger has *one* Action Set defined at the System level, but a different Action Set defined within a particular Group, then (for any users within that Group), whenever that particular Trigger is activated, the Action Set defined within their Group will be run in place of the one defined at the System level (the Default Action Set).

### To modify a Trigger at the ‘group’ level

On the configuration tree, right-click on the required group, and select ‘Properties’ from the context menu that appears. The **Group Properties** form will then appear. Select the form’s ‘Triggers’ tab, highlight the required Trigger, and click Modify. The **Modify Trigger** form will then appear. On this form, you will be able to choose a different Action Set from a pull-down list.

#### The ‘Run’ field

This field tells the Trigger how frequently to ‘run’ the Action Set that’s been specified. The following frequencies are available:

- 1) On Losing Ownership
- 2) On Taking Ownership
- 3) On Every Connect
- 4) Every
- 5) By User Request
- 6) Never

The above run-frequencies are listed by priority, so that (in a single one of any user’s ‘connection-sessions’) a Trigger that has a run-frequency that’s been given a lower number in the list above, will always be activated before a Trigger that’s been given a Run-frequency with a higher number.

The events are described below:

## The run-frequencies that a Trigger may be set to

### The ‘On Losing Ownership’ run-frequency

This run-frequency causes the Trigger to be activated when the user of a mobile computer is about to change. A new user has logged in using the same machine that a previous user had logged in with, but the previous user has not yet ‘logged off’ with that machine.

This run-frequency allows you to run an Action Set (defined for the old user’s group) which backs up data, applications and preferences. This would allow the current configuration to be restored either to a different machine or to the same machine (if it is returned to the old user after the new user has finished with it) when the old user next logs in.

### The ‘On Taking Ownership’ run-frequency

This run-frequency causes the Trigger to be activated just after a new user has taken ownership of a mobile computer.

This allows you to run an Action Set (defined for the new user’s group) which restores

any previously saved configuration details, such as data, applications and preferences (so that the applications that the new user requires can be installed—that is, if the old user was using different applications).

### The 'On Every Connect' run-frequency

This run-frequency causes the Trigger to be activated every time a user connects to the IBM Mobile Connect service.

Apart from doing routine transfers, this run-frequency could also be used to run an Action Set that verifies the set-up of the mobile—ensures that appropriate data is synchronized, and that the appropriate applications are installed.

### The 'Every' run-frequency

This run-frequency causes the Trigger to be activated at predefined times based upon the last date/time that a user connected to the IBM Mobile Connect service. This allows the system administrator to define schedules for Action Set processing (for example: Once a week, Once every 5 days, and so on).

When this option is selected, the 'Units' and 'Amount' fields are enabled. For all other options, these fields are disabled. The system administrator selects the Units and sets the Amount for those Units. The units are 'Hours', 'Days', 'Weeks', 'Months', and 'Years'. The amount can be in the range 1-100. (for example: To set a weekly backup, set the Units to 'Weeks' and the Amount to 1.)

**Note:** Suppose this run-frequency is being used to run an Action Set that performs a backup of the mobile computer's data, and the Trigger is set to run the Action Set weekly, but when a particular user next logs in, it's been two weeks since they last logged in. In this situation (or any similar situation) the Action Set would only be run once, irrespective of the time that's passed since the Action Set was last run.

When a change of ownership has occurred on a mobile computer, and the new owner's log-in activates a Trigger with a run-frequency set to 'Every', then the 'backup' Action Set that's run by the Trigger, will be the Action Set that's been defined for the new user's group.

The old user's data will have been copied to the server (if the system administrator has set up a 'save-mobile's-contents' Action Set which is to be run at the 'On Losing Ownership' frequency), and the old user's data will be restored to a mobile the next time they log on.

### The 'By User Request' run-frequency

When a user is about to log in, on their IBM Mobile Connect client's panel, they will see a list titled: 'Options for this Session'. In the list, each item has a check-box next to it. The user checks the items they would like to include in the connection-session they're about to begin.

These items will usually be irregular activities over which the user should be able to exercise an element of control, for example: 'Get Sales Data', 'Send Expenses Claims', and so on.

The system administrator defines this list by setting up a Trigger, and using the 'By User Request' run-frequency to activated whichever Action Set is appropriate for the

### **‘Triggers’ and how to set them**

list-item they’re setting up. The text to be displayed in the check-list that appears on the end user’s mobile, is entered using the ‘Text for user’ field. The ‘Text for user’ field is only enabled for ‘by User Request’ Triggers.

**Note:** Until a user has logged into the IBM Mobile Connect service at least once, they will either be presented with the previous user’s list or no list at all.

### **The ‘Never’ run-frequency**

When ‘Never’ is selected, the Trigger will never run whichever Action Set is assigned to it.

This is useful for disabling a Trigger for a period without deleting it. Any information entered for the Trigger will be preserved.

# Reports

While IBM Mobile Connect is running, it records various information in its 'Connection Log' database (see the section: **The Connection Log and Error Logging**, p.227).

The IBM Mobile Connect Admin program can produce the following reports (which are produced by extracting information from the Connection Log database). The reports are produced using Seagate Software's Crystal Reports. The reports can be viewed by selecting them from the Admin program's menu option: 'View/Reports'. (See also the section: **Connect Monitor**, p.213. Connect Monitor can also display the same information as the following reports, and shows some information live.)

## **Connection History Report**

Produces a report of when each user has connected. The report can be for a single user, or for all users; and can report either their last connection only, or any number of connections.

## **Current Status Report**

Produces a report of various states on the mobile device. The report can be for all users, or for a single specified user. The dialog gives you the option of specifying which states to report; and also whether to report these states for the last connection only, or for any number of previous connections.

## **Error Information Report**

Produces a report of any error conditions that arose. The report can be for a single user, or for all users; and can be for either their last connection only, or for any number of connections. The report may also be sorted by error number.

## **Low Memory Report**

Produces a report of all users whose mobile device has less than the specified amount of free memory.

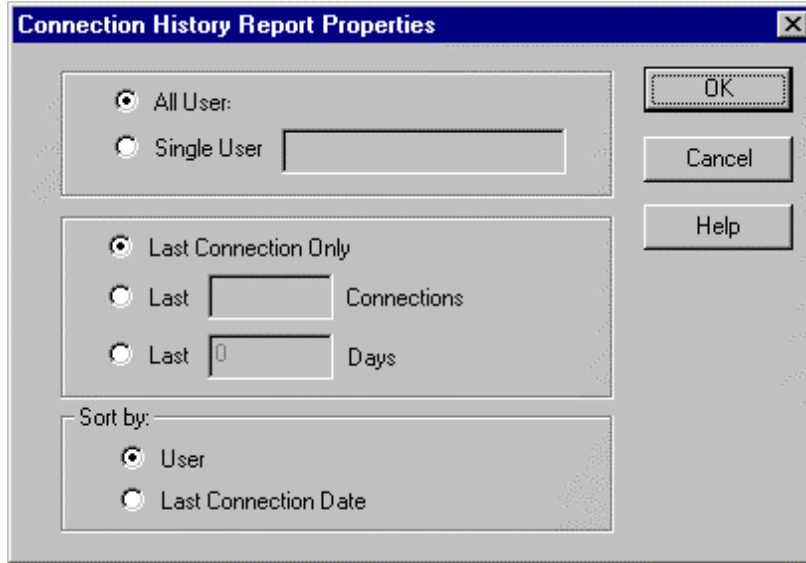
## **Last Connection Report**

Produces a report of which users had their last connection more than the specified number of days ago.

## **Low Battery Report**

Produces a report of all users whose mobile device's main battery is low and/or whose mobile device's backup battery is critical.

## Connection History Report Properties



The screenshot shows a dialog box titled "Connection History Report Properties". It contains three main sections of options:

- User Selection:** Radio buttons for "All User:" (selected) and "Single User" (with an empty text input field).
- Connection Filter:** Radio buttons for "Last Connection Only" (selected), "Last" (with an empty text input field) "Connections", and "Last" (with a text input field containing "0") "Days".
- Sort by:** Radio buttons for "User" (selected) and "Last Connection Date".

On the right side of the dialog, there are three buttons: "OK", "Cancel", and "Help".

The Connection History Report will include details for all users or a single user whose name is entered in the appropriate field.

To show the date of last connection for each user click Last Connection Only.

To show the last connection date for each user and the dates of previous connections click Last Connections, and specify the number of previous connections to be reviewed.

To show the last connection date for each user and dates of connection during a certain number of days prior to the current connection click Last Days, and specify the number of days to be reviewed.

The report can be arranged either alphabetically by user or chronologically by Last Connection Date.



## Current Status Report Properties

**Current Status Report Properties** [X]

Report On:

- Machine Information
- OS Information
- Battery Information
- Memory Information

All Users  
 Single User

Last Connection Only  
 Last  Connections  
 Last  Days

Sort by:

- User
- Last Connection Date

OK  
Cancel  
Help

The Current Status Report will include those details checked in the top section of this Dialog for all users or a single user whose name is entered in the appropriate field.

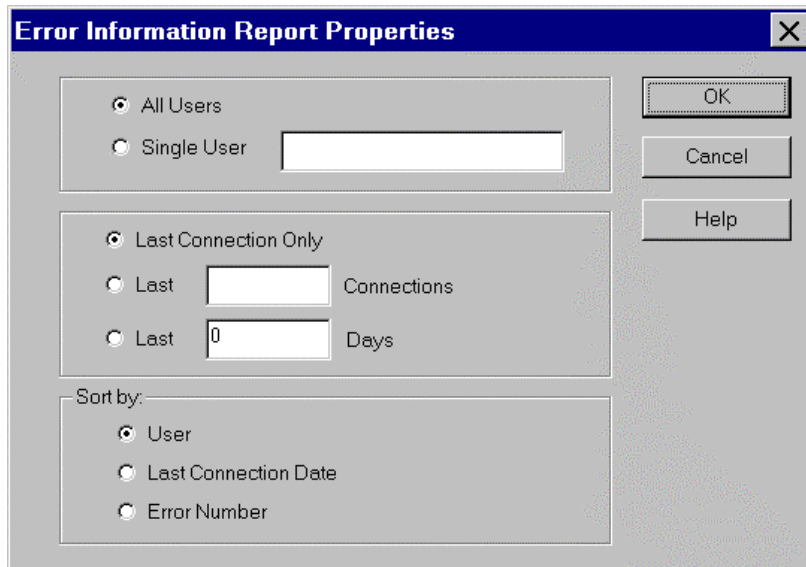
To show current status of each user click Last Connection Only.

To show both the current status of each user and their status on previous connections click Last Connections, and specify the number of previous connections to be reviewed.

To show both the current status of each user and their status during a certain number of days prior to the current connection click Last Days, and specify the number of days to be reviewed.

The report can be arranged either alphabetically by user or chronologically by Last Connection Date.

## Error Information Report Properties



The screenshot shows a dialog box titled "Error Information Report Properties" with a close button (X) in the top right corner. The dialog is divided into three main sections. The top section has two radio buttons: "All Users" (selected) and "Single User" (unselected), followed by an empty text input field. The middle section has three radio buttons: "Last Connection Only" (selected), "Last" (unselected) followed by an empty text input field and the word "Connections", and "Last" (unselected) followed by a text input field containing "0" and the word "Days". The bottom section is labeled "Sort by:" and has three radio buttons: "User" (selected), "Last Connection Date" (unselected), and "Error Number" (unselected). On the right side of the dialog, there are three buttons: "OK", "Cancel", and "Help".

The Error Information Report will include those details checked in the top section of this Dialog for all users or a single user whose name is entered in the appropriate field.

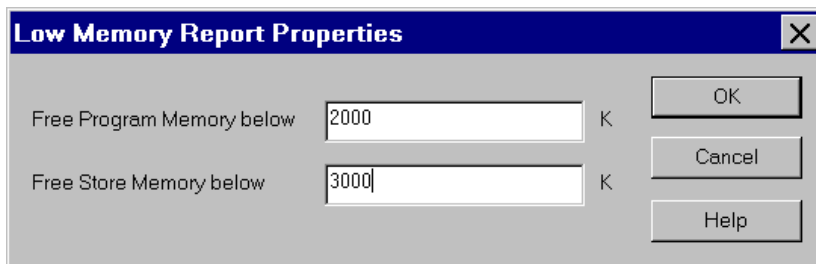
To show current error information for each user click Last Connection Only.

To show both the current error information for each user and error information from previous connections click Last Connections, and specify the number of previous connections to be reviewed.

To show both the current error information for each user and error information for a certain number of days prior to the current connection click Last Days, and specify the number of days to be reviewed.

The report can be arranged alphabetically by user, chronologically by Last Connection Date or numerically by Error Number.

## Low Memory Report Properties



The screenshot shows a dialog box titled "Low Memory Report Properties". It features two input fields for memory thresholds. The first field, labeled "Free Program Memory below", contains the value "2000" and is followed by a "K" unit indicator. The second field, labeled "Free Store Memory below", contains the value "3000" and is also followed by a "K" unit indicator. To the right of these fields are three buttons: "OK", "Cancel", and "Help".

The Low Memory Report will include details of users whose memory on last connection was below one or both specified levels.

Use the 'Free Program Memory below' and 'Free Store Memory below' fields to enter figures in K to specify the levels the report will use.

**Note:** if the level of memory for an individual user is below only one of the two specified levels, details for that memory type alone will appear in the report.

## Last Connection Report Properties

The Last Connection report prompts for the number of days that it has been since a user's last connection. The report is useful for flagging up problems where users have not been connecting, for whatever reason.

## Low Battery Report

By selecting Low Battery Report from the 'View' drop-down list a report containing details of all Users whose main battery is low and/or whose backup battery is critical is generated.



# Connect Monitor

'Connect Monitor' allows administrators to remotely monitor one or more IBM Mobile Connect servers. For each server, Connect Monitor displays various details for each user who's currently connected to the server. It also displays any current error information, together with the 'phase' that the connect session was in when the error occurred.

## What's the difference between Connect Monitor and the Admin program?

Connect Monitor is used purely to monitor an existing IBM Mobile Connect system once the system has been set up and is in use. The IBM Mobile Connect Admin program is used to set up a new system that's just about to go into use, or to make changes to the setup of an existing system.

## MMC Snap-In

Connect Monitor is a Snap-In for Microsoft Management Console (MMC). For an overview of MMC, please see the **Microsoft Management Console Help** (see the paragraph below: **How to find the MMC Help**, p.221).

## What's new in version 2.3

From version 2.3 of IBM Mobile Connect, the Connect Monitor Snap-in has the following new features:

- A Connect Monitor Snap-in must be added to MMC for each IBM Mobile Connect computer that you want to monitor (instead of a single Snap-in monitoring all computers).
- Access to Connect Monitor can now be restricted to only the nominated users or groups of users.
- DCOM no longer needs to be configured in order to monitor remote servers over the network.
- More detailed information is provided about the IBM Mobile Connect service.
- Filters are provided to target the information that's displayed (that is: you can display only particular users, or particular errors, and so on).

### Installation of MMC and Connect Monitor

MMC must be installed on a machine in order to run Connect Monitor. However, the IBM Mobile Connect setup program will install MMC onto a machine as part of the 'Standard' IBM Mobile Connect install option. The setup program also installs the Connect Monitor Snap-In when it installs MMC. The setup program also has a separate install option to allow you to install only MMC (and Connect Monitor) onto a machine.

**Note:** In order for MMC to work properly, **Internet Explorer 4.01** (or later) must be installed on the machine that MMC is running on. Further, the installation of the correct version of Internet Explorer must be made *before* Connect Monitor is installed on the machine.

Once MMC is installed, you then need to add the Connect Monitor Snap-In to MMC. But before doing this, you should define which users will have access to Connect Monitor. The section **Controlling access to Connect Monitor**, p.214, describes how to do this:

### Controlling access to Connect Monitor

You can specify which users have access to Connect Monitor. Once this has been set up, if any other user on the network attempts to start Connect Monitor, access will be denied to them. To define which users have access to Connect Monitor, do the following:

1. Start the IBM Mobile Connect Admin program.
2. From the 'File' menu, select 'Remote Monitor'. The **Remote Admin Users** dialog will appear.
3. Enter the username of a single user, or the name of a group of users. You should also enter the Windows NT domain that this user or group belongs to (see below).
4. Restart the service, so that the new settings will take effect. This can be done from the Admin program by selecting 'File/Restart Service'.

### Choosing the username or group to enter

These names should be the Windows NT username, or the name of a Windows NT Group of users. For instance, you could specify any of the following:

- "NT Domain\Administrators"
- "NT Domain\Connect Administrators" (assuming that you've created a Windows NT Group called: 'Connect Administrators')
- "NT Domain\username" (assuming that only a single user is to be allowed to remotely monitor the IBM Mobile Connect system)

It is recommended that you create a Windows NT Group specially for this purpose. The group could be called something like: 'ConnectRemoteAdmin'. The group would contain all users whom you wish to be able to remotely monitor your IBM Mobile Connect server. When you want to give this permission to a new user, it would then simply be a matter of adding their username to this group. In Windows NT, new Groups are created under **Start/Programs/Administrative Tools (common)/User Manager**.

## Adding the Connect Monitor Snap-in to MMC

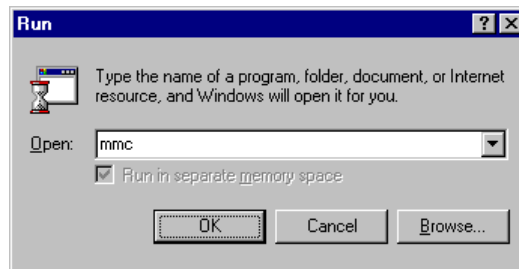
Once the access permissions have been set up (as described in the section:

**Controlling access to Connect Monitor**, p.214), you may then add the Connect Monitor Snap-in to MMC.

Start MMC.

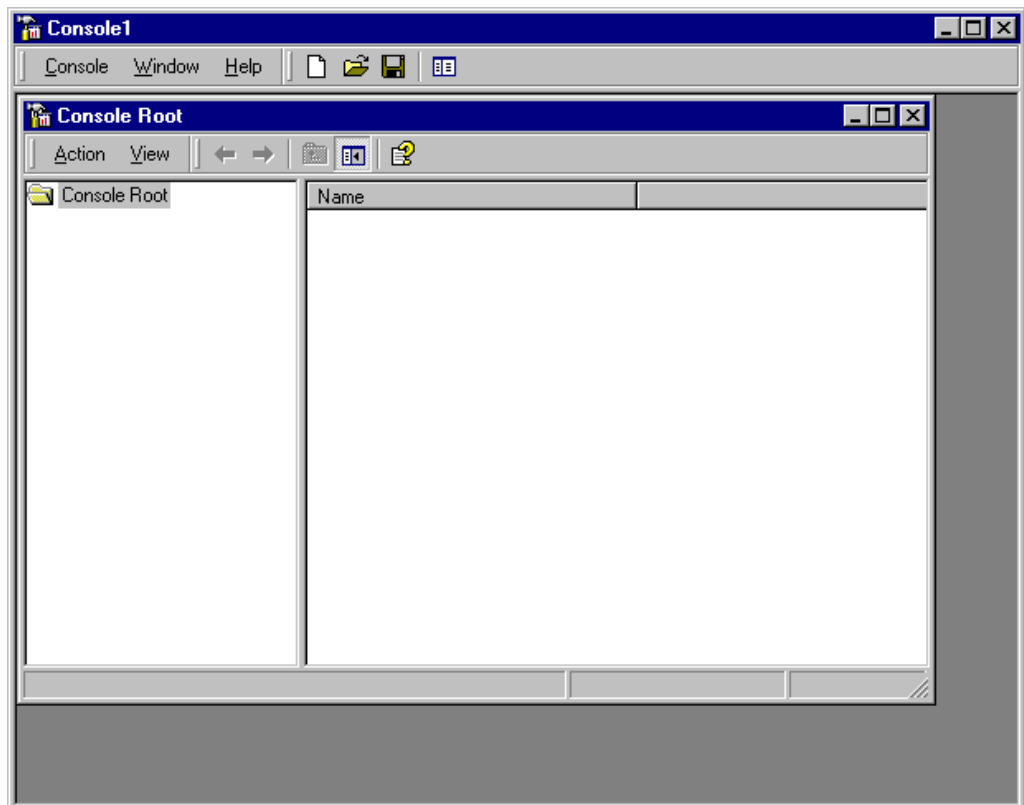
If you do not have a shortcut to MMC on your Start menus, the best way to start MMC is to do the following

1. Click **Start/Run**. The **Run** dialog will appear:



2. In the 'Open' field, type 'mmc'.
3. Click 'OK'.

This will start Microsoft Management Console. A new 'empty' console will be displayed in the MMC workspace:

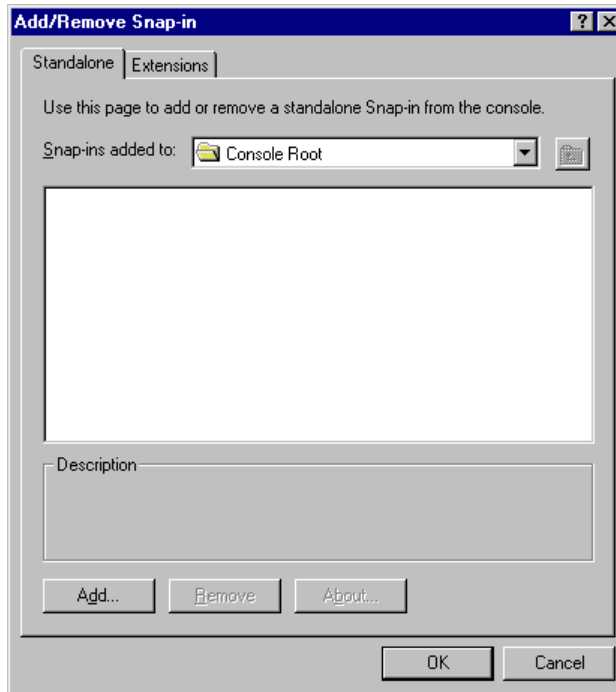


## Connect Monitor

### To add a Connect Monitor Snap-in to the console

Now you need to add a Connect Monitor Snap-in to the console. To do this, do the following:

- From the 'Console' menu, select 'Add/Remove Snap-in...'. The Add/Remove Snap-in dialog will appear:

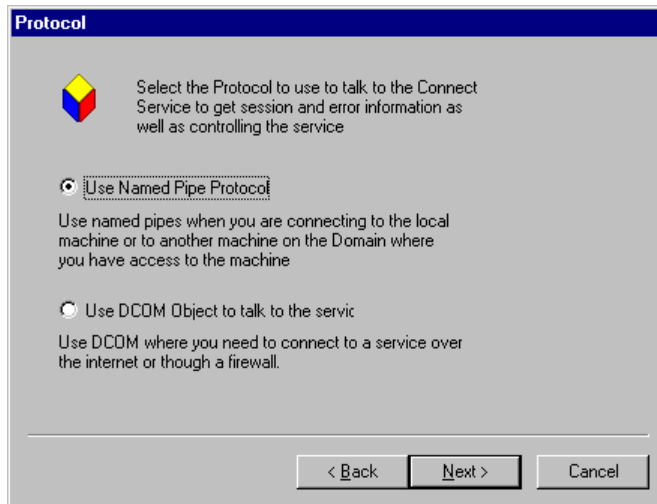


- Click Add.... The **Add Standalone Snap-in** dialog will appear.
- In the dialog's window, click on the 'Connect Monitor'.
- Click Add. The Connect Monitor **Welcome** panel will appear:



- Click Next. The **Protocol** dialog will appear:





This dialog determines which method Connect Monitor uses to communicate with the IBM Mobile Connect service.

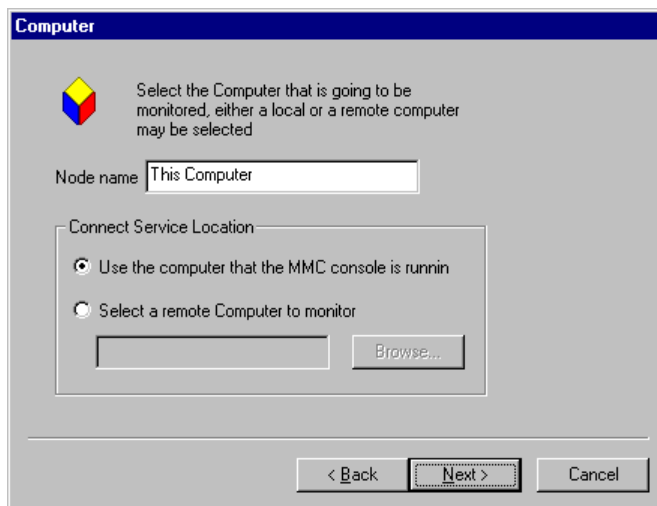
#### Use Named Pipe Protocol

This is the default method of communication. For most purposes, this option should be selected.

#### Use DCOM Object to talk to the service

As an alternative to using the Named Pipe Protocol, you may choose to use DCOM for the communications instead. If you select this method though, you will need to configure DCOM so that the communications will work. The usual way to perform this configuration, is to run **DCOMCnfg**.

- Click Next. The **Computer** dialog will appear:



On this dialog, you specify the IBM Mobile Connect computer that the Connect Monitor Snap-in will monitor.

#### Node name

Enter any string that will easily identify the computer to yourself, or to anyone using Connect Monitor.

## Connect Monitor

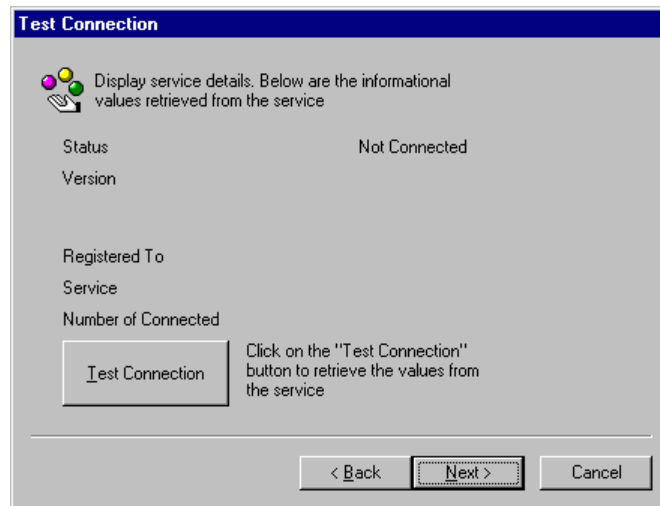
### Use the computer that the MMC console is running on

Select this option if you want the Snap-in to monitor the IBM Mobile Connect server that's running on the same computer that you're currently running the Microsoft Management Console on.

### Select a remote Computer to monitor

If this option is selected, you will be able to enter the name of the computer that you want to monitor. Either type the computer's name directly, or use the 'Browse...' push button to browse to the computer on the network.

- Click Next. The **Test Connection** dialog will appear:



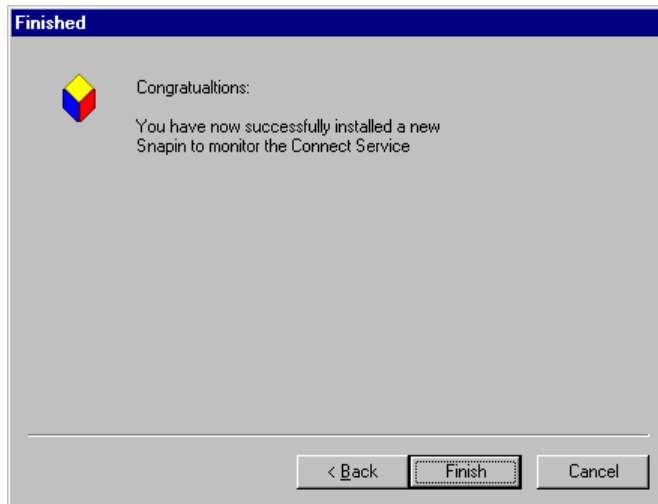
### Test Connection

To test whether Connect Monitor can connect to the IBM Mobile Connect service on the computer that you selected on the **Computer** dialog above, click Test Connection.

Before doing this, you should ensure that the IBM Mobile Connect service is running on the computer that was selected on the **Computer** dialog.

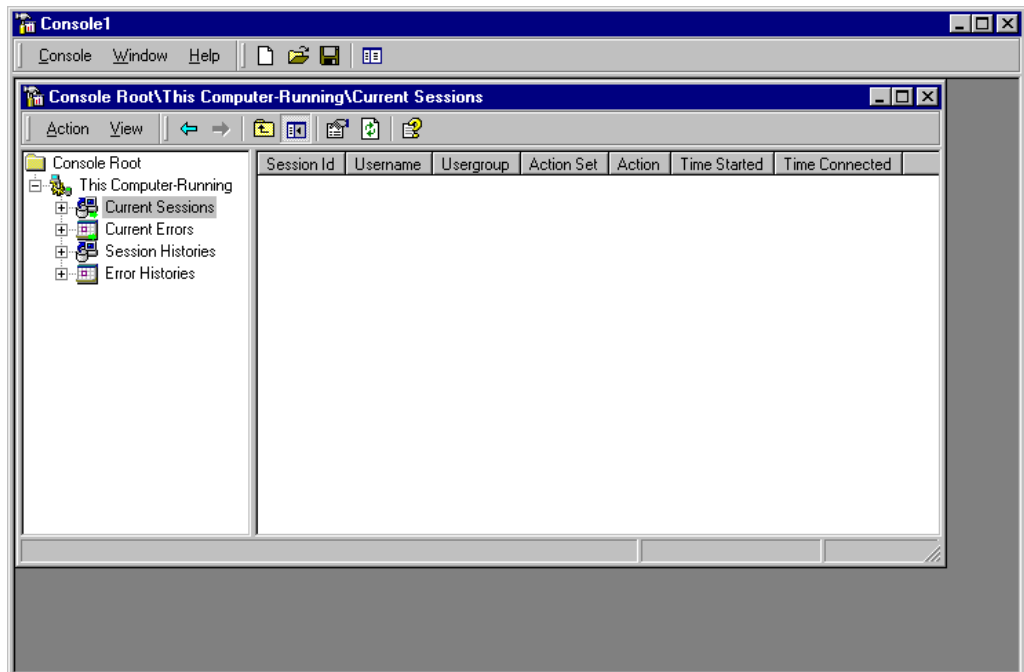
You should also ensure that you are logged on to Windows NT using a username that has permission to access Connect Monitor. You should have set this up in the IBM Mobile Connect Admin program on the computer that was selected in the **Computer** dialog (see the section: **Controlling access to Connect Monitor**, p.214, which describes how to do this).

- Click Next. The **Finished** dialog will appear:



- Click Finished. You will be returned to the **Add Standalone Snap-in** dialog.
- Either click Close, or click the 'Add...' push button to repeat the above procedure and another Connect Monitor Snap-in to your Console (you need to add one Connect Monitor Snap-in for each IBM Mobile Connect computer that you want to monitor).
- If you clicked Close, you will now be returned to the **Add/Remove Snap-in** dialog. Click OK.

The Connect Monitor Snap-in will now be present in your Console tree:



## To save your MMC Console

Now that you've added at least one Connect Monitor Snap-in to your MMC Console, you should save your Console. To do this, take the following steps:

1. From the 'Console' menu, select 'Save'. Since this is the first time you've saved this particular Console, the **Save As** dialog will appear.

### Connect Monitor

2. You may save the Console to any location on your Start menu. The **Save As** dialog will suggest that you save the Console in a program group called 'My Administrative Tools' and that you give the Console the name of 'Console1'.
3. To accept the default suggestion, click Save.

## Using Connect Monitor

Once you've added at least one Connect Monitor Snap-in to an MMC console, and saved the Console, you can then start the Console at any time by doing the following.

### To start Connect Monitor

If you saved your MMC Console using the default suggestion for the location and name, you should start your Console by doing the following:

1. Click Start
2. Select **Programs/My Administrative Tools/Console1.msc**

Once the Console has started, two main windows will be displayed: the 'Console Tree', and the 'Details Pane'.

### How to find the MMC Help

At the top of the Console Tree, there is the entry: 'Console Root'. Right-click on this entry and select 'Help' from the context menu that appears.

---

### The 'Connect Monitor' entry in the Console Tree

In the Console Tree, each Connect Monitor Snap-in will be listed. The Snap-ins will be listed using the string that you entered in the 'Node Name' field on the **Computer** dialog when you first added the Snap-in to the Console.

Each 'Connect Monitor' in the list will have the following sub-branches:

- Current Sessions
- Current Errors
- Session History
- Error History

Clicking on any of these sub-branches will display that branch's details in the Details Pane.

Right-clicking on any of the sub-branches will display a context menu. Selecting the 'Properties' item from the context menu will display the following forms:

#### **Current Sessions Properties**

This form contains an 'Auto Refresh' tab, which enables the 'Current Sessions' information that's displayed by Connect Monitor to be automatically refreshed at a specified rate. The value is set in seconds.

#### **Session Histories Properties**

This form contains a 'Filter' tab, which enables the 'Session History' information that's displayed by Connect Monitor to be filtered. The filtering can be done by username, date, or error number.

#### **Error Histories Properties**

This form contains a 'Filter' tab, which enables the 'Error History' information that's displayed by Connect Monitor to be filtered. The filtering can be done by username,

## Connect Monitor

date, or error number.

---

### The 'Connect Monitor' Properties form

To display the **Properties** form for any of the IBM Mobile Connect servers listed in Console Tree, right-click on the server's entry. A context menu will appear. From the menu, select 'Properties'. As well as the 'Service Setup' tab, the **Properties** form also has the following tabs:

#### The 'Computer' tab

This tab duplicates the function of the **Computer** dialog that you used when you first added the Connect Monitor Snap-in to your Console. If you wish to change the IBM Mobile Connect server that this particular Connect Monitor monitors, you may edit the details on this tab to correspond to the new server's details.

#### The 'Files' tab

This tab provides information about which configuration files the IBM Mobile Connect service is using; and which database the service is using for logging.

#### The 'Auto Refresh' tab

The details that are displayed by Connect Monitor (Current Sessions, Current Errors, Session History, Error History) can be set to refresh at a particular rate. If you wish to set this, you should check the 'Enable Auto Refresh' checkbox, and enter a value in the 'Auto Refresh' field. The value is in seconds.

#### The 'Connection' tab

This tab provides various information about the status of the IBM Mobile Connect service, its version, when it was started, its 'uptime', and how many current connections there are to it. Its registration information is also given (the registered user, and the number of connections that the licence allows).

---

### Further functions of Connect Monitor

For each IBM Mobile Connect server that's listed in the Console Tree, a range of other functions are available. To display a context menu that lists these functions, right-click on the appropriate server in the list. In the context menu that appears, the following items are available:

#### Start Service

This option starts the IBM Mobile Connect service. If this option is selected while the service is currently running, a message will be given indicating that the service is already started.

#### Stop Service

This option stops the IBM Mobile Connect service. If this option is selected while users are still currently connected to the service, a warning message will be given, notifying you of the number of users who are currently connected, and asking you if you wish to disconnect them. If you select 'Yes', they will not be informed that their session was terminated remotely. From their point of view, it will appear as though their connection was ended due to a communications break.

**Restart Service**

This option stops and then restarts the IBM Mobile Connect service. If this option is selected while the service is currently stopped, no action will be taken. The option is only valid if the service is currently started. If the option is selected while users are still currently connected to the service a warning message will be given, notifying you of the number of users who are currently connected, and asking you if you wish to disconnect them. If you select 'Yes', they will not be informed that their session was terminated remotely. From their point of view, it will appear as though their connection was ended due to a communications break.





## Part III: Reference



# The Connection Log and Error Logging

While IBM Mobile Connect is running, it records various information in its 'Connection Log' database. The Connection Log is a Microsoft Access database, called: 'Connlog.mdb'. By default, it is located in the IBM Mobile Connect installation folder. The location of the Connlog.mdb database can be viewed in the IBM Mobile Connect Admin program (select 'Service Settings' from the 'File' menu).

The database contains two tables: 'SystemInfo' and 'ErrorInfo'. 'SystemInfo' records details of each connection to the service, and 'ErrorInfo' holds details of any errors generated. For example, problems with database updates, files that were to be transferred but did not exist, invalid logon attempts, and so on.

The quickest way to view information in the Connection Log, is to use the IBM Mobile Connect Admin program's reporting facility. For more information, see the section: **Reports**, p.207.

## SystemInfo

Field	Description
EntryId	Entry number in the table
User	Username of user connecting to the service
ConnectTime	Date and time on the server when the connection was made
ClientVersionMajor	Major version number of the IBM Mobile Connect client
ClientVersionMinor	Minor version number of the IBM Mobile Connect client
ClientVersionText	Textual description of the IBM Mobile Connect client version
ScreenWidth	Screen width, in pixels, of the mobile
ScreenHeight	Screen height, in pixels, of the mobile
ACAdaptorInUse	Yes/no flag indicating whether an AC adaptor is being used with the mobile
BatteryLow	Yes/no flag indicating a low battery level on the mobile
BatteryCritical	Yes/no flag indicating a critically low battery level on the mobile
BatteryRemoved	Yes/no flag indicating whether a battery is present in the mobile
BackupBatteryLow	Yes/no flag indicating a low battery level on the mobile's backup battery
BackupBatteryCritical	Yes/no flag indicating a critically low level on the mobile's backup battery
BackupBatteryRemoved	Yes/no flag indicating whether the backup battery has been removed
BatteryLifePercent	Percentage battery life left on the mobile's main battery
BatteryLifeSeconds	Number of seconds of battery life left
BatteryFullLifeSeconds	Full battery life in seconds
BackupBatteryLifePercent	Percentage of backup battery life left
BackupBatteryLifeSeconds	Number of seconds of backup battery life left

### The Connection Log and Error Logging

BackupBatteryFullLifeSeconds	Full backup battery life in seconds
NumberOfProcessors	Number of processors present on the mobile
ProcessorType	Processor type used on the mobile
ProcessorTypeText	Textual description of the mobile processor type
SystemTime	Connection time as recorded on the mobile
LanguagePrimaryID	Primary language ID used on the mobile
LanguageSubID	Sub-language used on the mobile
StoreSizeK	Store size of the mobile
StoreFreeSizeK	Size of free storage space on the mobile
MemoryInUsePercent	Percentage of the mobile memory in use
MemoryTotalPhysicalK	Total physical memory capacity of the mobile
MemoryAvailPhysicalK	Available physical memory on the mobile
MemoryTotalPageFileK	Page file size
MemoryAvailPageFileK	Available page file size
MemoryTotalVirtualK	Total virtual memory of the mobile
MemoryAvailVirtualK	Available virtual memory on the mobile
OSVersionMajor	Major version number of the mobile's operating system
OSVersionMinor	Minor version number of the mobile's operating system
OSBuild	Build number of the mobile's operating system
OSName	mobile's operating system name
OSNameSupplementary	Supplementary details on the mobile's operating system name

## ErrorInfo

Field	Description
ErrorTime	Date/time of error as recorded on the server
SessionStartTime	Date/time of session start as recorded on the server
SessionId	Incremental ID allocated to each connection session
ErrorNumber	IBM Mobile Connect allocated error number (see following table)
User	User owning the connected mobile
LoggedOnUser	Username entered for the connection
ActionSet	Action set being processed at the time of the error
Action	Action being processed at the time of the error
Machine	Machine on which error occurred (S – server, M – mobile)
Supplementary	Textual error report supporting any NativeErrorCode
NativeErrorCode	Error code returned to IBM Mobile Connect from a Windows sub-system (eg. ODBC, Win32)
Description	Textual description supporting IBM Mobile Connect error number

Errors recorded by IBM Mobile Connect are usually added to the ErrorInfo table. Such errors may relate to individual connections made by users, such as the invalid entry of passwords. In some cases the errors may point to problems in the configuration of the Admin module of IBM Mobile Connect. For example, invalid database or file names may have been specified.

Errors which are more serious and may prevent the IBM Mobile Connect service from running are recorded in the NT Event Log. These errors are given numbers from 30001 upwards. The NT Event Log can usually be viewed from:

### **Start/Programs/Administrative Tools (Common)/Event Viewer.**

In **Event Viewer**, IBM Mobile Connect events can be viewed by selecting 'Application' from the 'Log' menu.

Informational messages are recorded when the service is started or stopped. Errors in any VBScript code will also be recorded in the NT Event Log.

## IBM Mobile Connect errors

Error	Description
30001	The Connect Service started successfully
30002	The Connect Service stopped successfully
30003	The Connect Service was unable to start
30004	The Connect Service was unable to initialise
30005	The Connect Service was unable to read the configuration settings
30006	A severe error occurred
30007	There was an error in the VBScript code. The data is the error message.
30008	The Connect Service failed to initialise VBScript.
30009	An error occurred in the logging system.
30010	The demonstration Connect Service failed to initialise - invalid license details.
30011	The Connect Service could not load ConnectConfig.dll. Please ensure the application is correctly installed.
1	Session %1: The previous owner (%2), was not a member of a group, or does not exist. Forcing ownership change.
2	Client program is too old for this version of the server.
3	This server program is too old for the client that connected to it.
5	No username was given.
6	Could not negotiate session start protocol
7	An incorrect username was given.
8	An incorrect password was given.
9	Change of ownership is not allowed.
10	An Action Set that needed to be run could not be found in the config file.
11	A User named in a group had no User Node (Internal error).
12	Possible attempt by non IBM Mobile Connect client to start session with server
13	A communications error occurred - generally this means that the connection dropped.
14	The Visual Basic engine could not run the Visual Basic text. There may well be an error in your Event code or in a Script Action.
15	Internal error in config file. No group folder found.
16	Internal error in config file. Non group node found in group folder.
17	Internal error in config file. Group Action Set List did not have entry for Type found in Global Action Set List.
18	Internal error in config file. An Event had an unknown Parent Type.
19	The column name for a filter in a Database Action is not in the column list.
20	The column name for a FlexSync select in a Database Action is not in the column list.
21	A Blank or Not Blank condition was applied to a non string column in a Database Action Filter or FlexSync Condition.
22	The server update column name for a FlexSync select in a Database Action is not in the column list.
23	The mobile update column name for a FlexSync select in a Database Action is not in the column list.
24	A FlexSync sort column name in a Database Action is not in the column list.
25	The .Reg File used in a Registry Action is invalid.
26	The From folder in a File Action does not exist.
27	The To folder in a File Action does not exist and Create automatically was not set.
28	The From folder in a File Action had a bad syntax.
29	The To folder in a File Action had a bad syntax.
30	The From folder in a File Action was not specified and was required.
31	The To folder in a File Action was not specified and was required.

32	The From File Spec in a File Action was not specified and was required.
33	The To File Spec in a File Action was not specified and was required.
34	A selected row in a FlexSync Database Action was not matched against an internal FlexSync condition.
35	A Mobile column name in a Database Action was not of the form Pn, P n, or n where n is an integer representing the property number in the Windows CE Object Store.
36	A database column was not of the expected type.
37	Data Integrity: A FlexSync row insert was not performed because the target primary key to be inserted already existed.
38	Data Integrity: A FlexSync row delete was not performed because the target row to be deleted did not exist.
39	Data Integrity: A FlexSync row update was not performed because the target row to be updated did not exist.
40	Data Integrity: A FlexSync row delete was not performed because more than target row matched the Primary key and filter criteria.
41	Data Integrity: A FlexSync row update was not performed because more than target row matched the Primary key and filter criteria.
42	EventInfo::DBSetValue was called from an event handler other than EVENT_ON_INSERT_ROW_START or EVENT_ON_UPDATE_ROW_START.
43	EventInfo::DBSetValue or EventInfo::DBGetValue was called with an invalid column name.
44	EventInfo::DBSetValue was called attempting to modify a primary key column. Not allowed because synchronisation depends on Primary keys.
45	EventInfo::DBSetValue was called with a value not valid for the target column.
46	A method that is allowed only in Non-event VBScript was invoked from an event handler.
47	A method that is allowed only in an event handler was invoked from VBScript outside an event handler.
48	An invalid parameter was passed to a method of one of the IBM Mobile Connect COM objects (Connect, EventInfo, MobileInfo or SystemInfo)
49	An internal procedure attempted to compare properties and found they were of incompatible data types. Check your column data types specified for the Database Action.
50	A Database (ODBC) error occurred. See Native Error Code and Supplementary for details.
51	EventInfo::DBSetValue was called attempting to modify a server FlexSync column or filter column.
52	An error occurred, but no error code could be obtained for it.
53	Internal Error - please contact technical support.
54	Action terminated by request of administrator-defined VBScript.
55	Action Set terminated by request of administrator-defined VBScript.
56	Session terminated by request of administrator-defined VBScript.
57	The mobile was unable to understand a command from the server.
58	The server could not allocate enough memory to complete an action.
59	Windows reported an error. See Native Error Code and Supplementary for more information.
60	A Database (DAO) error occurred. See Native Error Code and Supplementary for details.
61	The server attempted an operation that gave a not supported error.
62	An OLE (COM) error occurred. See Native Error Code and Supplementary for details.
63	An OLE (COM) error was returned by an automation server. See Native Error Code and Supplementary for details.

## The Connection Log and Error Logging

64	A File error occurred. See Native Error Code and Supplementary for details.
65	Unable to initialize MAPI in order to connect to a messaging system.
66	Unable to logon to the messaging system.
67	The messaging system has no default message store.
68	The message store in the messaging system could not be opened.
69	The Inter Personal Messaging Root Folder in the messaging system could not be opened.
70	The Source or Target Folder in the messaging system could not be opened.
71	The Source or Target Message in the messaging system could not be opened.
72	A Mirror File used during an Action was corrupt.
73	System not configured for the machine type connected.
74	A Database Action was given an unsupported Mobile Database Type.
75	A Database Action was given an unsupported Server Database Type.
76	A File Action was given an unsupported File Action Type.
77	A File Action encountered an file that is not a valid Pilot Database file.
78	A Mirror File used by a Database Action could not be found. Will perform an Initial Sync and create the Mirror File.
79	Palm OS reported an error. See Native Error Code and Supplementary for more information.
80	Session terminated - maximum number of concurrent sessions for demonstration systems exceeded.
81	A Database Action found the Mobile Database did not exist.
82	The Root Mirror Folder needed by a Database Action does not exist.
83	The User's Mirror Folder required by a Database Action could not be created under the Root Mirror Folder.
84	An User attempted to connect with the correct username and password, but the User has been disabled.
85	An error occurred while creating a plugin object used by a Database Action. Check the plugin is installed and registered correctly.
86	The plugin used by a Database Action failed. Please contact the plugin manufacturer for further assistance.
87	The plugin used by a Database Action returned an error code (see Native Error Code and Supplementary for more information). Please contact the plugin manufacturer for further assistance.
88	Notes slave error.
89	Required database transfers not supported by ODBC driver or database.
90	No form has been defined for the Notes insert or update.
91	Session object was not created.
92	A Mirror File used by a Database Action was corrupt. Will perform a Slow Sync and re-create the Mirror File.
93	A Mirror File used by a Database Action did not seem to match the data on the Mobile. Will perform a Slow Sync and re-create the Mirror File.
94	A Mirror File used by a Database Action held different columns than required by the Sync. Will perform a Slow Sync and re-create the Mirror File.
95	The attachment converter process failed to respond and was terminated. (Possibly due to an unknown or bad file format)
96	The MAPI connection to Microsoft Exchange Server reported an error. Check Native Error Code and Supplementary for more information.
97	A session terminated in an unexpected manner. (This is a severe error and should be reported.)
98	Change of password is not allowed.
99	Change of password attempt failed.



## The Connection Log and Error Logging

100	Change of password attempt failed (an unsuitable new password was supplied).
101	The authentication service is not available.
102	The authentication service did not supply a group name.
103	The supplied password has expired.
104	The authentication service failed.
105	The authentication service failed.
106	The specified group was not found.
107	The To file in a File Action was present and was not allowed to be overwritten.
108	The To directory in a File Action was present and was not allowed to be overwritten.
109	The Notes plugin connector failed to start.
110	The binary attachment format was corrupt.
111	The binary attachment format was corrupt(2).
112	The binary attachment format was corrupt(3).
113	The binary attachment format was corrupt(4).
114	The binary attachment format was corrupt(5).
115	The binary attachment format was corrupt(6).
116	The binary attachment format was corrupt(7).



# 'Events' and Script Actions

To set up many of the tasks that IBM Mobile Connect can automatically perform, the system administrator just needs to define the necessary Actions, group them into Action Sets, and then tell the system how frequently to run the Action Sets (as described in the section: '**Triggers' and how to set them**, p.201). In order to achieve the results specified in these Action Sets, IBM Mobile Connect then decides which bits of its own logic to run, and when to run them.

But sometimes you may want IBM Mobile Connect to perform a task that isn't quite covered in any of its standard File, Database, or (for Windows CE mobiles) Registry Actions. You may want to perform a task that requires you to add some extra detail to one of these Actions. In order to do this, you would need to know when IBM Mobile Connect is about to (or just has) run its logic that deals with the Action that you want to modify, so that you can write a short piece of VBScript and 'attach' it to that part of the logic. This is the function that 'events' have in IBM Mobile Connect. There are a number of Events, each being generated just before (or just after) IBM Mobile Connect has run a piece of its own logic that performs a particular task. The Events are all defined at the end of this section.

The system administrator can intercept any of these Events by writing a VBScript function to handle the Event (the VBScript might, for example, write to a file, send information to a workflow engine, update a secondary database, and so on).

Events can be handled at five different levels in the following priority:

**User** ⇨ **Group** ⇨ **Action** ⇨ **Action Set** ⇨ **System**

That is: the IBM Mobile Connect service will initially look for a handler at the User level. If one doesn't exist, it will look for an Event handler at the Group level and so on. When it finds a handler, it runs the VBScript attached to that handler.

This chaining of events, allows the system administrator to avoid duplication of code in the Event handlers. The administrator could write a generic set of Event handlers at the System level and then only needs to program the required deviations from the generic model at the appropriate level.

**Note:** It is important when writing VBScript code that links into Event handlers, to ensure that the flow of execution requires no user intervention. The IBM Mobile Connect service is likely to be running on a machine situated in a darkened room somewhere, perhaps not even within the same building as the system administrator. Given these circumstances it would be difficult to click 'OK' on a message box, for example. When designing the scripts, the administrator should also try to ensure that if any external ActiveX controls are being used, they do not have a visual component (or that it can be disabled). For more information on this please refer to the section **Configuring IBM Mobile Connect**, p.25.

It is also important to note that not all Events may be handled at all levels. Some

## 'Events' and Script Actions

Events, such as 'On Connect', only occur at the System, Group and User levels.

### Access to four of IBM Mobile Connect's objects

Within the VBScript written for an Event handler, the administrator can gain access to four of IBM Mobile Connect's objects, which will enable the administrator to control the flow of execution and find out more information about the current processing.

These four system-defined objects are discussed in detail in the section: **IBM Mobile Connect objects**, p.251.

For example, one of these objects (EventInfo) could be used to chain up to the Event handler on the next level. You would do this by setting the 'Handled' property:

```
EventInfo.Handled = False
```

In this case, the IBM Mobile Connect service will continue to search for more Event handlers at higher levels. (**Note:** by default the system does not chain Event handlers.)

As another example, the 'Response' property of this same object may be amended to instruct the system to abort an Action or Action Set:

```
EventInfo.Response = EVTACT_ABORT_ACTION
```


Programmed modifications such as this which change the usual flow of the session are recorded in the Connection Log (see the section: **The Connection Log and Error Logging**, p.227).

**Note:** When programming a VBScript Event handler, you should be aware that the IBM Mobile Connect object will not be available if a transfer is taking place between the mobile and the service (the IBM Mobile Connect service cannot share the IBM Mobile Connect object and it takes precedence).

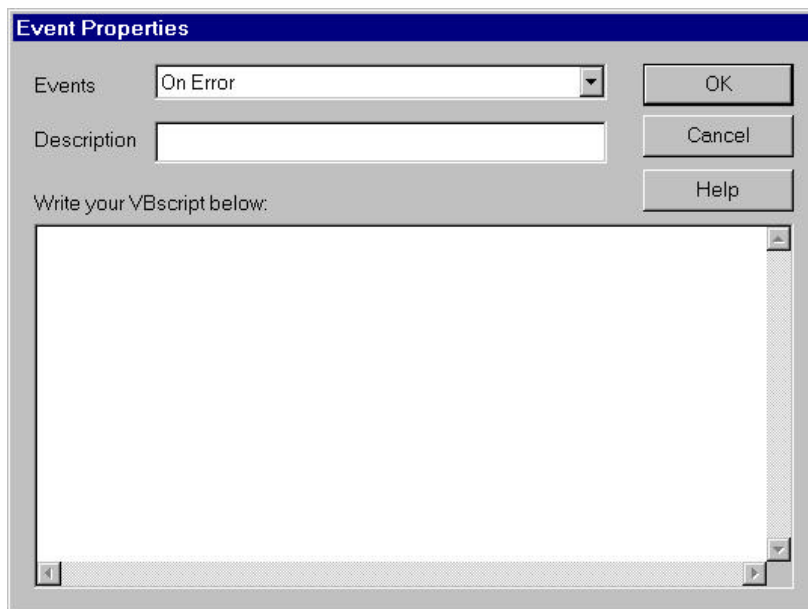
For detailed information on programming VBScript for IBM Mobile Connect, refer to the section: **Programming with VBScript**, p.243.

## To add an Event handler

Initially, you should decide the level at which the event will be handled (User, Group, Action, Action Set, or System). Choosing the correct level will reduce the effort required to create and maintain the event handlers.

- On the configuration tree, select the item at the level required.
- Click the 'New Event' push button on the toolbar:  (or use the context menu or the main menu).

The **Event Properties** form will appear.



The image shows a dialog box titled "Event Properties". It has a blue title bar. Inside, there is a section labeled "Events" with a dropdown menu currently showing "On Error". Below that is a "Description" text box. At the bottom, there is a large text area with the prompt "Write your VBScript below:". To the right of the text area are three buttons: "OK", "Cancel", and "Help".

From the form's drop-down list, select the event that is to be added and enter the VBScript code for the event.

To edit the VBScript for an event, double click on the required event handler on the configuration tree of the Admin program.

## Script Actions

A 'Script Action' is a portion of pure VBScript which can be placed in an Action Set and therefore serves as an Action in its own right.


The VBScript can be used to directly program the transfer of information between mobiles and a server, or to directly program any other task. The VBScript has access to all the same facilities that the VBScript in Events does, including the four IBM Mobile Connect objects. The main difference is that, with a Script Action, the VBScript can launch an IBM Mobile Connect Action, but the VBScript within an Event cannot launch an Action, since the Event is an Action in itself and IBM Mobile Connect does not permit one Action to run within another Action.

**Note:** Script Actions are not needed for the vast majority of systems. Before considering Script Actions, you should try to achieve what you require by using Events or tags, which are considerably easier to implement.

For detailed information on the IBM Mobile Connect objects that are available for use with VBScript, refer to the section: **IBM Mobile Connect objects**, p.251.

For detailed information on programming VBScript for IBM Mobile Connect, refer to the section: **Programming with VBScript**, p.243.

### To add a new Script Action to an Action Set

1. On the configuration tree, highlight the required Action Set.
2. Click the 'New Script' push button on the toolbar:  (or use the context menu, or Insert menu).
3. The **Script Action Properties** form will appear. Enter the details.

## The Events available on the Event Properties form

This section describes the events that the system administrator may attach VBScript processing to.

### Error Events

#### **On Error**

Called whenever the system encounters an error. The error number can be retrieved from the `EventInfo.ErrorNumber`. When the error handler is called, `EventInfo.Response` will be pre-set to an appropriate value for the type of the error. The administrator may override this value in the VBScript.

Available by way of:

User, Group, Action, Action Set, System

### Connection Events

#### **On Connect**

This is the first event called when a user has successfully connected to the IBM Mobile Connect service. Generally this is used to create object handles (for file system, database, and so on.) that are going to be used more than once in the subsequent connection processing.

Available by way of:

User, Group, System

#### **On Disconnect**

This is the last event to be called once processing has been completed. Generally, this event is used to 'clean up' object handles created in the 'On Connect' handler. This event is always called, irrespective of whether errors are encountered.

Available by way of:

User, Group, System

#### **On Failed Login**

Called when a user fails to login. Typically this is used to record the failed login in another system.

Available by way of:

System

### User Events

#### **On Lose Ownership Start**

When a username changes on the mobile computer, the ownership of the mobile computer is said to have changed. Just before the previous user loses ownership of the mobile computer, this event is called. This event may be used to terminate the change of ownership using administrator-defined validation.

Available by way of:

User, Group, System

## 'Events' and Script Actions

### **On Lose Ownership End**

Just after the previous user loses ownership of the mobile computer, this event is called. This may be used, for example, to log the change using an external audit control system. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Lose Ownership Start' event handler.

Available by way of:

User, Group, System

### **On Take Ownership Start**

Just before the new user takes ownership of the mobile computer, this event is called. This event may be used to terminate the acceptance of the new user using administrator-defined validation. If the ownership change is terminated at this stage, the mobile computer will be recorded as not having a current owner

Available by way of:

User, Group, System

### **On Take Ownership End**

Just after the new user takes ownership of the mobile computer, this event is called. This may be used, for example, to log the change using an external audit control system. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Take Ownership Start' event handler.

Available by way of:

User, Group, System

## Action Events

### **On Action Set Start**

This event is called just before an action set is run. Typically this will be used to create object handles which are only required by the action set or define user specific options.

Available by way of:

User, Group, Action, Action Set, System

### **On Action Set End**

This event is called just after an action set has completed. Typically this will be used to delete object handles which are only required by the action set. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Action Set Start' event handler.

Available by way of:

User, Group, Action, Action Set, System

### **On Action Start**

This event is called just before an action is run.

Available by way of:

User, Group, Action, Action Set, System

### **On Action End**

This event is called just after an Action has completed. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Action Start' event handler.

Available by way of:



User, Group, Action, Action Set, System

## File Events

### **On Transfer File Start**

This event is called for the File Action; just before each file is transferred either from the server to the mobile or vice versa.

Available by way of:

User, Group, File Action , Action Set, System

### **On Transfer File End**

This event is called just after a File Action has completed. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Transfer File Start' event handler.

Available by way of:

User, Group, File Action ,Action Set, System

### **On Delete File Start**

This event is called for the File Action, just before each file is deleted either on the server or the mobile.

Available by way of:

User, Group, File Action, Action Set, System

### **On Delete File End**

This event is called just after a file delete has completed. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Delete File Start' event handler.

Available by way of:

User, Group, File Action, Action Set, System

## Database Events

### **On Insert Row Start**

This event is called for the Database Synchronisation action, just before each row is inserted in either the server database or the mobile database. As well as performing additional validation on the information being inserted, this event can be used to modify columns just prior to insertion. For example, create a sequence number from the server database.

Available by way of:

User, Group, Action (Database Sync.), Action Set, System

### **On Insert Row End**

This event is called just after a database insert has completed. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Insert Row Start' event handler.

Available by way of:

User, Group, Action (Database Sync.), Action Set, System

### **On Delete Row Start**

This event is called for the Database Synchronisation action, just before each row is deleted from either the server database or the mobile database.

Available by way of:

## **'Events' and Script Actions**

User, Group, Action (Database Sync.), Action Set, System

### **On Delete Row End**

This event is called just after a database delete has completed. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Delete Row Start' event handler.

Available by way of:

User, Group, Action (Database Sync.), Action Set, System

### **On Update Row Start**

This event is called for the Database Synchronisation action, just before each row is updated on either the server database or the mobile database.

Available by way of:

User, Group, Action (Database Sync.), Action Set, System

### **On Update Row End**

This event is called just after a database update has completed. The event will not be called if either there has been an error which has not been forced to continue or the administrator elects to 'skip' in the 'On Update Row Start' event handler.

Available by way of:

User, Group, Action (Database Sync.), Action Set, System

# Programming with VBScript

As described in the section **'Events' and 'Script Actions'**, p.235, the framework that IBM Mobile Connect provides can be extended in almost any way by 'attaching' user-written pieces of VBScript (Microsoft Visual Basic Scripting Edition) to IBM Mobile Connect's logic. The VBScript can be used in response to any Event in the system, including handling errors, and can call upon other services outside of the IBM Mobile Connect environment to provide additional processing or services.

For example, in response to database inserts, tasks can be launched into workflow systems, faxes sent, and so on. In a similar way, any of a company's other business-logic components can also be 'plugged' into IBM Mobile Connect.

## VBScript

Examples of VBScript programming are included in the section: **Customizing IBM Mobile Connect with VBScript - examples**, p.244.

**Note:** When using VBScript to extend IBM Mobile Connect, programmers should beware not to access any objects that might display a user interface or require an action (such as clicking an 'OK' push button to continue). Since the service is a background task running on a server that is most likely to be unattended, access to any of these objects that contain a user-interaction element may cause the connection session to stall.

For a complete description of the VBScript programming language, the documentation can be downloaded from the Microsoft web site from the location:

*<http://www.microsoft.com/vbscript>*

## IBM Mobile Connect objects

IBM Mobile Connect extends the services provided by the VBScript programming language to include additional objects with properties and methods, which provide access into the core functionality of the IBM Mobile Connect service.

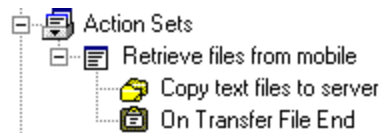
Using these objects, a programmer can find out the state of the mobile computer; which user is logging into the service; the current action being processed; the last error raised; and so on. The full implementation of the additional objects is detailed in the section: **IBM Mobile Connect objects**, p.251.

## Customizing IBM Mobile Connect with VBScript - examples

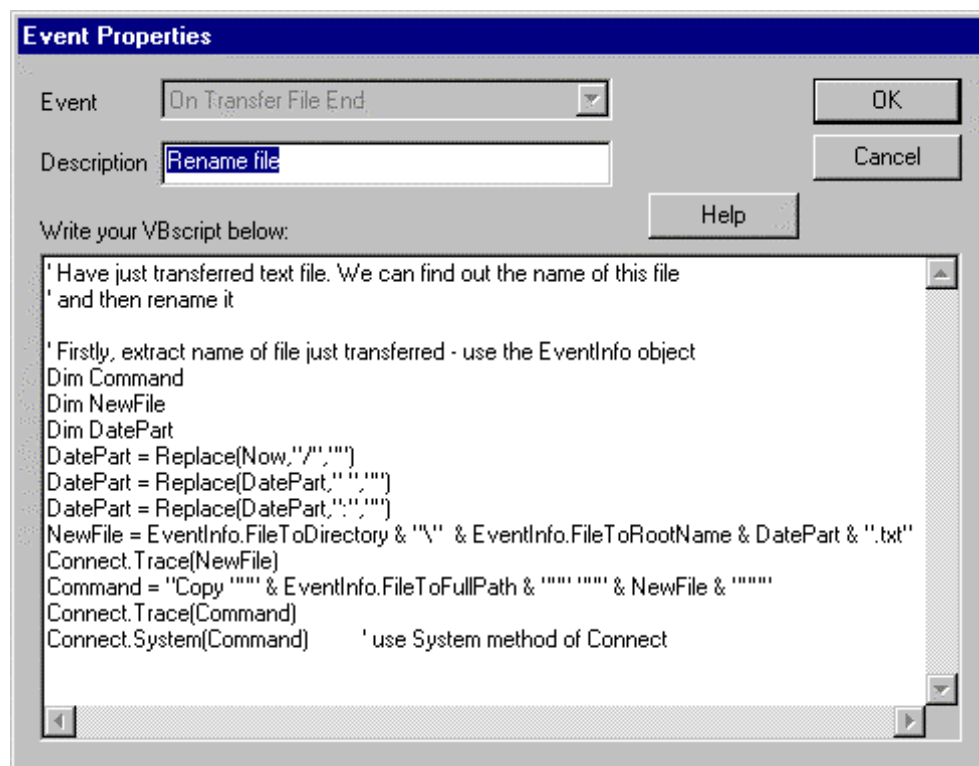
This section contains a number of examples which illustrate ways in which VBScript can be configured with IBM Mobile Connect to increase the flexibility of the system.

### Example 1 : Renaming files on the mobile

Suppose that files transferred from the mobile to the server were to be renamed with a date stamp appended to the file name. An action to achieve this could have an “On Transfer File End” event attached, as shown. Note that the event could be attached to the action set, user, group or system levels rather than at the action level.



The VBScript code for the event could look like :



Replace and Now are both keywords in VBScript and can be used to format a date and time for appending to the file name. The file name of the file transferred can be obtained from the IBM Mobile Connect EventInfo object – FileToDirectory, FileToRootName and FileToFullPath are all properties of this object (see **IBM Mobile Connect Objects**, p.251)

The Connect object has a method, System, which runs a command line on the server. In this case the Copy command copies the file just received to a new file in the same folder but with additional date information in its name. A further line of code could be added to delete the “FileTo” – this would use the Del command.

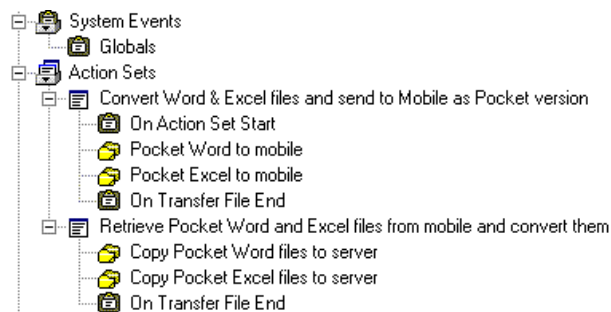
The code fragment above also illustrates the use of the Trace method of the Connect object. This can be used to supply debugging information for those adding VBScript to IBM Mobile Connect (see **Debugging VBScript in IBM Mobile Connect**, p.250.)

Note that any VBScript added to an IBM Mobile Connect configuration should avoid components which require user input and, ideally, interaction with the desktop.

## Example 2 : Converting Files on Windows CE mobiles

Windows CE includes Pocket versions of Word and Excel which create mobile-specific files with .pwd and .pxl extensions respectively. Software to convert these files to the desktop formats .doc and .xls and vice versa is available and can be automatically invoked by IBM Mobile Connect. For instance, a converter called HPCCConv is available to download from Microsoft's web site free of charge. Pocket file versions can be sent to the server and converted there and, conversely, desktop versions can be converted on the server and then sent to the mobile.

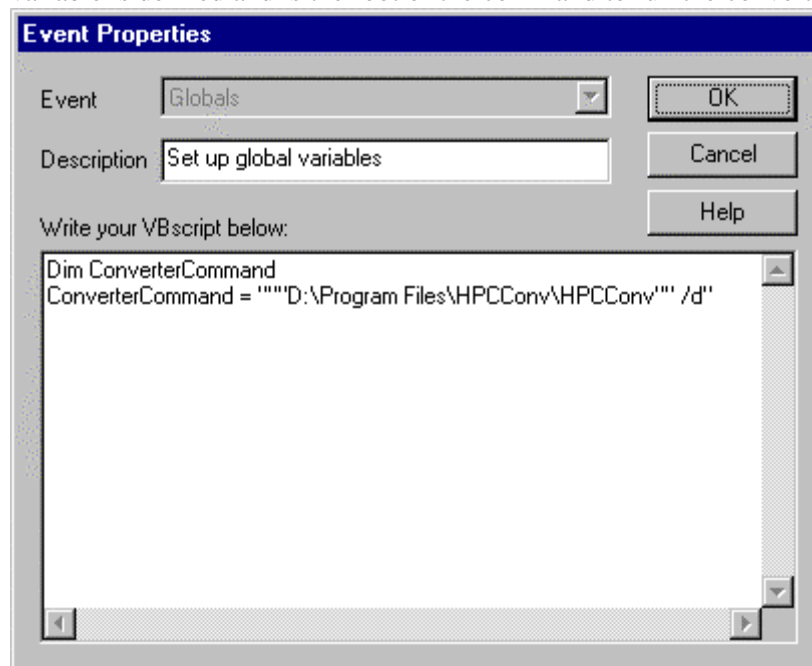
In this example, VBScript is added in four events. The following configuration tree shows these four events: 'Globals', 'On Action Set Start', 'On Transfer File End', and 'On Transfer File End'



The code for these four entries is detailed below:

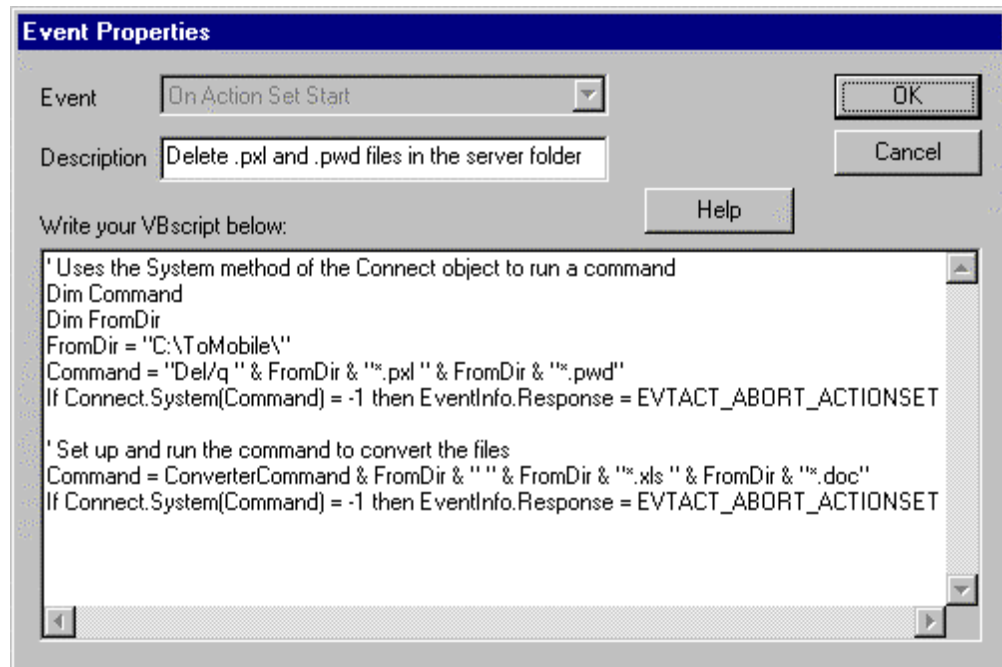
### Event 1

'Globals' allows the creation of variables to be used throughout the session. One variable is defined and is the root of the command to run the converter:



## Event 2

In the Action Set that's sending the files to the mobile, an initial event is activated to delete any existing Pocket versions and convert any desktop versions present. The deletion is required to avoid the dialog box which would otherwise appear when overwriting files with newer versions.

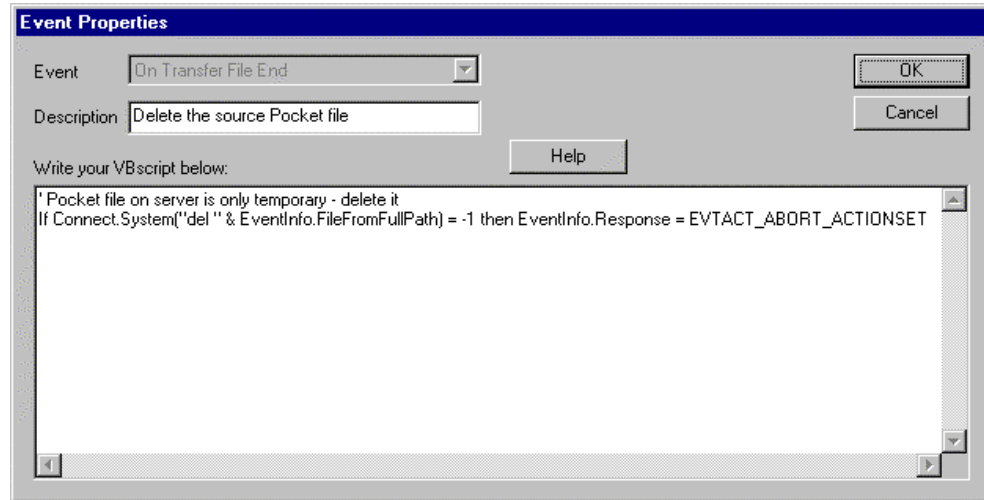


As shown in Example 1, Connect.System runs a command on the server. If unsuccessful a value of -1 is returned. Error handling in this case is achieved by setting EventInfo.Response = EVTACT\_ABORT\_ACTIONSET – this has the effect of aborting the whole action set (constants such as this are all shown in the section **IBM Mobile Connect Objects**, p.251.)

Following this VBScript the converted files are transferred to the mobile.

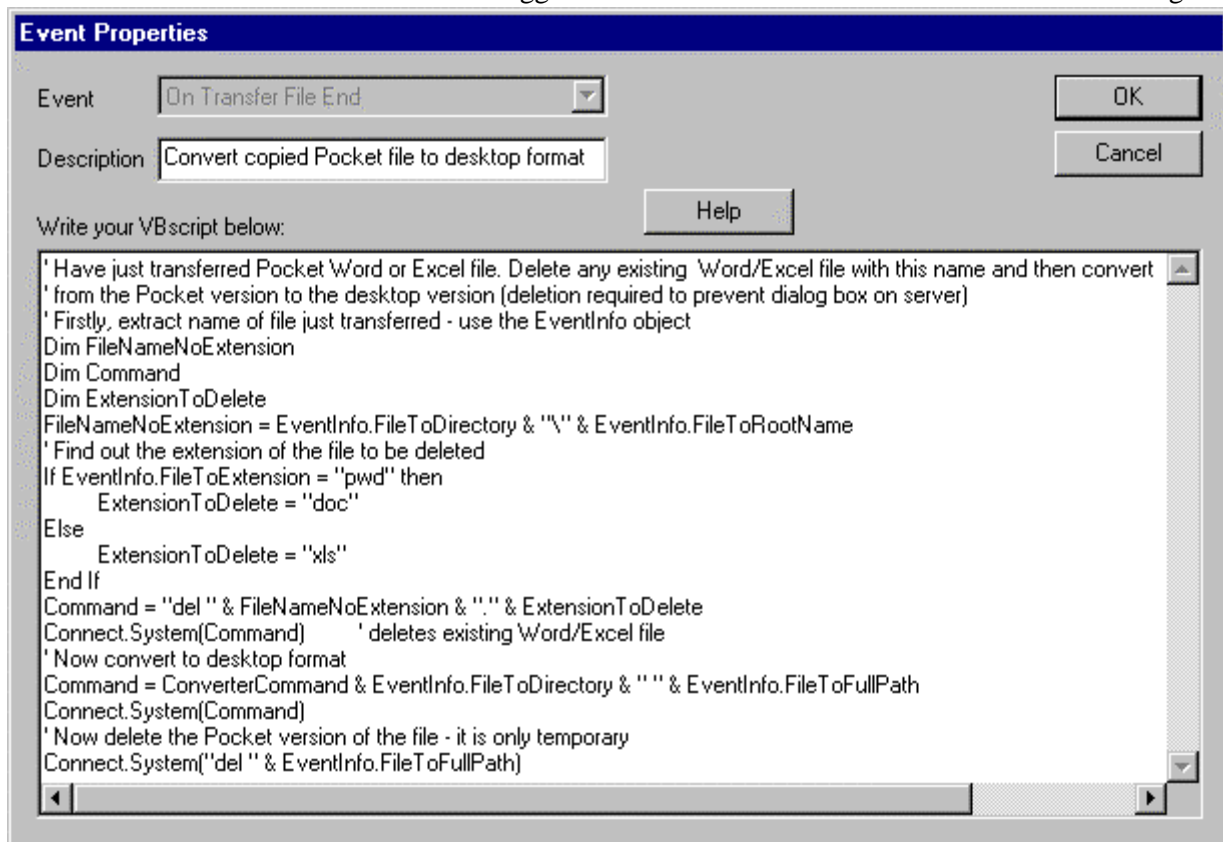
### Event 3

Another event, On Transfer File End, is then activated to tidy up loose ends, by deleting the Pocket file version on the server:



### Event 4

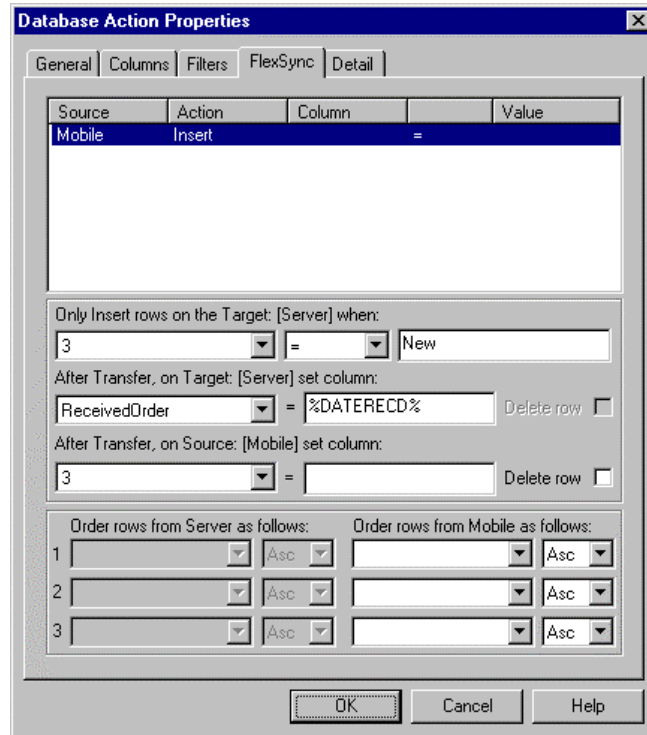
Transferring Pocket versions from mobile to server is a similar process although only one event needs to be triggered since conversion and deletion can be handled together.





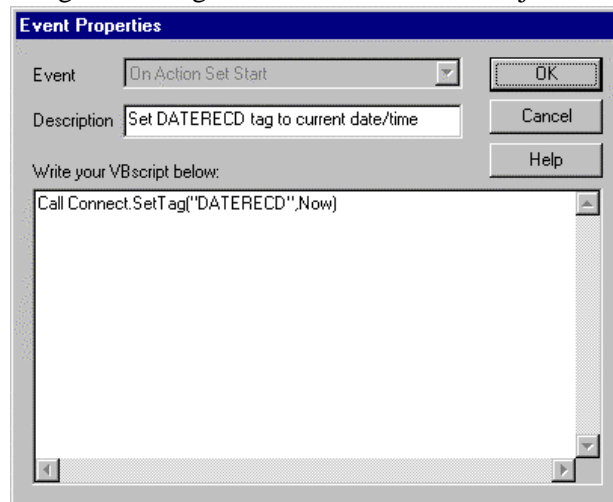
### Example 3 : Manipulating tag values

Suppose that a FlexSync database transfer was being used to update a server database with order information from the mobile, and that the server database needed to contain a date stamp showing when the order was inserted. The FlexSync panel itself could look like the one below:



Thus the column ReceivedOrder will be set to the value of the tag DATERECD.

This tag can be defined in the usual way (see the section: **What are 'tags'?**, p.147) but would need to be set to the current date and time at runtime. This can be done using the SetTag method of the Connect object :



## Debugging VBScript in IBM Mobile Connect

IBM Mobile Connect provides a number of features to help those creating VBScript for use with the system. These features are intended for use in single user mode and thus only support one connection at a time. To enable the debugging information, run ConnectService with a “-debug” parameter (ie. type ConnectService -debug at the command line.)

Errors generated by IBM Mobile Connect will be reported to the programmer using a message box. At this stage the program can be terminated or allowed to continue. In the message box, the “Line Number” is the line referred to in the script file. This is the actual VBScript file generated by IBM Mobile Connect and output to C:\ConnectScript.txt when the program is running in -debug mode. Each Action Set and Action has its own sub-procedure, with global definitions at the beginning of the file.

A second file, C:\ConnectTrace.txt, is output in -debug mode. This file gives timings and a trace of connections established, actions processed and events fired. The trace file can be augmented using the Trace method of the Connect object. Connect.Trace(value) outputs the value specified to the trace file and can be added to VBScript in any event. Trace is ignored when IBM Mobile Connect is not running in debug mode and hence references to it can be left in the VBScript code for activation when the debugging information is required.

## IBM Mobile Connect objects

The IBM Mobile Connect system extends the VBScript language by adding four new high level objects for obtaining information about the current processing of the IBM Mobile Connect service and performing transfers between the mobile and server computers. The four objects are summarized below:

### **Connect**

A core object used to transfer information between a mobile and server computers.

### **EventInfo**

An object used to detail the current activity of the service and to provide feedback to the service about the next action that should be taken.

### **MobileInfo**

This object provides detailed information about the mobile computer, such as the amount of RAM left, battery state, and so on.

### **SessionInfo**

This object provides information about the current user, the previous user and the connection time.

## The 'Connect' object

### Database Transfer Properties and Methods

#### Properties

Property	Description
DBServerDataSource	ODBC data source name for server database (string)
DBServerUser	Username to connect to server database as (string)
DBServerPassword	Password for connecting to database (string)
DBServerTable	Name of table on server database (string)
DBMobileDatabase	Name of database on mobile
DBServerChangesAllowed	Flags indicating what changes are allowed on the server (short)
DBMobileChangesAllowed	Flags indicating what changes are allowed on the mobile (short)
DBBulkMode	Server to mobile database transfer to use bulk mode (Boolean)
DBODBCConnOption	Option for opening ODBC data source (short)

Flag values for DBServerChangesAllowed and DBMobileChangesAllowed

Flag	Description
DCA_INSERT	Allow rows to be inserted
DCA_UPDATE	Allow rows to be updated
DCA_DELETE	Allow rows to be deleted
DCA_SMART	Use FlexSync transfers - MUST be set in BOTH DBServerChangesAllowed and DBMobileChanges allowed

Values for DBODBCConnOption

Option	Description
ODBC_SNAPSHOT	Open recordset as snapshot
ODBC_DYNASET	Open recordset as dynaset
ODBC_CURSOR_LIBRARY	Open recordset as snapshot with cursor library

#### Methods

Method	Parameters	Description
DBCclear	None	Resets all database transfer properties to the default values
DBTransfer	TransferType (short)	Perform the transfer - see below for valid values of TransferType
DBAddColumn	ServerColumnName (string), MobileColumnName (string), ServerDisplayName (string), MobileDisplayName (string), PrimaryKey (Boolean). [The last six numerical values are for ConnectService internal use.]	Adds a column to the list of columns known to the server. ServerColumnName or MobileColumnName can be blank (but not both).
DBAddFilter	Machine (short), ColumnName (string), Value (string), Operator (short)	Adds a filter. Machine is 0 for mobile, 1 for server. See below for values for Operator.
DBSetSmart	DataFlow (short), ColumnName	Adds a FlexSync transfer. See below for

Method	Parameters	Description
	(string), SmartOperator (short), Value (string)	DataFlow and SmartOperator values.
DBAddSmartSort	Machine (short), ColumnName (string), Descending (Boolean)	Adds a FlexSync sort. Machine is as for DBAddFilter. Descending is True for a decreasing sort order, False for ascending
DBSetAfter	Machine (short), DoThisAfter (short), DataFlow (short), ColumnName (string), Value (string)	Adds a 'set after'. Machine, DataFlow and DoThisAfter values are listed below.

Valid values for the TransferType parameter for the DBTransfer method

TransferType	Description
DBTT_TOMOBILE	Synchronise from server to mobile
DBTT_TOSERVER	Synchronise from mobile to server
DBTT_TRUNCATEMOBILE	Truncate (remove all rows from) database on mobile
DBTT_DELETEMOBILE	Delete the database on the mobile

Valid values for the Operator parameter for DBAddFilter and SmartOperator parameter for DBAddSmart.

Operator or SmartOperator	Description
FOP_EQUALS	Column equals value
FOP_NOTEQUALS	Column does not equal value
FOP_BLANK	Column is blank
FOP_NOTBLANK	Column is not blank
FOP_NULL	Column is null
FOP_NOTNULL	Column is not null

Valid values for the DataFlow parameter for the DBAddSmart method

DataFlow	Description
DC_INSERTMOBILE	Insert rows on server from mobile
DC_UPDATEMOBILE	Update rows on server from mobile
DC_DELETEMOBILE	Delete rows on mobile
DC_INSERTSERVER	Insert rows on mobile from server
DC_UPDATESERVER	Update rows on mobile from server
DC_DELETESERVER	Delete rows on server

## File Transfer Properties and Methods

### Properties

Property	Description
FileToDirectory	Destination folder name (string)
FileFromDirectory	Source folder name (string)
FileToSpec	Pattern for files to receive from mobile (string)
FileFromSpec	Pattern for files to send to mobile (string)
FileIncludeSubDirs	Include subfolders if True, ignore otherwise (Boolean)

## Programming with VBScript

Property	Description
FileAllowDeletes	Allow deletion of files if True, don't otherwise (Boolean)
FileDirectoryTransfer	Transfers folders if True, files otherwise (Boolean)
FileCopyWhen	When to copy files - see below for values (short)

Valid values for FileCopyWhen property

File CopyWhen	Description
FCW_ALWAYS	Copy file always
FCW_SOURCEFILENEWER	Copy file when source file is newer than the destination file

### Methods

Method	Parameters	Description
FileClear	None	Resets all file transfer properties to the default values
FileTransfer	TransferType (short)	Perform the transfer - see below for valid values of TransferType

Valid values for the TransferType parameter for the FileTransfer method

TransferType	Description
FTT_SYNCTOSERVER	Synchronise from mobile to server
FTT_SYNCTOMOBILE	Synchronise from server to mobile
FTT_DELETEONMOBILE	Delete file from mobile
FTT_DELETEONSERVER	Delete file from server

## Registry Transfer Properties and Methods

### Properties

Property	Description
RegDefault	True if the default value is to be modified, false to use RegValueName
RegRootKey	The root registry key - see below (short)
RegSubKey	The sub key name (string)
RegValueName	The name of the registry value to create/update/delete (string)
RegPath	Filename of a registry file to backup or restore the registry to/from (string)
RegDataType	Datatype of registry value - see below for values (short)
RegValueData	Data for value to be created or updated (string)

Valid values for RegRootKey property

RegRootKey	Description
RK_HKEYCLASSESROOT	HKEY_CLASSES_ROOT
RK_HKEYCURRENTUSER	HKEY_CURRENT_USER
RK_HKEYLOCALMACHINE	HKEY_LOCAL_MACHINE
RK_HKEYUSERS	HKEY_USERS
RK_HKEYCURRENTCONFIG	HKEY_CURRENT_CONFIG (Win32 only)
RK_HKEYDYNDATA	HKEY_DYN_DATA (Win32 only)

## Valid values for RegDataType property

RegDataType	Description
RVT_STRING	String data
RVT_BINARY	Binary data
RVT_DWORD	DWORD data

**Methods**

Method	Parameters	Description
RegClear	None	Resets all registry transfer properties to the default values
RegTransfer	TransferType (short)	Perform the transfer - see below for valid values of TransferType

## Valid values for the TransferType parameter for the RegTransfer method

TransferType	Description
RTT_CREATEKEY	Create a new registry key
RTT_CREATEVALUE	Create a new registry value
RTT_UPDATEKEY	Update a registry key
RTT_UPDATEVALUE	Update registry value
RTT_DELETEKEY	Delete registry key
RTT_DELETEVALUE	Delete registry value
RTT_BACKUPKEY	Backup key, and all its sub-keys and values to a file
RTT_BACKUPVALUE	Backup single value of a key to a file
RTT_BACKUPALLVALUES	Backup all values of a key to a file
RTT_RESTOREKEY	Restore key and all its sub-keys and values from a file
RTT_RESTOREVALUE	Restore a single value from a file
RTT_RESTOREALLVALUES	Restore all values of a key from a file
RTT_RESTOREFILE	Restore whole registry file

## General properties and methods

**Methods**

Method	Parameters	Description
ClearTag	TagName (string)	Removes a tag from the list of known user tags
GetTag	TagName (string)	Returns a string containing the value of a tag
SetTag	TagName (string), Value (string)	Sets the value of a user tag - system tags cannot be changed by the user.
Message	MsgText (string)	In debug mode only, displays a message box containing the specified string
Trace	Value (variant)	In -debug mode adds the specified value to the trace file (see <b>Programming with VBScript – Debugging</b> )
System	Command (string)	Execute a command on the server. Returns – 1 if there is a failure to launch the command or the command interpreter. Otherwise returns the return value of the command.

## The 'EventInfo' object

**Properties.** All except GoodbyeMessage, Handled, Response and Skip are READ ONLY properties

Property	Type	Description
Action	String	The name of the current Action (transfer)
ActionSet	String	The name of the current Action Set
Description	String	Description of any IBM Mobile Connect error that occurs
ErrorNumber	Long	The error number.
ErrorTime	Date	Time the last error occurred
EventName	String	Name of the current Event
EventNumber	Long	Event Number of the current Event (see table below)
FileFromDirectory	String	The source folder for the current file action
FileFromExtension	String	The extension of the current source file
FileFromFileName	String	The name of the current source file (including extension)
FileFromFullPath	String	The full path and name of the current source file
FileFromRootName	String	The name of the current source file (with any extension removed)
FileToDirectory	String	The destination folder for the current file action
FileToExtension	String	The extension of the current destination file
FileToFileName	String	The name of the current destination file (including extension)
FileToFullPath	String	The full path and name of the current destination file
FileToRootName	String	The name of the current destination file (with any extension removed)
GoodbyeMessage	String	If set to a non-blank message then this message will override the system generated message displayed on the client at the end of the session
Handled	Boolean	Has this Event been handled? Set to 0 (FALSE) to call next Event handler
NativeErrorCode	Long	Error code passed to IBM Mobile Connect by a Windows sub-system
Response	Short	Response code for this Event handler. Valid values are EVTACT_CONTINUE, EVTACT_ABORT_SESSION, EVTACT_ABORT_ACTIONSET or EVTACT_ABORT_ACTION
ScriptUser	String	The user that the current Action is being run for
SessionID	Long	The identifier of the current session
Skip	Boolean	Set to true in a start Event (for example: EVENT_ON_TRANSFER_START) to skip processing of the Action
Supplementary	String	Supplementary information to an IBM Mobile Connect error number
TargetMachine	Boolean	The target machine for the current event. Machine is 0 for mobile, 1 for server.



Valid values for the EventNumber property of the EventInfo object.

Event number
EVENT_ON_TRANSFER_START (ie. on Action start)
EVENT_ON_TRANSFER_END (ie. on Action end)
EVENT_ON_COPY_FILE_START
EVENT_ON_COPY_FILE_END
EVENT_ON_DELETE_FILE_START
EVENT_ON_DELETE_FILE_END
EVENT_ON_RENAME_FILE_START
EVENT_ON_RENAME_FILE_END
EVENT_ON_ERROR
EVENT_ON_INSERT_ROW_START
EVENT_ON_INSERT_ROW_END
EVENT_ON_DELETE_ROW_START
EVENT_ON_DELETE_ROW_END
EVENT_ON_UPDATE_ROW_START
EVENT_ON_UPDATE_ROW_END
EVENT_ON_CONNECT
EVENT_ON_DISCONNECT
EVENT_ON_TAKE_OWNERSHIP_START
EVENT_ON_TAKE_OWNERSHIP_END
EVENT_ON_LOSE_OWNERSHIP_START
EVENT_ON_LOSE_OWNERSHIP_END
EVENT_ON_ACTION_SET_START
EVENT_ON_ACTION_SET_END
EVENT_ON_FAILED_LOGIN
EVENT_ON_TRANSFER_FILE_START
EVENT_ON_TRANSFER_FILE_END

**Methods**

Method	Parameters	Description
DBGetColumnValue	ColumnName (String), Machine (short)	Returns the value of the named column for the Machine (0 = Mobile, 1 = Server) in the current database event - this is only valid in a database event
DBSetColumnValue	ColumnName, Machine, Value	Changes the value of the named column in the current database event - only valid in a database event

## The 'MobileInfo' object

All properties are READ ONLY

Property	Type	Description
ACAdaptorInUse	Boolean	Is the client using AC power?
BackupBatteryCritical	Boolean	Is the backup battery life critical?
BackupBatteryFullLifeSeconds	Long	Estimated full life of backup battery in seconds
BackupBatteryLifePercent	Short	Estimated percentage of backup battery life left
BackupBatteryLifeSeconds	Long	Estimated life time of backup battery left
BackupBatteryLow	Boolean	Is backup battery low?
BackupBatteryRemoved	Boolean	Has backup battery been removed?
BatteryCritical	Boolean	Is main battery life critical?
BatteryFullLifeSeconds	Long	Estimated full life of main battery in seconds
BatteryLifePercent	Short	Estimated percentage of main battery life left
BatteryLifeSeconds	Long	Estimated life time of main battery left
BatteryLow	Boolean	Is main battery low?
BatteryRemoved	Boolean	Has main battery been removed?
ClientVersionMajor	Byte	Major part of IBM Mobile Connect client version number
ClientVersionMinor	Byte	Minor part of IBM Mobile Connect client version number
ClientVersionText	String	Textual IBM Mobile Connect client version number
LanguagePrimaryID	Short	Primary language identifier of client machine (see winnt.h for values)
LanguageSubID	Short	Secondary language identifier of client machine (see winnt.h for values)
MemoryAvailPageFileK	Long	Amount of memory available in the pagefile (swap file) in Kbytes
MemoryAvailPhysicalK	Long	Amount of physical memory unused in Kbytes
MemoryAvailVirtualK	Long	Amount of virtual memory available to the user process in Kbytes
MemoryInUsePercent	Long	Estimate of the percentage of memory in use
MemoryTotalPageFileK	Long	Total size of the pagefile in Kbytes
MemoryTotalPhysicalK	Long	Total amount of physical memory in Kbytes
MemoryTotalVirtualK	Long	Total amount of virtual memory available to the user process in Kbytes
NumberOfProcessors	Long	Number of processor on machine running the client
ProcessorType	Long	Number indicating the processor type (see below)
ProcessorTypeText	String	String description of processor type
OSBuild	Long	Build number of operating system that client is running on
OSName	String	Operating system name
OSNameSupplementary	String	Information about last service pack applied to client machine
OSVersionMajor	Long	Major part of operating system version number
OSVersionMinor	Long	Minor part of operating system version number
ScreenHeight	Long	Screen height of machine client is running on
ScreenWidth	Long	Screen width of machine client is running on
StoreFreeSize	Long	Amount of store free on client machine
StoreSize	Long	Total amount of store available on client machine
SystemTime	Date	Current system time on the client machine

**Values for ProcessorType property**

Value	Description
386	Intel 386
486	Intel 486
586	Intel Pentium
860	Intel 860
2000	Mips R2000
3000	Mips R3000
4000	Mips R4000
10003	Hitachi SH3
10005	Hitachi SH4
103	SHx SH3
104	SHx SH4
21064	Alpha 21064
601	Power PC 601
603	Power PC 603
604	Power PC 604
620	Power PC 620
812	Power PC 821
2577	StrongArm
1824	ARM 720
2080	ARM 820
2336	ARM 920

**The 'SessionInfo' object**

All properties are read only

Property	Description
User	The name of the user that logged on
PrevUser	The name of the previous user that logged on
Password	The password of the user that logged on
ConnectTime	The time the user connected to the server



# Appendix A: Using the Palm Generic Plugin

## What role do plugins play in IBM Mobile Connect?

Among other things, an IBM Mobile Connect plugin is used to enable a mobile application to ‘talk’ to IBM Mobile Connect, so that IBM Mobile Connect can then synchronize the mobile’s data with data held on a server. In this respect, these ‘synchronization’ plugins are therefore the IBM Mobile Connect equivalent of 3Com Palm’s ‘conduits’. (For a full discussion of these ‘synchronization’ plugins and the related issues, see the sections: **Using IBM Mobile Connect with Palm OS mobiles**, p.15, and: **To add a new Database Action to an Action Set**, p.180) The Palm Generic Plugin is supplied by IBM, and is installed as part of the standard IBM Mobile Connect installation. This plugin should therefore always be available within IBM Mobile Connect.

## The Palm Generic Plugin

Suppose that you’re writing a new application for a Palm OS mobile, and you want to be able to synchronize the application’s data remotely with any database source that your organization’s network has access to. One solution would be to use a forms-generation package, such as Satellite Forms (for which IBM Mobile Connect already supplies a ‘synchronization’ plugin). But suppose you don’t want to use any of the existing forms-packages but want to write your own custom application. This is where you would use the Palm Generic Plugin. The generic plugin allows the Palm OS mobile to ‘talk’ to IBM Mobile Connect, by coordinating the way your Palm OS C data is transferred to and from the equivalent database structure on the network. The application must be written using C or C++ (using Metrowerks, or some other Palm OS compiler).

## The steps involved in using the generic plugin

1. You define the names of the variables (C identifiers) that you will be using, and define the type of each variable (that is: ‘String’, ‘Long’, ‘Binary’, and so on). While doing this you’ll also create the Database Action that you’ll use with your completed application.
2. IBM Mobile Connect generates some C source code for you to use in your application. The source code contains all the code necessary to transfer the data (contained in the variables you’ve defined) back and forth between your mobile application and IBM Mobile Connect.
3. Write the C application for the Palm OS mobile.
4. The variables that you defined in step 1 will be listed within the Database Action that you also created in step 1. Within this Database Action, you may now map these variables onto the columns of any database that’s accessible over your network.

### Defining the variables that the plugin will use

The variables are defined from within the IBM Mobile Connect Admin program, by using the **Generic Palm Sync Plugin** form. To display this form, take the following steps:

1. Start the Admin program (selecting the Palm OS .acf file that's going to contain your new Database Action).
2. Create the new Database Action (see the section: **To add a new Database Action to an action Set**, p.147). The **Database Action Properties** form will appear.
3. Ensure that the 'General' tab is displayed. In the **Plugin Name** field, select *Palm Generic Plugin* using the drop-down list-box.
4. Click Properties. The **Generic Palm Sync Plugin** form will appear.

The form's window shows a list of the currently defined variables alongside their types (since none have been defined yet, the list will be empty). Each left-hand item in the list (the 'Pilot Database Column') shows the variable name as it will be used in the C program. The right-hand item (the 'Data Type') shows the variable type. The following points should be noted:

- If you attempt to add a new variable, using a variable name that has already been used in the current list, IBM Mobile Connect will not allow this, and will show the error: 'Unacceptable duplicate value'.
- IBM Mobile Connect will not check that the variable name you provide is a valid C variable name. Therefore you (the programmer) must ensure that the variable name does not contain disallowed characters, such as '+', '/', '.', and so on.
- After you've created the variables that your application will need, and then closed the **Generic Palm Sync Plugin** form, when you next open the form, you will notice that the variables may have been sorted into a different order. Where necessary, this is done to enhance efficiency during data exchanges. IBM Mobile Connect sorts the records in the following order—fixed length fields like numbers and dates are placed before variable length ones like strings, and binary data.

**Note:** When you use the generic plugin, the information about the variables is stored 'in' the particular Database Action that you first defined them in. This means that the plugin can be used in any number of different Database Actions, and in each Database Action, the variable names that you define in that Database Action will remain exclusive to that Database Action, and they will not be visible in any other Database Action. Therefore, for each new synchronization that you want to set up, you would create a new Database Action, and then use the generic plugin within that Database Action. If it happens that you want to use a variable name that you've already used in some other synchronization, then you are free to re-use it here, and there will be no connection between this instance of the name and the instance in the other Database Action.

## Generating the C source code

To generate the C source code that includes all the variables that you've defined (see: **Defining the variables that the plugin will use**, p.262), take the following steps:

1. Open the **Database Action Properties** form of the Database Action that you created to synchronize your mobile application.
2. Ensure that the 'General' tab is selected, and in the **Plugin Name** field, select *Palm Generic Plugin* using the drop-down list-box.
3. Click Properties. The **Generic Palm Sync Plugin** form will appear.
4. The form's window will show all the variables that you've defined within this particular Database Action. To generate the C source code that includes these variable, click Generate Source. The C source code will be written to a file in your TEMP directory, called: 'Pilot\_db.h'.

Note that at this stage it is not necessary to map these variables onto server-side columns within IBM Mobile Connect (this can be done later—once your Palm OS C application has been written). If you wish to do this now though, it can be done at any stage once each variable has been defined on the **Generic Palm Sync Plugin** form. To do this, you would close the form and select the 'Columns' tab of the **Database Action Properties** form (see the section: **Setting up a new Database Action**, p.178).

## Using the C source code

When IBM Mobile Connect generates the generic -plugin C source code, one file is placed in the TEMP directory: 'Pilot\_db.h'. A file called 'Pilot\_db.c' is placed within the 'Pilot\_db.h' file.

The header file contains the details of a structure which contains all the information needed to perform the data transfers between your mobile application and IBM Mobile Connect. The structure stores all the fixed length data-types as members, whereas the variable length fields are indicated in the structure by pointers to dynamically allocated space.

The two main utility functions perform the task of either unpacking data from a raw record into this structure, or packing the contents of the structure back into a record.

The responsibility for these records, and the pointers to them, lies entirely with the C programmer, who can use the standard Pilot record-handling techniques to communicate their data with the Pilot database as they require.

The utility functions create the records in the format that IBM Mobile Connect expects them in, so that the records can be synchronized with the corresponding server database records. The order of the fields in the record corresponds exactly to the order of the structure elements in the header file.

## Changing the data in variable length fields

If you wish to change a string or binary, it is probably best to do so with the routines that are provided in the source code that IBM Mobile Connect generates. These

## Appendix A: Using the Palm Generic Plugin

routines unallocate the space used for the old values and create new ones. But in situations where performance is of vital performance, you (the C programmer) may want to perform this task using your own code. In this situation, you are responsible for ensuring that the data is handled according to the established C rules and conventions.

### Data types

The generic plugin includes support for the 14 byte Pilot DateTime Type. This datatype provides a level of accuracy greater than the smaller, more often used, 2-byte types.

The generic plugin has no direct support for floating point values at the moment. It is recommended that they are converted to strings using the standard C routines, and passed as such.



# Appendix B: Satellite Forms and IBM Mobile Connect

This section outlines how to set up IBM Mobile Connect for synchronization with Satellite Forms applications on Palm OS mobiles.

You should use either of two approaches to do this. These two approaches are needed mainly due to differences in the method of data storage used by Satellite Forms in the different versions. In IBM Mobile Connect, you should use one 'plugin' to synchronize with versions of Satellite Forms below version 2.5, and the other plugin to synchronize with versions 2.5 and above (for a full discussion of 'plugins' and the related issues, see the sections: **Using IBM Mobile Connect with Palm OS mobiles**, p.15, and **To add a new Database Action to an Action Set**, p.180).

Where possible you should use Satellite Forms version 2.5 and above, as this will allow faster synchronization.

## When using versions of Satellite Forms up to version 2.0

### Synchronization

When setting up database transfers in the IBM Mobile Connect Admin module, use the **'Satellite Forms' Plugin**. This plugin is able to interpret and create records created by Satellite Forms applications up to and including version 2.0 of Satellite Forms. There are a couple of limitations to the synchronizations that should be used in your Satellite Forms applications, mainly due to the way that Palm OS maintains its modification flags.

Changes made to a server database will be correctly reflected on the Palm OS mobile, and records that the server has inserted on the Palm OS mobile in this way will be correctly 'seen' by the server from then onwards. However, if your Satellite Forms application updates records on the Palm OS mobile, these may not always be noticed by the server, and if your Satellite Forms application deletes records on the Palm OS mobile, this will cause problems. You should avoid allowing your Satellite Forms application to make any of these types of updates when you're using this release of Satellite Forms.

### Defining Database Actions

To define the correspondence between fields in a Satellite Forms application and columns in a server database, use the 'Columns' tab of the **Database Action** form in the IBM Mobile Connect Admin module. Ensure that you have selected the **'Satellite Forms' Plugin** on the 'General' tab. Then, rather than using the Satellite Forms field names, use the corresponding **number** of the field, starting at 1.

## Appendix B: Satellite Forms and IBM Mobile Connect

For example, suppose the Satellite Forms application contained fields:

RefNo  
Name  
Address  
Tel

These would be entered in the Admin module as '1' (rather than 'RefNo'), '2' (rather than 'Name'), '3' (rather than 'Address') and '4' (rather than 'Tel').

The order in which the columns are entered into the Admin module is not important. In all cases the Mobile and Internal Data Type should be set to 'String'.

## Installation of Satellite Forms applications

Satellite Forms version 2.0 is closely linked to HotSync, and the Satellite Forms applications that version 2.0 creates can in general only be installed using HotSync and the associated conduit. But when using IBM Mobile Connect it is possible to work around this problem and allow Satellite Forms applications to be remotely installed and updated.

To achieve this, take the following steps:

1. Use HotSync to install the Satellite Forms engine, the data, and the application in the normal way to a single Palm OS mobile.
2. Use an IBM Mobile Connect File Action to back up these onto the server as PRC and PDB files. These 'desktop' files are essentially the Palm OS equivalents of executables and databases respectively. (Note that a Satellite Forms application consist of the Satellite Forms 'engine' and the application itself.)
3. Once you have these files you can then use IBM Mobile Connect File Actions to send the complete files to any number of Palm OS mobiles, having used HotSync once.

## When using versions of Satellite Forms from version 2.5 onwards

Satellite Forms version 2.5 (or later) provides greater compatibility with IBM Mobile Connect synchronization and is the preferred version.

## Synchronization

When setting up database transfers in the IBM Mobile Connect Admin module, use the **'Satellite Forms 2.5' Plugin**. This plugin is able to interpret and create records created by Satellite Forms Enterprise (version 2.5) applications.

## Defining Database Actions

Create Database Actions as for the earlier Satellite Forms Plugin (that is: use the number of the field rather than the name) and choose the 'Internal Data Type' to be as close to your Satellite Forms data type as possible. Also, on the 'General' tab of the Database Action that you are setting up, click the 'Properties' push button against the

Mobile Plugin Name. In this dialog enter the field numbers and corresponding names and types, in order (that is: 1, 2, 3, and so on).

## **Installation of Satellite Forms 2.5 applications**

Installation of these applications can work in the same way as described above for earlier versions. However, if you are able to generate a 'run-time' version of your application then there will be no need to HotSync your application back to the desktop to obtain a PRC file. The run-time version will generate the application file for you. Once you have this, follow the steps as above for redistribution.



# Appendix C: Column Mapping for Lotus Notes to Palm OS

## Key:

Name:	The name of the field.
Notes Field:	The field used for storage in Lotus Notes.
Fetch Formula:	The formula run against a note to retrieve the value for this field.
Used on Palm:	Whether this field is used on the Palm OS device (Y/N).
Default Value:	If the field is not used on the mobile device, what value is inserted into Notes. Or, how are values from the mobile device decoded into Notes.
Description:	Additional information.

## Mail

Default Formulae for defining the data set for synchronization

Inbox	Folder: \$Inbox
Sent	DeliveredDate="" & PostedDate!=""
Draft	PostedDate = "" & \$MessageType = "" & !(ExcludeFromView = "D")

Name	<b>Subject</b>
Notes Field	<b>Subject</b>
Fetch Formula	@If(form="NonDelivery Report";"DELIVERY FAILURE: "+FailureReason;Form="Delivery Report";"DELIVERED: "+Subject;Form="Return Receipt";"RECEIVED: "+Subject;Form="ReturnNonReceipt";"NOT RECEIVED: "+Subject; Subject)
Used on Palm	Y
Default Value	N/A

Name	From
Notes Field	<b>From</b>
Fetch Formula	<b>SentBy := @If(Principal = ""; From; Principal);CN := @Trim(@If(DeliveredDate != ""   SendTo = ""; @Name([CN]; SentBy); @Name([CN]; @Subset(SendTo; 1))));G := @If(CN = ""; @Trim(@If(DeliveredDate != ""   SendTo = ""; @Name([G]; SentBy); @Name([G]; @Subset(SendTo; 1)))); "");S := @If(CN = ""; @Trim(@If(DeliveredDate != ""   SendTo = ""; @Name([S]; SentBy); @Name([S]; @Subset(SendTo; 1)))); "");Person := @If(CN != ""; CN; G != ""; G + " " + S; S != ""; S;</b>

Appendix C: Column Mapping for Lotus Notes to Palm OS

	<b>@Trim(X400FreeForm));@If(Form = "Delivery Report" : "NonDelivery Report" : "Trace Report"; "Mail Router"; Person)</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	Send To
Notes Field	<b>SendTo</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>Copy To</b>
Notes Field	<b>CopyTo</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	Blind Copy To
Notes Field	<b>BlindCopyTo</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	Body
Notes Field	<b>Body</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	Return Receipt Required
Notes Field	<b>ReturnReceipt</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>("1" = Receipt Required, "0" = No Receipt Required)</b>

Name	Delivery Report Required
Notes Field	<b>DeliveryReport</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>("C" = Delivery Report Required, "B" = No Report Required)</b>

Name	Mail Priority
Notes Field	<b>Importance</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>("3" = Low, "2" = Medium else "1")</b>

Name	Digitally Signed
Notes Field	<b>Sign</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“0”</b>

Name	Message Encrypted
Notes Field	<b>Encrypt</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“0”</b>

Name	Message Date
Notes Field	<b>PostedDate</b>
Fetch Formula	<b>@If(DeliveredDate != ''; DeliveredDate; PostedDate != ''; PostedDate; @Created)</b>
Used on Palm	Y
Default Value	N/A

Name	Mailing Folder
Notes Field	<b>Folder</b>
Fetch Formula	N/A
Used on Palm	Y (Category)
Default Value	N/A
Description	<b>This is an internal field used to determine the type of mail message being passed through</b>

Name	Notes Form
Notes Field	<b>Form</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“”</b>
Description	<b>This field is only provided to allow users to override the default form entered in the admin program</b>

## Calendar

**Note:** All calendar repeats are expanded on the mobile device into discrete entries for robustness except daily repeats with a period of 1 day which are matched to Notes events.

Default Formulae for defining the data set for synchronization

Calendar	<b>@IsAvailable(CalendarDateTime) &amp; !(@IsAvailable(\$Ref))</b>
Description	<b>You can also add ‘&amp; CalendarDateTime &gt;=@adjust(@texttotime("today");0;0;-7;0;0;0)’ to</b>

Appendix C: Column Mapping for Lotus Notes to Palm OS

	<b>limit calendar entries downloaded to those from 7 days ago. Change -7 to -3 for 3 days ago, and so on.</b>
--	---

Name	Alarm Flag
Notes Field	<b>\$alarm</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	

Name	Alarm Offset
Notes Field	<b>\$alarmoffset</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A
Description	<b>The value from Notes needs to be converted into minutes, hours or days for the palm</b>

Name	Alarm Description
Notes Field	<b>\$alarmdescription</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	<b>Subject</b>

Name	Appointment Type
Notes Field	<b>AppointmentType</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	<b>“1” &amp; “2” (events and anniversaries) are mapped to Palm entries with no time (that is: all day). “3”, “4” &amp; “5” are mapped onto timed entries. Reminders (“4”) are timed entries with no duration (starttime = endtime)</b>

Name	Body
Notes Field	<b>Body</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	CalendarDateTime
Notes Field	<b>CalendarDateTime</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	N/A

Name	Chair
Notes Field	<b>Chair</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>



Appendix C: Column Mapping for Lotus Notes to Palm OS

Default Value	N/A
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Name	Duration
Notes Field	<b>Duration</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A
Description	<b>This field is always set to 1 in Notes except when we have an event over more than one day which on the Palm becomes a daily repeating appointment with a period of 1 day.</b>

Name	<b>End Date Time</b>
Notes Field	<b>EndDateTime</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	<b>EndDateTime unless reminder when startdatetime</b>

Name	<b>Exclude From View</b>
Notes Field	<b>ExcludeFromView</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	<b>“D”</b>

Name	<b>Form</b>
Notes Field	<b>Form</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	<b>“”</b>

Name	<b>From</b>
Notes Field	<b>From</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Private</b>
Notes Field	<b>OrgConfidential</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	<b>“1” = Yes, “” = No</b>

Name	<b>Principal</b>
Notes Field	<b>Principal</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	N/A

## Appendix C: Column Mapping for Lotus Notes to Palm OS

Name	<b>ReminderTime</b>
Notes Field	<b>ReminderTime</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>StartDate</b>

Name	<b>Start Date</b>
Notes Field	<b>StartDate</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>Start Date Time</b>
Notes Field	<b>StartDateTime</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>StartDate</b>

Name	<b>Subject</b>
Notes Field	<b>Subject</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>TimeRange</b>
Notes Field	<b>TimeRange</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>StartDate + EndDate</b>

Name	<b>ViewIcon</b>
Notes Field	<b>ViewIcon</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>If is event set to 9 otherwise 160</b>

## To Do List

Default Formulae for defining the data set for synchronization

To Do	<b>(Form = "Task"   DueDateTime != ""   @AllDescendants) &amp; !(ExcludeFromView = "T") &amp; !(Subject = "Memo")</b>
Description	<b>You can also exclude completed to do list items using the by adding '&amp; (!@IsAvailable(completeddatetime)   completeddatetime = "")'</b>

Name	<b>Description</b>
Notes Field	<b>Subject</b>

Appendix C: Column Mapping for Lotus Notes to Palm OS

Fetch Formula	N/A
Used on Palm	Y
Default Value	N/A

Name	<b>Note</b>
Notes Field	<b>Body</b>
Fetch Formula	N/A
Used on Palm	Y
Default Value	N/A

Name	<b>Due Date</b>
Notes Field	<b>DueDateTime</b>
Fetch Formula	N/A
Used on Palm	Y
Default Value	N/A

Name	<b>Priority</b>
Notes Field	<b>Importance</b>
Fetch Formula	N/A
Used on Palm	Y
Default Value	<b>1 = High, 2 = Medium, 3 = Low, 99 = Other</b>

Name	<b>Completed</b>
Notes Field	<b>CompletedDateTime</b>
Fetch Formula	N/A
Used on Palm	Y
Default Value	<b>Null date or no date = "0" otherwise "1"</b>

Name	<b>Completed Date</b>
Notes Field	<b>CompletedDateTime</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>If updated from palm set to todays date</b>

Name	<b>Form</b>
Notes Field	<b>Form</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>"</b>

Name	<b>From</b>
Notes Field	<b>From</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>When inserting from palm, insert users name in Canonical format</b>

Name	<b>Principal</b>
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Appendix C: Column Mapping for Lotus Notes to Palm OS

Notes Field	<b>Principal</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>When inserting from palm, insert users name in Canonical format</b>

Name	<b>Exclude From View</b>
Notes Field	<b>ExcludeFromView</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“D”</b>

Name	<b>AssignedTo</b>
Notes Field	<b>AssignedTo</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>When inserting from palm, insert users name in Canonical format</b>

Name	<b>Assign State</b>
Notes Field	<b>AssignState</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>If not completed 0 otherwise 9</b>

Name	<b>Copy To</b>
Notes Field	<b>CopyTo</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“”</b>

Name	<b>DefaultMailSaveOptions</b>
Notes Field	<b>DefaultMailSaveOptions</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“1”</b>

Name	<b>Due State</b>
Notes Field	<b>DueState</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>If completed 9 otherwise if due date &gt; today 0 else 1</b>

Name	<b>Send To</b>
Notes Field	<b>SendTo</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“”</b>

Name	<b>ViewIcon</b>
Notes Field	<b>ViewIcon</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>If completed 82 else 168</b>

## Memo List

Default Formulae for defining the data set for synchronization

Memo	<b>SELECT (Form = "Task"   DueDateTime != ""   @AllDescendants) &amp; !(ExcludeFromView = "T") &amp; (Subject = "Memo")</b>
------	---

Name	<b>Description</b>
Notes Field	<b>Subject</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Note</b>
Notes Field	<b>Body</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Priority</b>
Notes Field	<b>Importance</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	<b>1 = High, 2 = Medium, 3 = Low, 99 = Other</b>

Name	<b>UserField</b>
Notes Field	<b>As defined by value of userfield</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	""
Description	<b>Used to write additional columns</b>

Name	<b>Form</b>
Notes Field	<b>Form</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	""

Name	<b>From</b>
Notes Field	<b>From</b>
Fetch Formula	N/A
Used on Palm	N

Appendix C: Column Mapping for Lotus Notes to Palm OS

Default Value	<b>When inserting from palm, insert users name in Canonical format</b>
---------------	--

Name	<b>Principal</b>
Notes Field	<b>Principal</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>When inserting from palm, insert users name in Canonical format</b>

Name	<b>Exclude From View</b>
Notes Field	<b>ExcludeFromView</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“D”</b>

Name	<b>AssignedTo</b>
Notes Field	<b>AssignedTo</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>When inserting from palm, insert users name in Canonical format</b>

Name	<b>Assign State</b>
Notes Field	<b>AssignState</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>If not completed 0 otherwise 9</b>

Name	<b>Copy To</b>
Notes Field	<b>CopyTo</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“”</b>

Name	<b>DefaultMailSaveOptions</b>
Notes Field	<b>DefaultMailSaveOptions</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>“1”</b>

Name	<b>Due State</b>
Notes Field	<b>DueState</b>
Fetch Formula	N/A
Used on Palm	N
Default Value	<b>If completed 9 otherwise</b>

	<b>if due date &gt; today 0 else 1</b>
--	--

Name	<b>Send To</b>
Notes Field	<b>SendTo</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>“”</b>

Name	<b>ViewIcon</b>
Notes Field	<b>ViewIcon</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>168</b>

Name	<b>StartDate</b>
Notes Field	<b>StartDateTime</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>“”</b>

## Address Book

Default Formulae for defining the data set for synchronization

Address	<b>Form = “Person”</b>
---------	------------------------

Name	<b>Surname</b>
Notes Field	<b>LastName</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>First Name</b>
Notes Field	<b>Firstname</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>Company</b>
Notes Field	<b>CompanyName</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>Address</b>
Notes Field	<b>StreetAddress</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>Y</b>
Default Value	<b>N/A</b>

Name	<b>City</b>
------	-------------

## Appendix C: Column Mapping for Lotus Notes to Palm OS

Notes Field	<b>City</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>State</b>
Notes Field	<b>State</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Zip</b>
Notes Field	<b>Zip</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Country</b>
Notes Field	<b>Country</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Title</b>
Notes Field	<b>JobTitle</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Note</b>
Notes Field	<b>Comment</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Work Phone</b>
Notes Field	<b>OfficePhoneNumber</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Home Phone</b>
Notes Field	<b>PhoneNumber</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Fax</b>
Notes Field	<b>OfficeFaxNumber</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>



Appendix C: Column Mapping for Lotus Notes to Palm OS

Default Value	N/A
---------------	-----

Name	<b>OtherPhone</b>
Notes Field	<b>HomeFaxPhoneNumber</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Email</b>
Notes Field	<b>MailAddress</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Pager</b>
Notes Field	<b>PagerPhoneNumber</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Mobile</b>
Notes Field	<b>CellPhoneNumber</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>Category</b>
Notes Field	<b>Category</b>
Fetch Formula	N/A
Used on Palm	<b>Y</b>
Default Value	N/A

Name	<b>ExcludeFromView</b>
Notes Field	<b>ExcludeFromView</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	<b>“D”</b>

Name	<b>Form</b>
Notes Field	<b>Form</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	<b>“”</b>

Name	<b>From</b>
Notes Field	<b>From</b>
Fetch Formula	N/A
Used on Palm	<b>N</b>
Default Value	<b>When inserting from palm, insert users name in Canonical format</b>

## Appendix C: Column Mapping for Lotus Notes to Palm OS

Name	<b>Fullname</b>
Notes Field	<b>Fullname</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>When Inserting: FirstName + LastName</b>

Name	<b>Type</b>
Notes Field	<b>Type</b>
Fetch Formula	<b>N/A</b>
Used on Palm	<b>N</b>
Default Value	<b>“Person”</b>

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