Virtual Phone User's Guide

Palm OS® 5 SDK (68K) R3

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About This Document

Virtual Phone is a development tool that can help you test Palm OS applications that communicate with a mobile telephone. Virtual Phone is a part of Palm OS 5 SDK (68K).

Virtual Phone User's Guide will help you understand how to use Virtual Phone with Palm OS Emulator to test your telephony applications. This introduction discusses what materials are included in this document and what conventions are used.

What This Document Contains

- Chapter 1, "Introducing Virtual Phone," on page 1

  This chapter introduces you to Virtual Phone concepts and provides you with an overview of Virtual Phone.

- Chapter 2, "Getting Started," on page 7

  This chapter helps you setup Virtual Phone and configure it to work with Palm OS Emulator.

- Chapter 3, "Using Virtual Phone," on page 13

  This chapter describes how to use Virtual Phone to test Palm™ applications which are written to communicate with mobile telephones.

- Appendix A, "Log and Database Files," on page 57

  This appendix describes the log files and databases that are used with Virtual Phone.

Related Information

- *Palm OS Programmer's API Reference*

  Wherever appropriate, *Virtual Phone User's Guide* makes reference to functions and constants described in *Palm OS Programmer's API Reference*. You can use this information to relate the Telephony Manager services to the Virtual Phone services.

- *Palm OS Programmer's Companion*, vol. II, *Communications*

  You should be familiar with the Telephony Manager concepts described in *Palm OS Programmer's Companion*, vol. II, *Communications.*

- *Using Palm OS Emulator*

  You can learn about Palm OS Emulator in this manual.

Additional Resources

- Documentation

  Palm publishes its latest versions of this and other documents for Palm OS developers on the Palm OS web site:

  http://www.palmos.com/dev/support/docs/

- Training

  Palm and its partners host training classes for Palm OS developers. Check the Palm OS web site for topics and schedules:

  http://www.palmos.com/dev/training/

- Knowledge Base

  The Knowledge Base is a fast web-based database of technical information. Search for frequently asked questions (FAQs), sample code, white papers, and the development documentation:

  http://www.palmos.com/dev/tech/kb/

1

Introducing Virtual Phone

Virtual Phone is a tool which simulates a mobile phone. Virtual Phone can help you develop and test applications which use the Telephony Manager API. Virtual Phone recognizes Telephony Manager AT commands and responds exactly the same as a mobile phone. Virtual Phone is also capable of simulating events like incoming voice calls and SMS messages.

What Virtual Phone Can Do for You

- Virtual Phone provides developers with a fast and simple tool for implementing, debugging, and testing a telephony application during the initial development stages.
- Virtual Phone reduces debugging and testing time for telephony applications which can be a lengthy process when using a real cellular phone.
- Virtual Phone eliminates delays due to slow phone device answer time and delays in wireless connections.
- Virtual Phone eliminates costs associated with establishing a real connection in order to test an outgoing SMS message. These costs are prohibitive.
- Virtual Phone provides an intermediate solution before final testing with a real phone.

About Virtual Phone

Virtual Phone is not intended to test the different phone drivers that can be used to communicate with telephones. It is designed to test applications which communicate with a mobile telephone. Virtual Phone is based upon the functioning of a standard GSM default

phone driver. This implies that any functions not supported by a standard GSM phone driver are not supported by Virtual Phone.

What Virtual Phone Does

Virtual Phone supports all the services offered by the Telephony Manager.

Virtual Phone considers the state of the telephone when performing some operations. For example, it accepts emergency calls when a PIN code is expected. Otherwise, no operations can be performed on Virtual Phone if the Security State is not set to `Ready`.

What Virtual Phone Does Not Do

Virtual Phone does not simulate automatic changes in the state of the telephone such as fluctuations in the network level or progressive drain of the battery. These state parameters can be manually changed in the configuration panel.

Virtual Phone Background Information

Virtual Phone simulates a standard mobile telephone working under a Global System for Mobile Communications (GSM) Network.

When working with Virtual Phone, you should understand the following background information:

- Telecommunication standards

  The European Telecommunication Standards Institute (ETSI) has established the European Telecommunication Standards (ETS) which contains a series of attention (AT) commands recognized by a mobile phone. It is assumed that you are aware of these standards. For information on these standards, see *GSM Technical Specification 07.07 Reference TS/SMG-040707Q* and *GSM Technical Specification 07.05: SMS AT Commands*.

- Telephony Manager

  The Palm OS® provides the Telephony Manager, which programmers can use to write applications that interact with

telephony services. For information about the Telephony Manager, see the Telephony Manager chapter in *Palm OS Programmer's Companion*, vol. II, *Communications.*

- Palm OS Emulator

  Palm OS Emulator is a hardware emulator for the Palm OS platform. You can use Palm OS Emulator to test your applications. For information on Palm OS Emulator, see *Using Palm OS Emulator.*

Virtual Phone communicates with Palm OS Emulator and processes AT commands issued by applications running under the Palm OS. Processing includes analyzing AT commands sent from the Palm OS Emulator to the Virtual Phone, forwarding commands to the appropriate Service (Network, Security, etc.) and generating both AT command replies and unsolicited events (for example, `RING...`). Virtual Phone logs and saves exchanged AT commands and configuration data.

Virtual Phone Overview

Virtual Phone requires several ASCII format text files, which use the standard INI file format. Virtual Phone will create these files if they do not already exist.

There are two configuration files, two SMS message files and one AT command log file. Virtual Phone also uses the eleven ETSI standard phone book files.

Configuration Files

The configuration files, `VPAppCfg.db` and `AvailableNwk.db`, store configuration and network data:

- The configuration file `VPAppCfg.db` stores configuration data relevant to Virtual Phone's Configuration, Information, Speech Call, Network, Phone Book, Security, Communication and Short Message Services (SMS) settings.
- The configuration file `AvailableNwk.db` stores the list of networks, their IDs, and names.

SMS Message Files

Two SMS files, SmsStore.db and SmsSentStore.db, store SMS messages which are normally not saved on a mobile telephone.

AT Command Log Files

AT commands are stored in the `VPAppATLog.log` file. This log file is created to save all the AT commands exchanged between Virtual Phone and Palm OS Emulator. To save the contents of the log file, you should rename it after quitting Virtual Phone. The next time you use Virtual Phone, it will overwrite the `VPAppATLog.log` file. This file is locked and inaccessible during Virtual Phone execution.

The file VPMainLog.txt is used for logging the results of the AT commands. Note that this file is updated only when View > Disable Log is unchecked and when the Virtual Phone main log window is full.

Phone Book Files

Virtual Phone supports the ETSI standard phone book files:

- PhbDC.db - Mobile Equipment (ME) dialed calls list
- PhbEN.db - SIM or ME emergency number
- PhbFD.db - Fixed phone book
- PhbLD.db - Last dialed list
- PhbMC.db - ME missed calls list (received calls that were unanswered)
- PhbME.db - Phone phone book
- PhbMT.db - Combined ME and SIM phone book
- PhbON.db - SIM or ME own numbers (MSISDNs) list
- PhbRC.db - ME received calls list
- PhbSM.db - SIM phone book
- PhbTA.db - Terminal Adapter (TA) phone book

The phone book files all have the same format, which consists of an index number, name, and phone number.

Configuration Files Summary

All configuration files, phone book files, and log files are created in the directory where Virtual Phone is executed. As a result, only one version of Virtual Phone can be executed from the same directory.

You will need to use an editor (for example, `Notepad`) when you edit the files `AvailableNwk.db` and the eleven phone book files.

We strongly recommend that you keep a back-up copy of these files for security and recovery reasons.

We do not recommend editing the `VPAppCfg.db` file directly, but you may access configuration variables without using Virtual Phone's developer interface. For data elements displayed on Virtual Phone's screens, this book describes the corresponding elements in the appropriate database file. This information is provided in order to help you control Virtual Phone's behavior, which is directly controlled by these files.

WARNING! Virtual Phone creates databases in the directory that it is running and writes and reads from them constantly. For this reason, you cannot simultaneously run two instances of Virtual Phone from the same directory. This will cause conflicts during file access.

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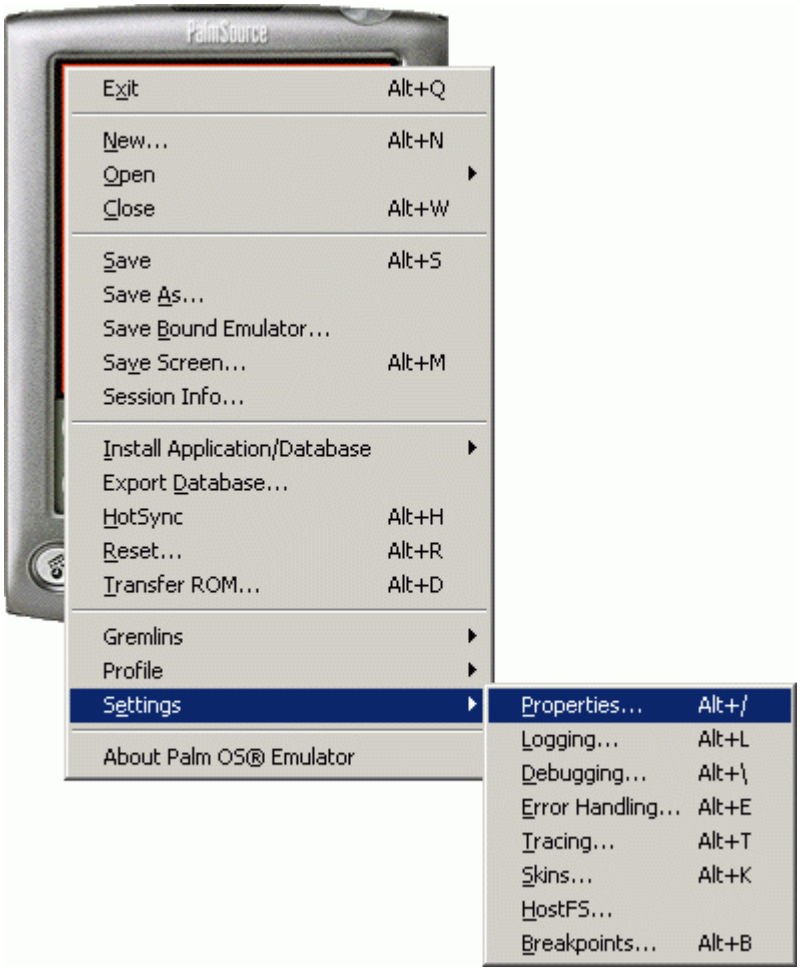
Getting Started

To use Virtual Phone, you need to configure Palm OS Emulator to work with Virtual Phone.

Configuring Palm OS Emulator

In order to configure Palm OS Emulator, right-click the Palm OS Emulator window, and select **Settings > Properties**, as shown Figure 2.1.

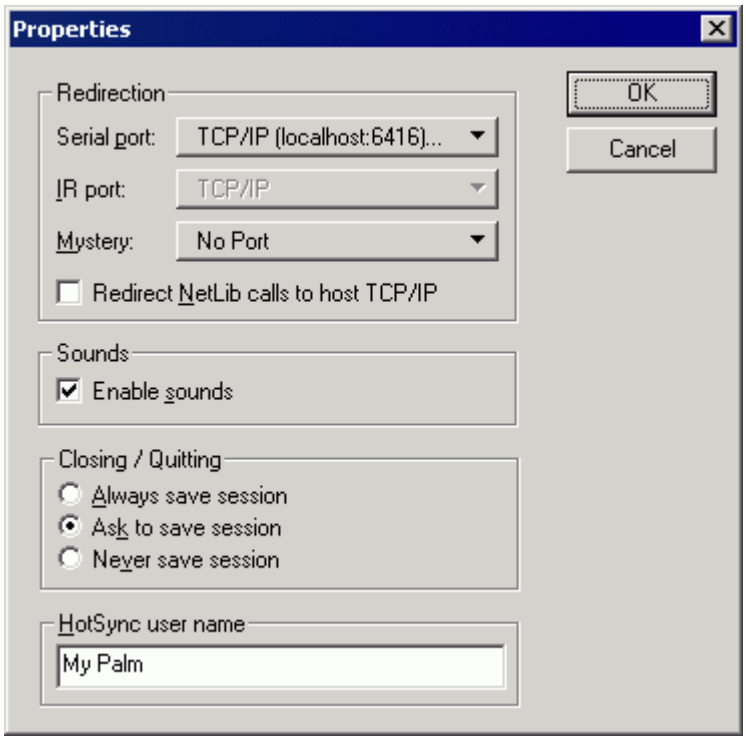
Figure 2.1 Configuring Palm OS Emulator



Properties

Use the Properties dialog, Figure 2.2, to configure Palm OS Emulator's communication parameters. These parameters must correspond to Virtual Phone's parameters in order to establish communication between the two applications (see "Tools Menu" on page 15 and "Connection Setup Dialog Box" on page 44 for more information).

Figure 2.2 Palm OS Emulator Properties Dialog Box



Redirection Settings

The **Serial Port** selection item provides the following options:

- No Port
- COM1
- COM2
- TCP/IP

If you select **COM1** or **COM2**, you will need to connect a null modem cable between the two serial ports of your computer. You must configure Virtual Phone to open the port not being used by the Palm OS Emulator.

If you select **No Port**, you will get an error if an application tries to access Serial Manager I/O functions.

Virtual Phone works best if you select **TCP/IP**. Selecting **TCP/IP** redirects all data transfers intended for the serial port to a **TCP/IP** socket and does not require the use of a null modem cable.

The **IP address:** entry field default is `localhost:6416`. This option is available when Serial Port is set to **TCP/IP**. You can indicate host and port number that the Palm OS Emulator is to connect to. Virtual Phone must use the same settings. See "Connection Setup Dialog Box" on page 44 for more information.

The other settings (**Redirect Netlib calls to host TCP/IP**, **Sounds**, **Closing/Quitting**, and **HotSync® User Name**) are described in the book *Using Palm OS Emulator*.

Configuring the Phone Preferences

To verify that the Palm OS Emulator is configured to communicate with a GSM Phone, run the **Prefs** application on Emulator, as shown in Figure 2.3.

Figure 2.3 Prefs Application

Phone Settings in the Prefs Application

Select **Phone** from the Prefs application's pop-up list as shown in Figure 2.4.

Figure 2.4 Selecting Phone Preferences

Select the **Connection** pop-up trigger and choose **Serial to GSM Phone**, as shown in Figure 2.5

Figure 2.5 Selecting the Serial to GSM Phone Connection

Remember that in order to use Virtual Phone you must select the Standard GSM Phone Driver.

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Using Virtual Phone

Virtual Phone is a standard Windows NT/2000 application. This application displays a log of AT Commands that correspond to the Telephony Manager functions which were called by the application executing in Palm OS Emulator.

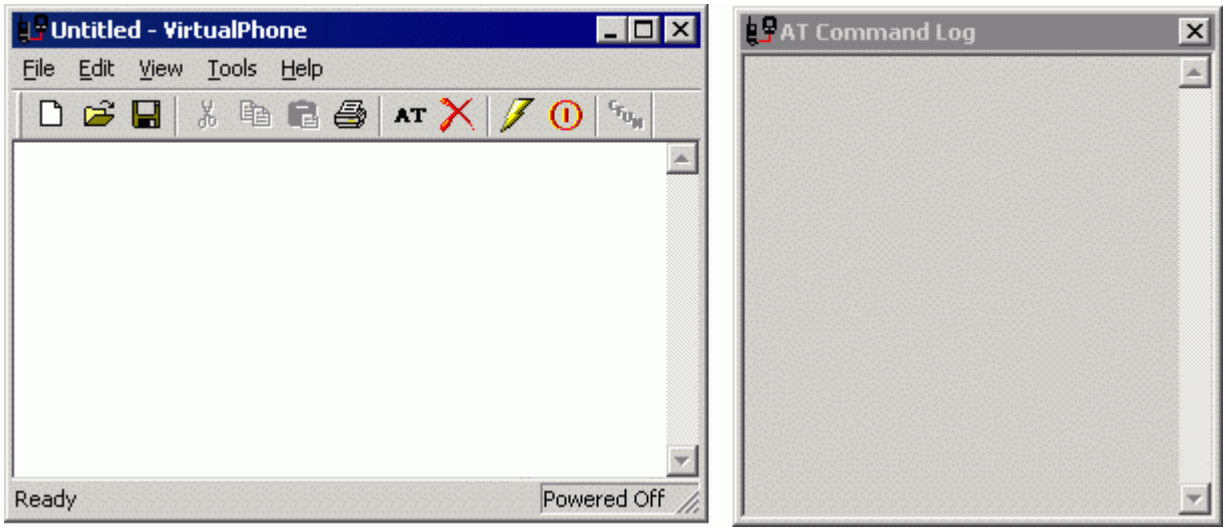
Every time a Palm OS® application calls a Telephony Manager function, the Telephony Manager issues one or more AT commands which are then sent to Virtual Phone. When Virtual Phone receives these AT commands it responses exactly like a real phone.

This chapter explains how you can use the Virtual Phone user interface to test your telephony applications.

Virtual Phone Window

The Virtual Phone window, as shown in Figure 3.1, displays the text equivalent of the original Telephony Manager function, while the actual AT commands or traces are stored in the file `VPAppATLog.log`.

Figure 3.1 Virtual Phone Window



This window displays the Telephony Manager functions that are called and the results of the calls.

File Menu

Select **File** to print the contents the Virtual Phone window or to save the contents to a file.

Edit Menu

Select Edit to manipulate the contents of the Virtual Phone window (**Cut**, **Copy**, **Paste**, etc.). Select **Edit > Clear Log Windows** to delete the text in the log windows.

View Menu

Select **View** to change the characteristics of the Virtual Phone window.

`Toolbar`
: Select to display the command icons in the toolbar.

`Status Bar`
: Select to show the status bar at the bottom of the window.

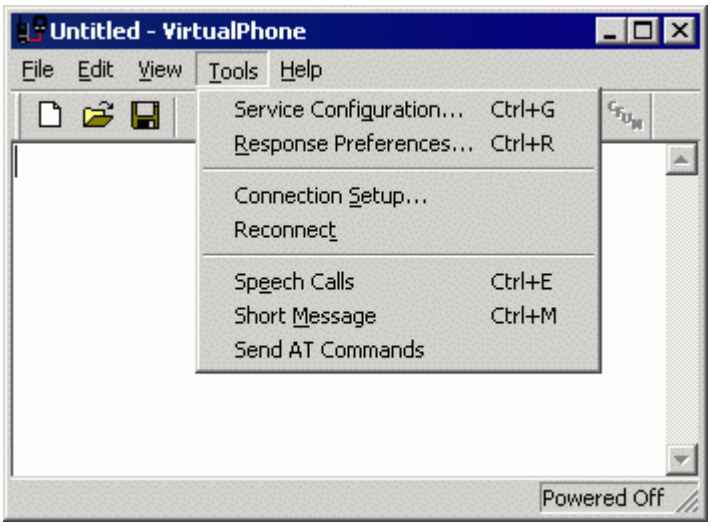
`AT Command Log`
: Select to open the AT Command Log window.

`Disable Log`
: Select to disable logging.

Tools Menu

The **Tools** menu, shown in Figure 3.2, provides access to several services.

Figure 3.2 Virtual Phone Tools Menu



`Service Configuration`
: Select to open the Service Configuration dialog box to establish and display the basic services of Virtual Phone. See "Service Configuration Dialog Box" on page 16 for more information.

`Responses Preferences`
: Select to define the Virtual Phone services, error numbers, and messages. See "Response Preferences Dialog Box" on page 39 for more information.

`Connection Setup`
: Select to specify the configuration of communication parameters. See "Connection Setup Dialog Box" on page 44 for more information.

`Reconnect`
: Select to connect Virtual Phone to Palm OS Emulator using the current configuration.

`Speech Calls`
: Select to display voice call information. See "Speech Calls Dialog Box" on page 46 for more information.

`Short Message`
: Select to open the Short Message dialog box. Use the Short Message dialog box to manage sent and received SMS messages, and to create SMS messages with all configurable options established in the GSM standard. See "Short Message Dialog Box" on page 48 for more information.

  To view the SMS settings, open the SMS tab of the Service Configuration dialog box. See "SMS Tab" on page 30 for information on the SMS tab of the Service Configuration dialog box.

`Send AT Commands`
: Select to open a dialog box where you can enter AT unsolicited results that you want to send.

Service Configuration Dialog Box

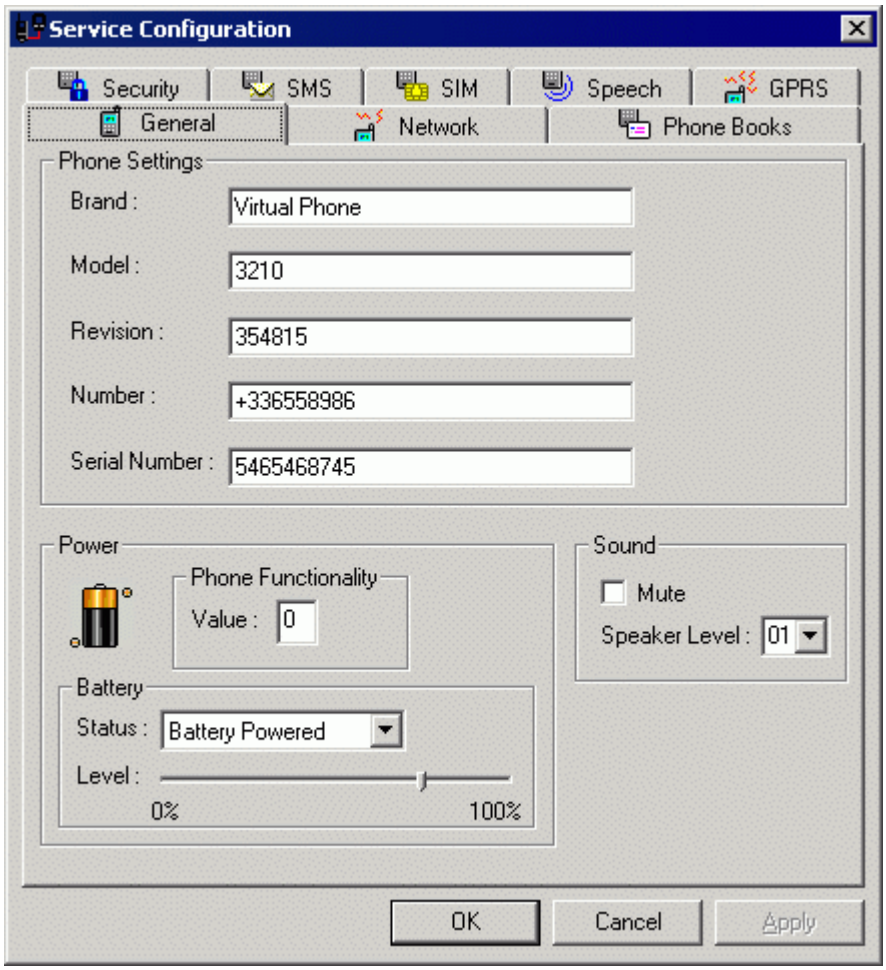
Use the Service Configuration dialog box to set most of the features of Virtual Phone. To open the Service Configuration dialog box, select **Tools > Service Configuration**. The Service Configuration dialog box displays a notebook control with the following tabs:

- General Tab
- Network Tab
- Phone Books Tab
- Security Tab
- SMS Tab
- SIM Tab
- Speech Tab
- GPRS Tab

General Tab

The **General Tab**, shown in Figure 3.3, provides access to basic Virtual Phone configuration parameters.

Figure 3.3 Service Configuration's General Tab



Virtual Phone stores these values in the `VPAppcfg.db` file, in the `INF` section. See the Information, Power, and Configuration Services in *Palm OS Programmer's API Reference* for further details.

Phone Settings

Enter the information for the phone you want to emulate.

`Brand`
: Enter any name (limited to 30 alphanumeric characters). Use the function TelInfGetInformation to access this information. See VPAppCfg.db file, INF section, variable name Brand and the TelInfGetInformation function in *Palm OS Programmer's API Reference*.

`Model`
: Enter any model number (limited to 30 alphanumeric characters). Use the function TelInfGetInformation to access this information. See VPAppCfg.db file, INF section, variable name Model and the TelInfGetInformation function in *Palm OS Programmer's API Reference.*

`Revision`
: Enter the revision number (limited to 30 alphanumeric characters). Use the function TelInfGetInformation to access this information. See VPAppCfg.db file, INF section, variable name Revision and the TelInfGetInformation function in *Palm OS Programmer's API Reference*.

`Number`
: Enter the Phone Number (limited to 30 alphanumeric characters) of the "virtual" mobile phone. See VPAppCfg.db file, CFG section, variable name Smscenter and the TelCgfGetPhoneNumber function in *Palm OS Programmer's API Reference*.

`Serial Number`
: Enter the serial number of the phone you are emulating.

Power

Enter the power information for the phone you are emulating.

`Phone Functionality Value`
: Enter a number indicating the phone functionality status as defined in ETSI standard (see AT+CFUN command).

`Battery Status`
: Enter the battery conditions you are testing.

`Battery Powered`
: Select to indicate that the battery is present and that the Battery Level setting should be taken into consideration.

`Battery Not Powered`
: Select to indicate that the battery is present but its power level is zero.

`No Battery`
: Select to indicate that no battery is present.

  See VPAppCfg.db file, POW section, variable name Stat and see TelPowGetBatteryStatus in *Palm OS Programmer's API Reference*.

`Battery Level`
: Select the battery range from 0% (for no power) to 100% (for full power). See VPAppCfg.db file, POW section, variable name Level. See TelPowGetPowerLevel in *Palm OS Programmer's API Reference*.

Sound

Enter the sound information for the phone you are emulating.

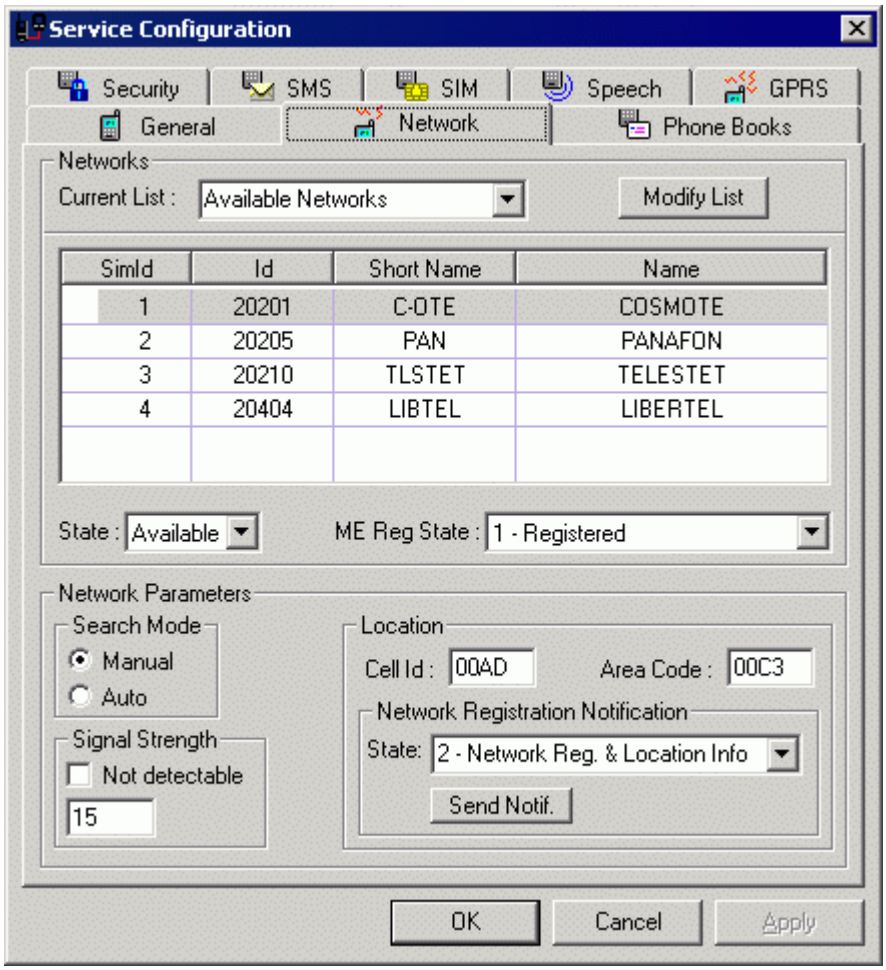
`Mute`
: Select to indicate whether the telephone is muted.

`Speaker Level`
: Select to indicate the speaker volume on a scale of 1 to 10, with 1 being soft and 10 being loud.

Network Tab

Use the **Network Tab**, shown in Figure 3.4, to set properties to simulate network-oriented services, including authorized networks, forbidden networks, current network, signal strength, and search mode.

Figure 3.4 Service Configuration's Network Tab



Virtual phone stores these values in the `VPAppcfg.db` file in the `NWK` section. See the Telephony Network section in the *Palm OS Programmer's Companion*, vol. II, *Communications* for further details.

Networks

Specify the networks for your phone.

`Current List`

Select a list of network from either the Available Networks list or the Preferred Networks list. Select Modify List to display the Network List Management dialog box.

A network is defined by its **SimId, Id**, **Short Name** and **Name**. Virtual Phone stores these values in the `AvailableNwk.db` file. See `AvailableNwk.db` file, in the `NWK` section, variable name `Num`. See `TelNwkGetNetworks` in *Palm OS Programmer's API Reference*.

`SimId`

The order number of the operator in the SIM available/preferred operator list.

`Id`

This is a numeric value with a maximum length of 4 characters. See the AvailableNwk.db or PreferredNwk.db file, in the NWK section, variable name Id. See TelNwkGetNetworks in *Palm OS Programmer's API Reference*.

`Short Name`

An abbreviation of the **Name** with a maximum 8 alphanumeric characters. See the AvailableNwk.db or PreferredNwk.db file, in the NWK section, variable name Sname.

`Name`

An alphanumeric value of 16 characters. See the AvailableNwk.db or PreferredNwk.db file, in the NWK section, variable name Lname. See TelNwkGetNetworks in *Palm OS Programmer's API Reference*.

See `TelNwkGetNetworks` in *Palm OS Programmer's API Reference*.

`State`

Select the state of the network that is selected in the table. There are four options:

`Unknown`

Select this value if the network unknown (Stat=0).

`Available`
: Select this value if the selected network is available (Stat=1).

`Current`
: Select this value if the highlighted network is currently selected (Stat=2).

`Forbidden`
: Select this value if the network is unavailable for security reasons (Stat=3).

See the `AvailableNwk.db` or `PreferredNwk.db` file, in the `NWK` section, variable name `Stat`. See `TelNwkSelectNetwork` in *Palm OS Programmer's API Reference*.

`ME Reg State`
: Select the ME (Mobile Equipment, that is the GSM phone) network registration status.

  `1 - Registered`
  : Select this value if the highlighted network is registered to a provider (RegStat=1).

  `2 - Not Registered, ME Not searching`
  : Select this value if the network is not registered (RegStat=2).

  `3 - Registration Denied`
  : Select this value if the network is secured and registration is rejected (RegStat=3).

  `4 - Unknown`
  : Select this value if the network is not recognized by Virtual Phone (RegStat=4).

  `5 - Registered, Roaming`
  : Select this value if the network is registered as roaming (RegStat=5).

    See VPAppCfg.db file, in the NWK section, variable name RegStat. See TelNwkGetNetworkName in *Palm OS Programmer's API Reference*.

    Note: There is only one `Current` network. If a network is set to `Current`, then the state of the former current is set to `Unknown`. Furthermore, you will not

be able to save the settings of the Network Service if there is no current network. If you try to save the Network Serve settings when there is no current network, you will see this message:

The list of available networks is stored in the file `AvailableNwk.db` and is accessible as an ASCII text file.

Network Parameters

Set the parameters for the network you are emulating.

`Search Mode`

Select how you want Virtual Phone to select a network.

`Manual`

Select this value if you want Virtual Phone to manually select a network

`Auto`

Select this value if you want Virtual Phone to automatically select a network.

See `VPAppcfg.db` file, in the `NWK` section, variable name `SearchMd`. See `TelNwkGetSearchMode` in *Palm OS Programmer's API Reference*. See `kTelNwkManualSearch` in *Palm OS Programmer's API Reference*.

`Location`

Set the location information for the current cell and its area code.

`Cell Id`

Enter the value of the current Cell (limited to 2 alphanumeric characters). See VPAppCfg.db file, in the NWK section, variable name CellId. See

TelNwkGetLocation in *Palm OS Programmer's API Reference*.

`Area Code`
Enter the value of the Cell's area code (limited to 2 alphanumeric characters). See VPAppCfg.db file, in the NWK section, variable name AreaCd. See TelNwkGetLocation in *Palm OS Programmer's API Reference*.

Network Registration Notification State

`Set the network registration notification state.`

`0 - None`
Select this value to disable the network registration unsolicited results code.

`1 - Network Reg.`
Select this value to enable the network registration unsolicited results code.

`2 - Network Reg. & Location Info`
Select this value to enable the network registration and location information unsolicited results code.

`Send Notif. button`
Click to send a network registration notification.

`Signal Strength`
Set the signal level you want to test.

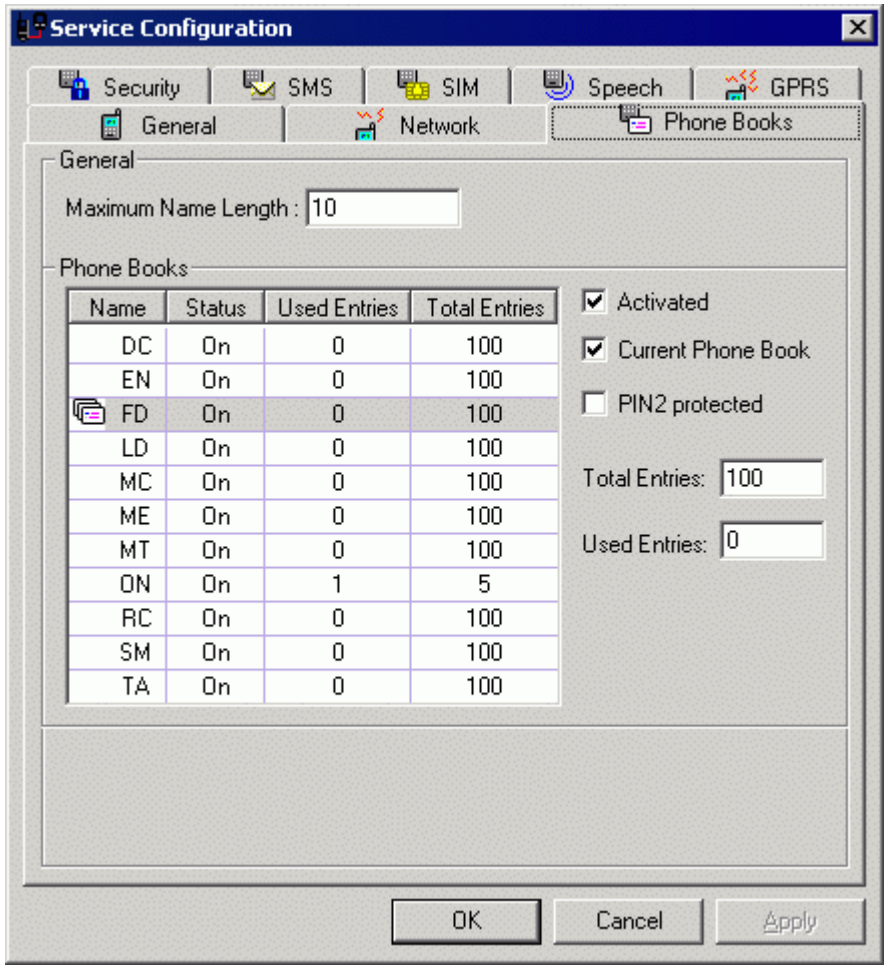
`Not detectable`
If checked, Virtual Phone will issue a 99 for Signal Strength. As specified in the GSM Technical Specification. See VPAppCfg.db file, in the NWK section, variable name SigLev. See TelNwkGetSignalLevel in *Palm OS Programmer's API Reference*.

`Entry field`
Enter a numeric value between 0 and 31, with 0 being no signal and 31 being the maximum signal strength. See VPAppCfg.db file, in the NWK section, variable name SigLev. See TelNwkGetSignalLevel in *Palm OS Programmer's API Reference*.

Phone Books Tab

Use the Phone Books tab, shown in Figure 3.5, to display the list of all the stored phone book names and their associated phone numbers.

Figure 3.5 Service Configuration's Phone Books Tab



`Maximum Name Length`

Enter the maximum length of a name associated to a phone number. A maximum of 30 characters is permitted for the name length.

See the VPAppCfg.db file in the PHB section, variable name MaxNameLen. See TelPhbGetEntryMaxSizes in *Palm OS Programmer's API Reference*.

Phone Books

Display information about the stored phone books.

`Activated`
: Check to indicate that the phone book is present.

`Current Phone Book`
: The currently selected Phone Book is stored in the VPAppCfg.db file in the PHB section, variable name Selbook. See VPAppCfg.db file in the PHB section, variable name Selbook for the currently selected phone book. See TelPhbGetSelectedPhonebook in *Palm OS Programmer's API Reference*.

`PIN2 protected`
: As defined in the ETSI standard, the FD phonebook can be protected. Check to indicate that the FD phonebook is protected.

`Total Entries`
: Enter the maximum number of entries allowed in the phone book.

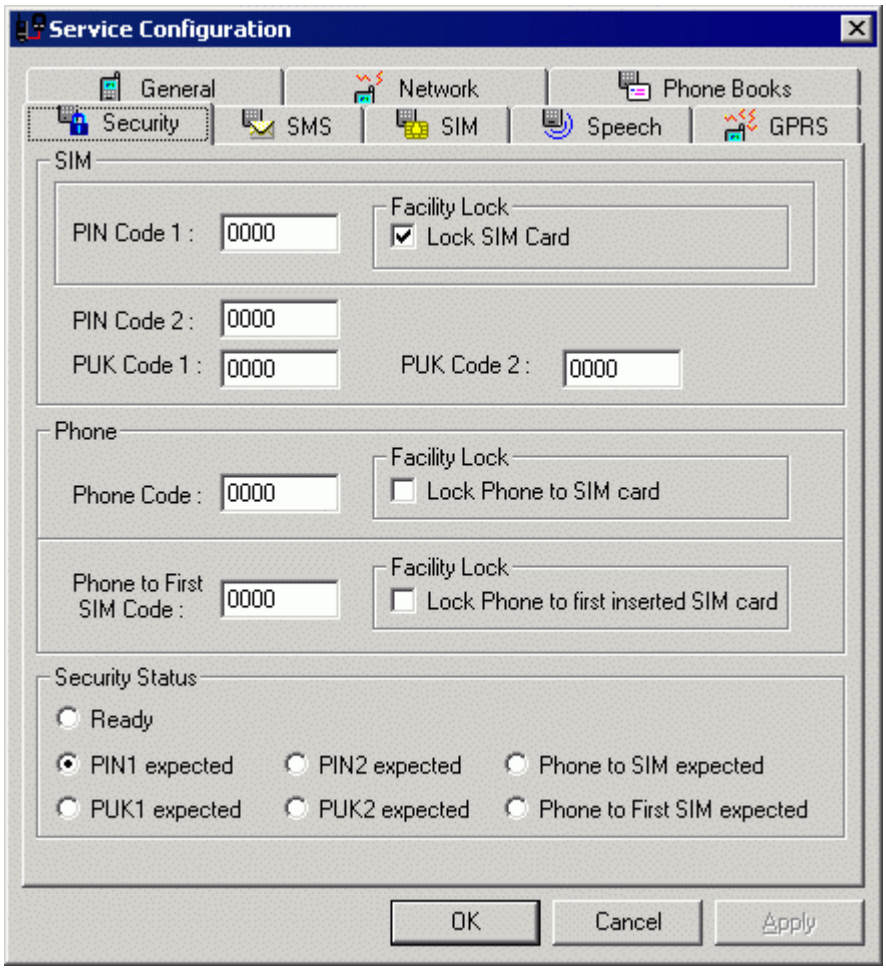
`Used Entries`
: Enter the number of entries used in the phonebook.

For all of the above see `TelPhbGetAvailablePhonebooks` in *Palm OS Programmer's API Reference*.

Security Tab

Use the **Security Tab**, shown in Figure 3.6, to simulate a mobile phone's security system.

Figure 3.6 Service Configuration's Security Tab



The values entered and displayed here are stored in the `VPAppCfg.db` file in the `STY` section.

You can change the values of these codes using Telephony Manager functions or directly in this dialog box. To change an authentication code, see `TelStyChangeAuthenticationCode` in *Palm OS Programmer's API Reference*.

SIM

Enter the security information for the SIM card.

`PIN Code 1`
: Enter the primary Personal Identification Number (PIN), (four digits maximum). See VPAppCfg.db file in the STY section, variable name PIN1. See TelStyEnterAuthenticationCode in *Palm OS Programmer's API Reference*.

`Lock SIM Card`
: Check to activate PIN Code 1.

`PIN Code 2`
: Enter the secondary Personal Identification Number (four digits maximum). See VPAppCfg.db file in the STY section, variable name PIN2. See TelStyEnterAuthenticationCode in *Palm OS Programmer's API Reference*.

`PUK Code 1`
: Enter the primary Personal Universal Key (PUK) (four digits maximum). See VPAppCfg.db file in the STY section, variable name PUK. See TelStyEnterAuthenticationCode in *Palm OS Programmer's API Reference*.

`PUK Code 2`
: Enter the secondary Personal Universal Key (PUK) (four digits maximum). See VPAppCfg.db file in the STY section, variable name PUK2. See TelStyEnterAuthenticationCode in *Palm OS Programmer's API Reference*.

`Phone Code`
: Enter the Phone to Subscriber Identification Module (SIM) code (four digits maximum). See VPAppCfg.db file in the STY section, variable name Phone. See TelStyChangeAuthenticationCode in *Palm OS Programmer's API Reference*.

`Lock Phone SIM Card`
: Check to activate the Phone Code.

`Phone to First SIM Code`
: Enter the Phone to first SIM card password.

`Lock Phone to first inserted SIM Card`
: Check to activate the Phone to First SIM Code.

`Security State`
: Enter the security state of the phone. See VPAppCfg.db file in the STY section, variable name State. See

TelStyGetAuthenticationState in *Palm OS Programmer's API Reference*.

`Ready`

Select this value if Virtual Phone is ready to receive AT commands. State=0. See VPAppCfg.db file in the STY section, variable name State. See kTelStyReady in *Palm OS Programmer's API Reference*.

`PIN1`

Select this value to indicate that Virtual Phone should expect a primary Personal Identification Number (PIN). State=1. See VPAppCfg.db file in the STY section, variable name State. See kTelStyPin1CodeId in *Palm OS Programmer's API Reference*.

`PUK1`

Select this value to indicate that Virtual Phone should expect the primary Personal Universal Key (PUK). State=3. See VPAppCfg.db file in the STY section, variable name State. See kTelStyPuk1CodeId in *Palm OS Programmer's API Reference*.

`Phone to SIM expected`

Select this value to indicate that Virtual Phone should expect the Phone to Subscriber Identification Module (SIM) code. State=5. See VPAppCfg.db file in the STY section, variable name State. See kTelStyPhoneToSimCodeId in *Palm OS Programmer's API Reference*.

`PIN2`

Select this value to indicate that Virtual Phone should expect a secondary Personal Identification Number (PIN). State=2. See VPAppCfg.db file in the STY section, variable name State. See kTelStyPin2CodeId in *Palm OS Programmer's API Reference*.

`PUK2`

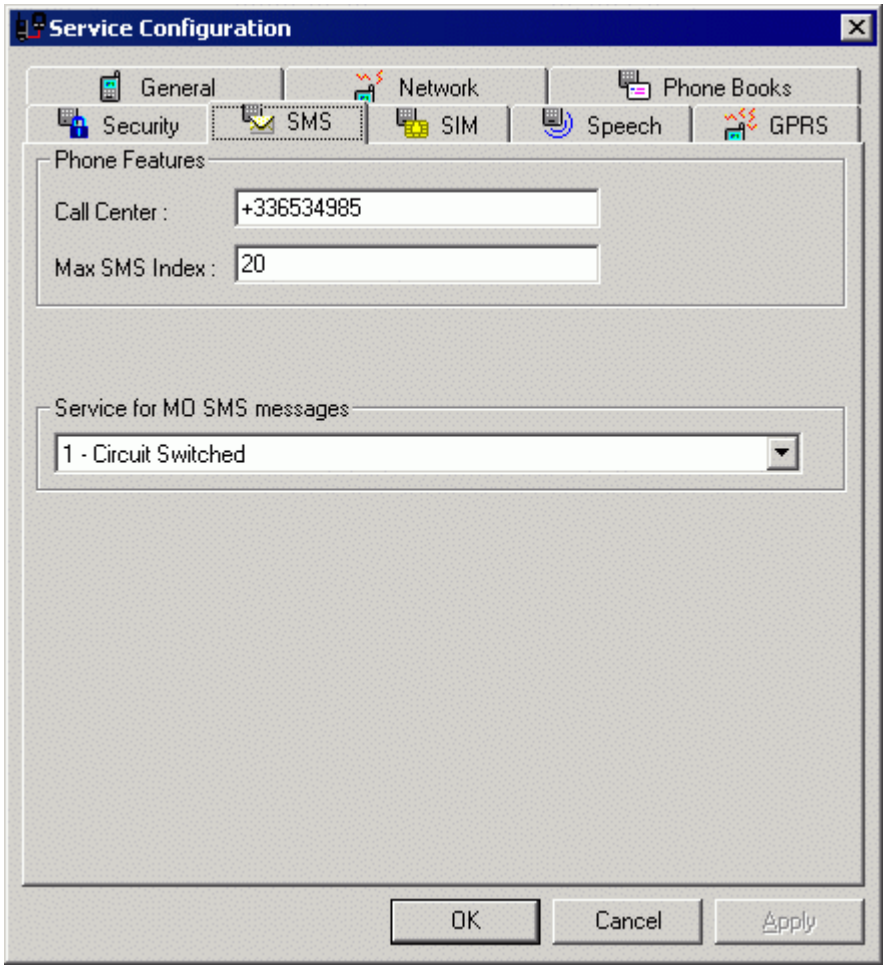
Select this value to indicate that Virtual Phone should expect the secondary Personal Universal Key (PUK). State=4. See VPAppCfg.db file in the STY section, variable name State. See kTelStyPuk2CodeId in *Palm OS Programmer's API Reference*.

`Phone to First SIM expected`
Select this value to indicate that Virtual Phone should expect the Phone to First SIM Key (PH-FSIM PIN).

SMS Tab

Use the **SMS Tab** to set SMS features.

Figure 3.7 Service Configuration's SMS Tab



The values entered and displayed here are stored in the `VPAppCfg.db` file in the `SMS` section (except for **Call Center** which is stored in the `CFG` section) and in the SMS (Short Message Services) files, `SmsStore.db` and `SmsStoreSend.db`.

`Call Center`

Enter the phone's service center. See VPAppCfg.db file in the CFG section, variable name SmsCenter. See TelCfgSetSmsCenter in *Palm OS Programmer's API Reference*.

`Max SMS Index`

Enter the maximum number of messages to display and store (maximum 500). See the VPAppCfg.db file in the SMS section, variable name MaxEntries. See TelSmsGetMessageCount in *Palm OS Programmer's API Reference*.

`Service for MO SMS Messages`

Specify the service or service preference that the MT (Mobile Terminated phone) will use to send MO (Mobile Originated phone) SMS messages.

0 - GPRS

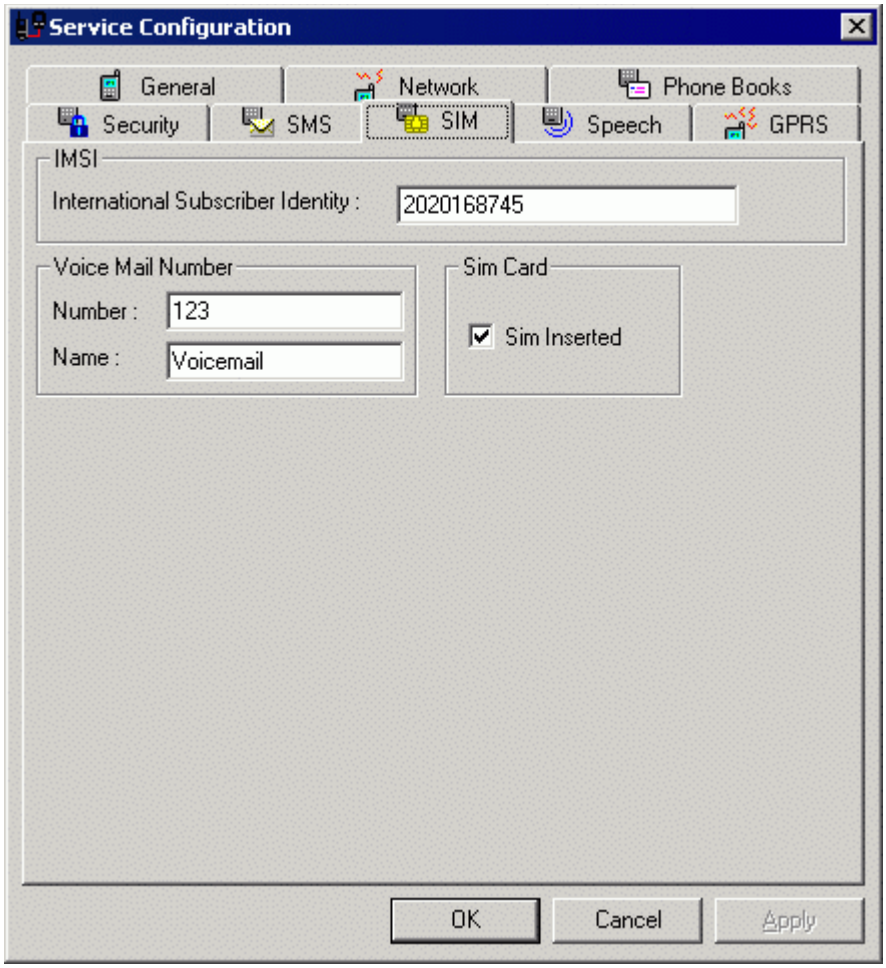
1 - Circuit Switched

2- GPRS Preferred (use circuit switched if GPRS not available)

SIM Tab

Use the SIM tab to set SIM properties for the phone you are emulating.

Figure 3.8 Service Configuration's SIM Tab



`IMSI - International Subscriber Identity`
Enter the international mobile subscriber identity number corresponding to the SIM card.

`Voice Mail Number`
Enter the voice mail number for the SIM card.

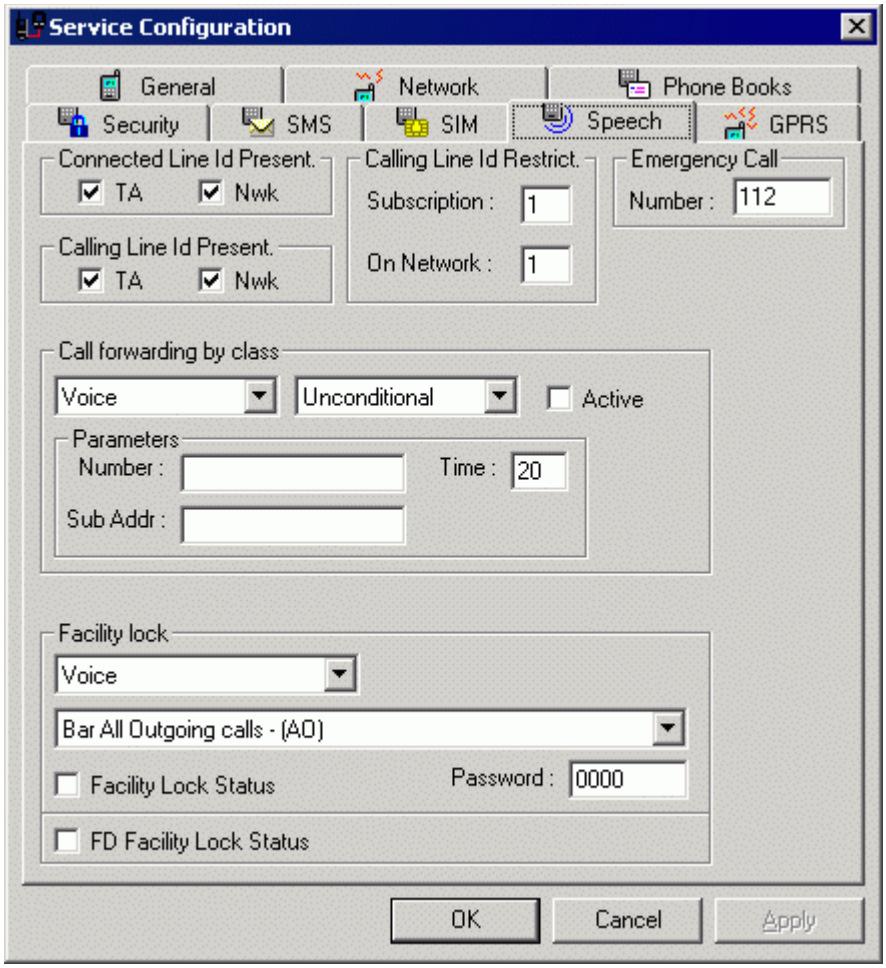
`Voice Mail Name`
Enter the voice mail name for the SIM card.

`Sim Card - Sim Inserted`
Select this setting to indicate whether the SIM card is in use for the emulation.

Speech Tab

Use the Speech tab to set properties for speech calls.

Figure 3.9 Service Configuration's Speech Tab



`Connected Line Identification Presentation`

`TA`

Check to show the result code presentation status in the Terminal Adapter (TA) phone book.

`Nwk`

Check to show the subscriber connected line identification presentation service status in the network phone book.

`Calling Line Identification Presentation`

`TA`
Check to show the result code presentation status in the Terminal Adapter (TA) phone book.

`Nwk`
Check to show the subscriber connected line identification presentation service status in the network phone book.

`Calling Line Identification Restriction`

`Subscription`
Set according to the subscription of the calling line identification restriction service.

`On Network`
Set to the subscriber calling line identification restriction service status in the network.

`Emergency Call Number`
Set to the emergency mobile phone number.

`Call forwarding by class`
Select the class of information:

`Voice`
Select this option for telephony services.

`Data`
Select this option for all bearer services.

`Fax`
Select this option for facsimile services.

`Sms`
Select this option for short message services.

`Data Circuit Sync`
Select this option for synchronous data service.

`Data Circuit Async`
Select this option for asynchronous data service.

`Dedicated Packet Access`
Select this option for dedicated packet access service.

`Dedicated PAD Access`
Select this option for dedicated PAD access service.

`Call forwarding by class`
Select the reason for call forwarding:

`Unconditional`
Select this option to forward always.

`Busy`
Select this option to forward when the line is busy.

`No Reply`
Select this option to foward when there is no reply.

`Not Reachable`
Select this option to forward when the line is not reachable.

`All Call Fwd`
Select this option for all call fowarding. (See GSM 2.30[19].)

`Cond. Call Fwd`
Select this option for conditional call forwarding. (See GSM 2.30[19]).

`Active`
Check to indicate that call forwarding is active.

`Number`
Enter the phone number of the forwarding address.

`Time`
Enter the time in seconds to wait before call is forwarded.

`Sub Addr`
Enter the call forwarding subaddress.

`Facility lock`
Select the class of information. Call barring facilities are based on GSM supplementary services (refer GSM 02.88 [6]). The interaction of these with other commands is based on other GSM supplementary services as described in the GSM standard.

See the selection descriptions in the **Call forwarding by class** section above.

`Facility lock`
: Select the facility from the list:

  Bar All Outgoing calls - (AO)

  Bar Outgoing International calls - (OI)

  Bar Outgoing international calls eXcept to home country - (OX)

  Bar All Incoming Calls - (AI)

`Facility Lock Status`
: Select this value to indicate whether the facility lock is active.

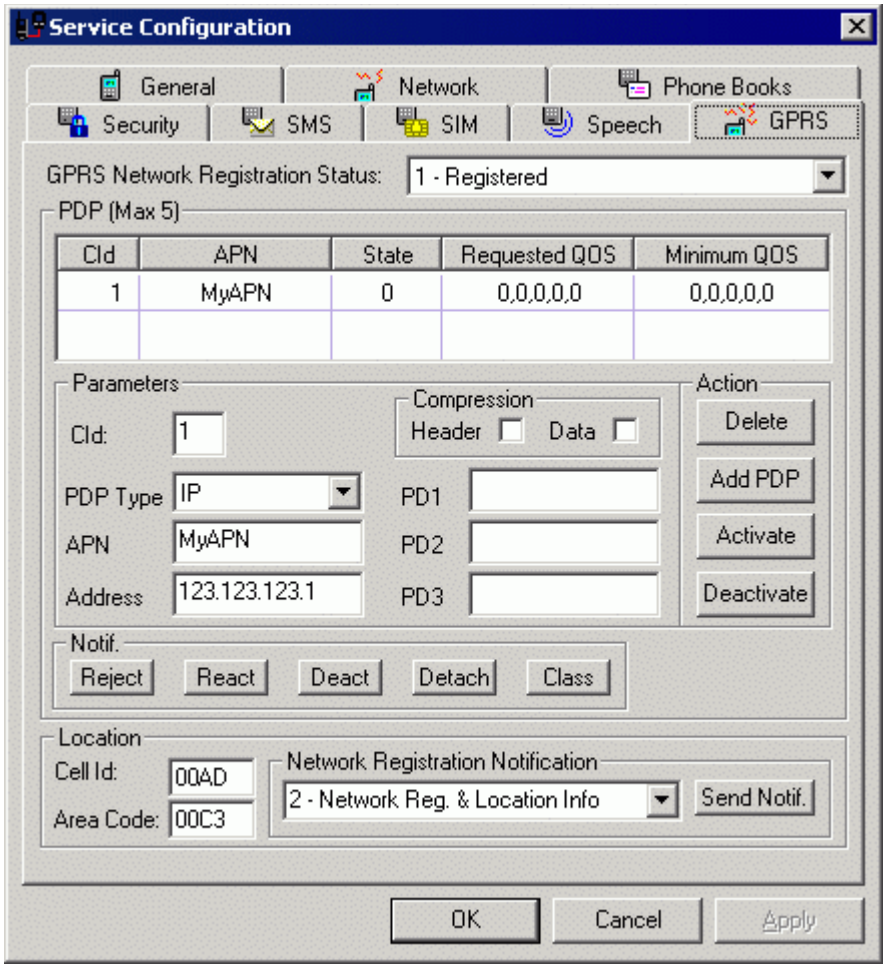
`Password`
: Enter the facility lock password.

`FD Facility Lock Status`
: Select this value to indicates whether the FD facility lock is active.

GPRS Tab

Use the GPRS tab to set GPRS properties for the phone you are emulating.

Figure 3.10 Service Configuration's GPRS Tab



`GPRS Network Registration Status`
Set the registration status for the GPRS features.

0 - Not Registered, ME Not Searching (ME stands for Mobile Equipment, referring to a GSM phone)

1 - Registered

2 - Not Registered, ME searching

3 - Registration Denied

4 - Unknown

5 - Registered, Roaming

`PDP`

Lists the Packet Data Protocol information. You can specify at most five PDPs.

CId - Shows the PDP Context Identifier, a numeric parameter which specifies a particular PDP context definition. The parameter is local to the TE-MT interface and is used in other PDP context-related commands. (TE stands for Terminal Equipment, referring to a computer; MT stands for Mobile Terminated, referring to something received on a mobile phone.)

APN - Shows the Access Point Name.

State - Shows the PDP context status: either activated or deactivated.

Requested QOS - Shows the requested Quality of Service Profile.

Minimum QOS - Shows the minimum acceptable Quality of Service Profile.

`Cld`

Enter the PDP Context Identifier.

`Compression`

Select the compression you want to enable.

`Header`

Check to enable PDP header compression.

`Data`

Check to enable PDP data compression.

`PDP Type`

Select the type of packet data protocol: IP, PPP, or OSPIH.

`APN`

Enter the access point name.

`Address`

Enter the MT (Mobile Terminated) address for the PDP.

`PD1`

Specific to the PDP type.

`PD2`

Specific to the PDP type.

`PD3`
Specific to the PDP type.

`Action` `buttons`
Delete - Select an item in the PDP table, and click to delete the PDP.

Add PDP - Click to add a new PDP.

Activate - Click to activate the selected PDP.

Deactivate - Click to deactivate the selected PDP.

`Notif.` `buttons`
Reject - Click to send a reject notification.

React - Click to send a reactivation notification.

Deact - Click to send a deactivation notification.

Detach - Click to send a detach notification.

Class - Click to send a change of class notification.

`Location Cell Id`
Enter a two-byte cell ID in hexadecimal format.

Location Area Code
Enter a two-byte location area code in hexadecimal format.

`Location Network Registration Notification Code`
0 - None

1 - Network Reg.

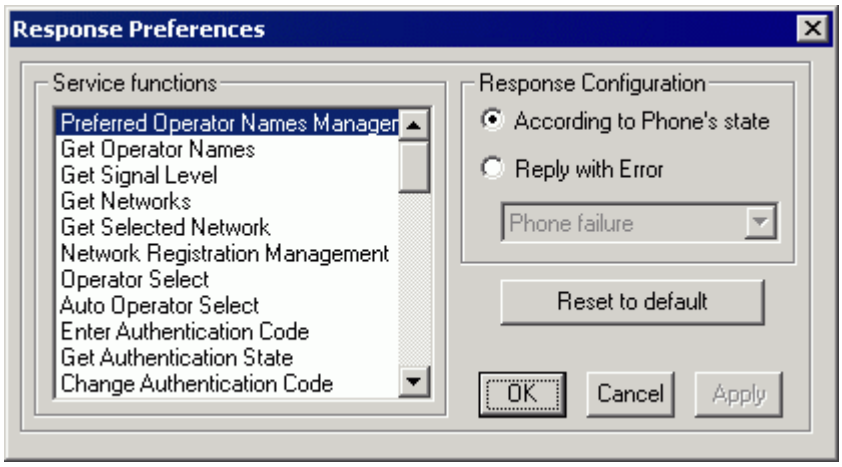
2 - Network Reg. & Location Info

`Send Notif. button`
Click to send a notification.

Response Preferences Dialog Box

To open the Response Preferences dialog box, select **Tools > Response Preferences**. Use this screen to select an error which will systematically be returned by a service.

Figure 3.11 Response Preferences Dialog Box



The following list associates a Virtual Phone service to a Telephony Manager function as supported by a standard GSM phone driver.

Table 3.1 Virtual Phone Services and Telephony Manager Functions

Services	Associated Functions
Accept Call	TelSpcAcceptCall
Add Entry	TelPhbAddEntry
Auto Operator Select	TelNwkSetSearchMode
Call Number	TelSpcCallNumber
Change Authentication Code	TelStyChangeAuthenticationCode
Close Line and Reject Call	TelSpcCloseLine or TelSpcRejectCall
Delete Entry	TelPhbDeleteEntry
Delete Message	TelSmsDeleteMessage
Enter Authentication Code	TelStyEnterAuthentication
Get Authentication State	TelStyGetAuthenticationState

Table 3.1 Virtual Phone Services and Telephony Manager Functions *(continued)*

Services	Associated Functions
Get Available Storage	TelSmsGetAvailableStorage
Get Available Phone Books	TelPhbGetAvailablePhonebook
Get Battery State	TelPowGetBatteryStatus
Get Brand Number	TelInfGetInformation
Get Call State	TelGetCallState
Get Entries	TelPhbGetEntries
Get Entry Max Sizes	TelPhbGetEntryMaxSizes
Get Location	TelNwkGetLocation
Get Model Number	TelInfGetInformation
Get Networks	TelNwkGetNetworks
Get Phone Number	TelCgfGetPhoneNumber
Get Revision	TelInfGetInformation
Get Selected Phone Book	TelPhbGetSelectedPhonebook
Get Selected Network	TelNwkGetSelectedNetwork
Get Selected Storage	TelSmsGetSelectedStorage
Get Signal Level	TelNwkGetSignalLevel
Get Sms Center	TelCgfGetSmsCenter
Hold Line	TelSpcHoldLine
Mute	TelSndMute
Operator Select	TelNwkSelectNetwork
Read Message	TelSmsReadMessage
Read Messages	TelSmsReadMessages

Table 3.1 Virtual Phone Services and Telephony Manager Functions *(continued)*

Services	Associated Functions
Select Phone Book	TelPhbSelectPhonebook
Select Storage	TelSmsSelectStorage
Send Burst DTMF	TelSpcSendBurstDTMF
Send Short Message	TelSmsSendMessage
Set Sms Center	TelCgfSetSmsCenter

`Response Configuration`

`According to Phone's State`
Select this option to return a value according to the current state of Virtual Phone.

`Reply with Error`
Use this option to return the selected error message.

Table 3.2 GSM Errors

GSM Error Number	Error	Telephony Constant
0	Phone failure	telErrCommandFailed
1	No connection to phone	telErrPhoneComm
2	Phone-adapter link reserved	telErrPhoneComm
3	Operation not allowed	telErrCommandFailed
4	Operation not supported	telErrFeatureNotSupported

Table 3.2 GSM Errors *(continued)*

GSM Error Number	Error	Telephony Constant
5	PH-SIM PIN required	telErrPhoneToSIMPINRequired
10	SIM not inserted	telErrNoSIMInserted
11	SIM PIN required	telErrPINRequired
12	SIM PUK required	telErrPUKRequired
13	SIM failure	telErrSIMFailure
14	SIM busy	telErrSIMBusy
15	SIM wrong	telErrSIMWrong
16	Incorrect password	telErrPassword
17	SIM PIN2 required	telErrPIN2Required
18	SIM PUK2 required	telErrPUK2Required
20	Memory full	telErrPhoneMemAllocation
21	Invalid index	telErrInvalidIndex
22	Not found	telErrEntryNotFound
23	Memory failure	telErrPhoneMemFailure
24	Text string too long	telErrInvalidString

Table 3.2 GSM Errors *(continued)*

GSM Error Number	Error	Telephony Constant
25	Invalid characters in text string	telErrInvalidString
26	Dial string too long	telErrInvalidDial
27	Invalid characters in dial string	telErrInvalidDial
30	No network service	telerrNonetwork
31	Network time-out	telErrNetworkTimeOut
100	Unknown	telErrUnknown

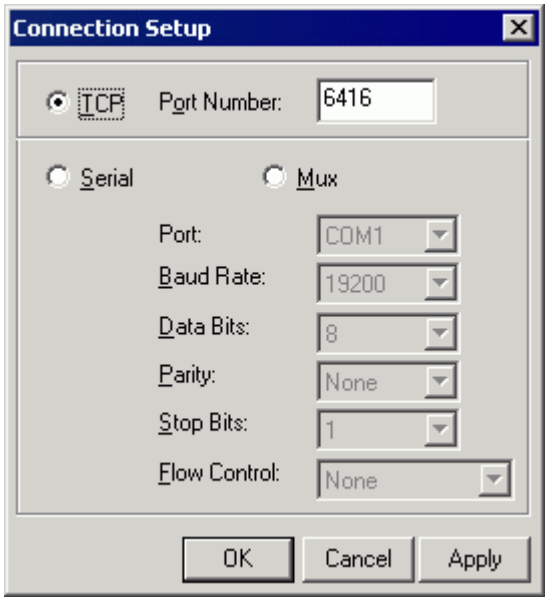
This will load the default value which is **Reply according to Virtual Phone's state** for all of the service functions.

Connection Setup Dialog Box

Use the Connection Setup dialog box to select and modify the communication parameters. To open the Connection Setup dialog box, select **Tools > Connection Setup**. The values assigned in this window must match the values assigned in Palm OS Emulator (See "Configuring Palm OS Emulator" on page 7).

The values entered and displayed here are stored in the `VPAppCfg.db` file in the `TDP` and `Serial` sections.

Figure 3.12 Connection Setup Dialog Box



`TCP Port Number`

If you select TCP, you must provide a Port Number. This number must match the number assigned to Palm OS Emulator. See "Configuring Palm OS Emulator" on page 7 for more information. See the VPAppCfg.db file, in the TCP section, variable name Port.

`Serial`

Select Serial to permit access to the parameters which configure serial communication. Virtual Phone's defaults are the same as Palm OS Emulator's defaults. It is best to retain these default values. See the VPAppCfg.db file in the Serial section. The variable names are Port, BaudRate, StopBit, Parity, FlowCtl and DataBit.

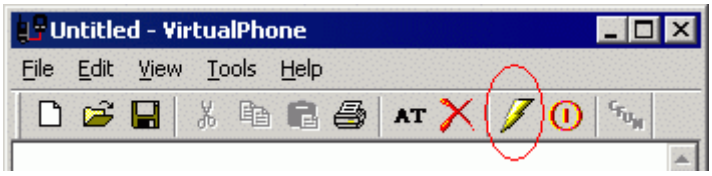
Fixing Connection Problems

Virtual Phone may not be able to establish a connection for several reasons. For example, the specified serial port in the **Connection Dialog Box** may already be in use.

If a connection cannot be established, Virtual Phone displays a message box (see Figure 3.13) and activates the **Connection** icon in the tool bar (as illustrated below in Figure 3.14).

Figure 3.13 Connection Error Message Dialog Box

Figure 3.14 Connection Tool Bar Icon



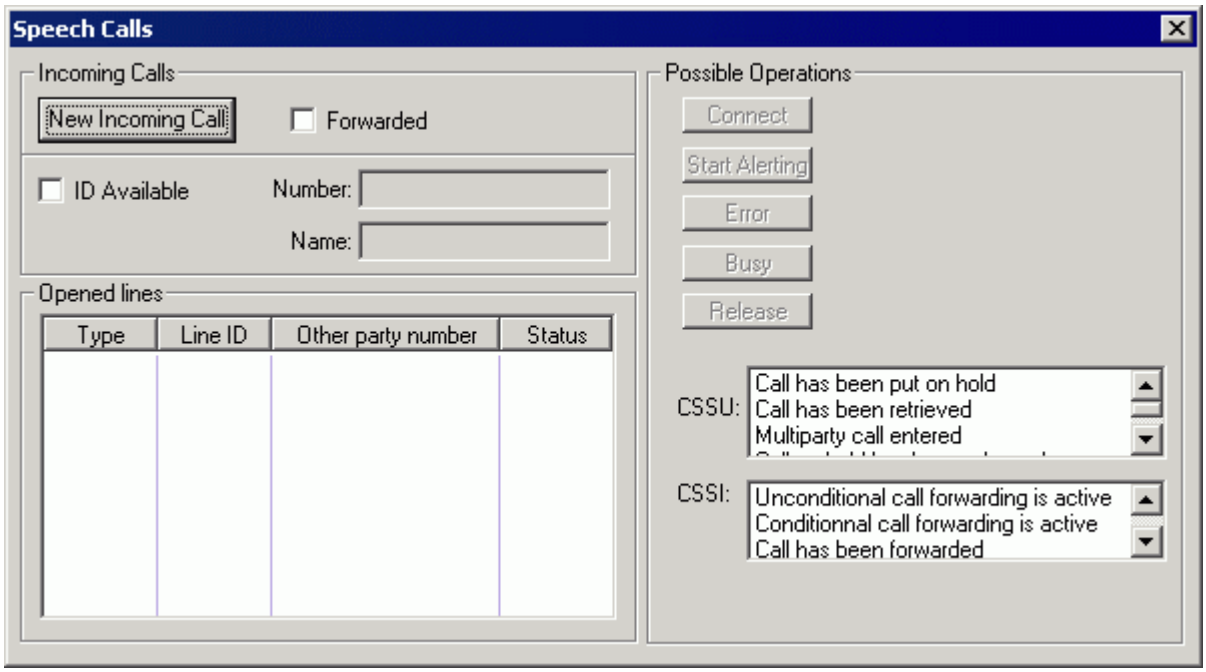
You can then either close the application that is preventing the connection and click the reconnect icon, or you can use the **Tools > Reconnect** menu. As an alternative, you can go back to the Connection Setup dialog box and change the connection settings.

When the connection icon is dimmed, the serial port is successfully open (if serial communications was selected). If TCP communication was selected, then Virtual Phone is waiting for a connection on the specified port number.

Speech Calls Dialog Box

Use the **Speech Calls Dialog Box** to display current voice communication and their parameters, and to simulate incoming voice calls. To open the Speech Calls dialog box, select **Tools > Speech Calls**.

Figure 3.15 Speech Calls Dialog Box



`Incoming Calls`

`New Incoming Call`
When selected Virtual Phone simulates an incoming voice call.

`ID Available`
If checked and a value is entered in the associated edit field, this value will appear in the **Other party number column** of the **Open lines** list and will be sent to the Palm OS Emulator. The Id of a caller is not sent unless the **ID Available** check box is checked.

`Possible Operations`
This is relevant to an open line.

`Connect`
Establish a connection and accept the **Outgoing** call. See TelSpcAcceptCall in *Palm OS Programmer's API Reference*. See sysTelSpcLaunchCmdCallConnect notification in *Palm OS Programmer's API Reference*.

`Release`

Release the line and hang-up the phone. See TelSpcCloseLine in *Palm OS Programmer's API Reference*. See SysTelSpcLaunchCmdCallReleased notification in *Palm OS Programmer's API Reference*.

`Busy`

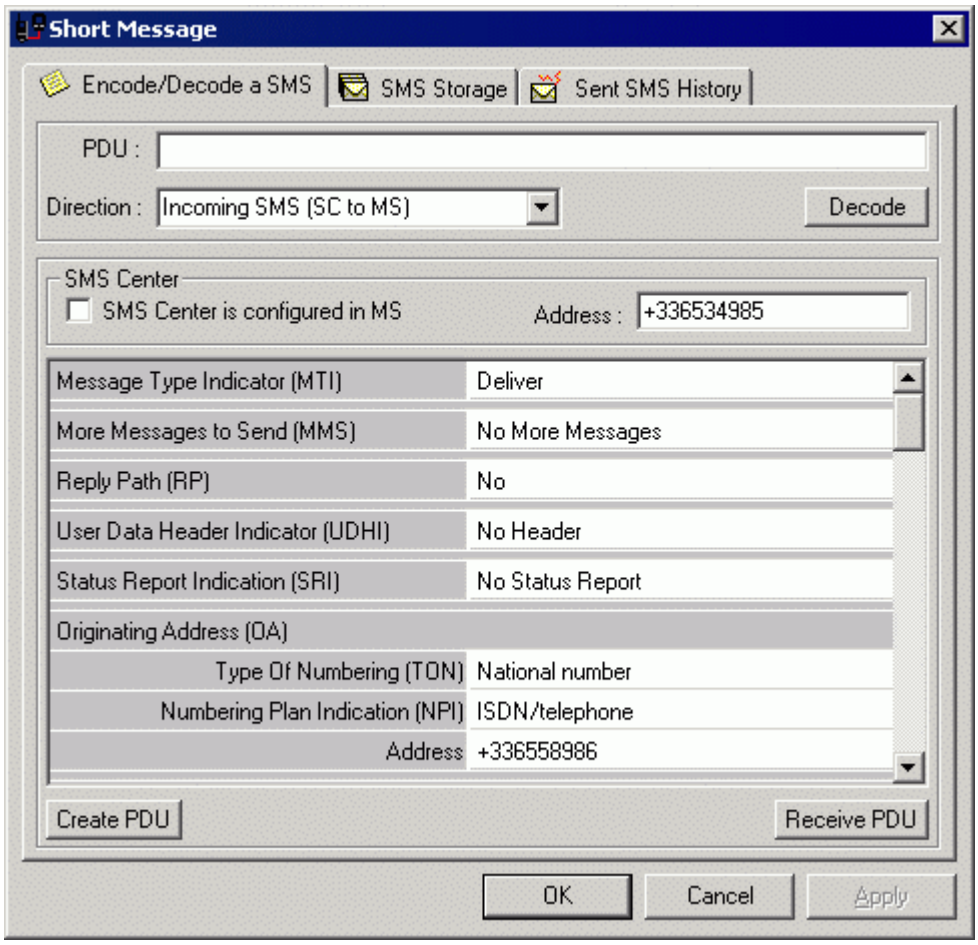
Respond to the **Outgoing** call with a busy signal. See TelSpcRejectLine in *Palm OS Programmer's API Reference*. See sysTelSpcLaunchCmdCallBusy notification in *Palm OS Programmer's API Reference*.

NOTE: Virtual Phone does support Conference calls and Reports.

Short Message Dialog Box

Use the **Short Message Dialog Box** to create SMS messages, to view stored SMS messages, and to view a history of sent SMS messages.

Figure 3.16 Short Message Dialog Box



The Short Message dialog box has three tabs:

- "Encode/Decode an SMS Tab" on page 49
- "SMS Storage Tab" on page 50
- "Sent SMS History Tab" on page 52

Encode/Decode an SMS Tab

Use the **Encode/Decode an SMS** tab, shown in Figure 3.16, to create a new SMS delivery message, which is an SMS message received by Virtual Phone from the GSM network. The message is stored in the first available location in the `SmsStore.db` file. To open the Short Message dialog box, select **Tools > Short Message**.

PDU
Enter the PDU (Protocol Data Unit) for this message.

Direction
Select whether this is an incoming message or an outgoing message.

`Incoming SMS (SC to MS)`
Select if this is an incoming message.

`Outgoing SMS (MS to SC)`
Select if this is an outgoing message.

`Decode`
Click to decode this message.

SMS Center

`SMS Center is configured in MS`
Check to indicate that the SMS Center is configured in the MS (Mobile Station).

`Address`
Enter the address for the message.

`Message Parameters`
Enter the other message data in the scrollable table.

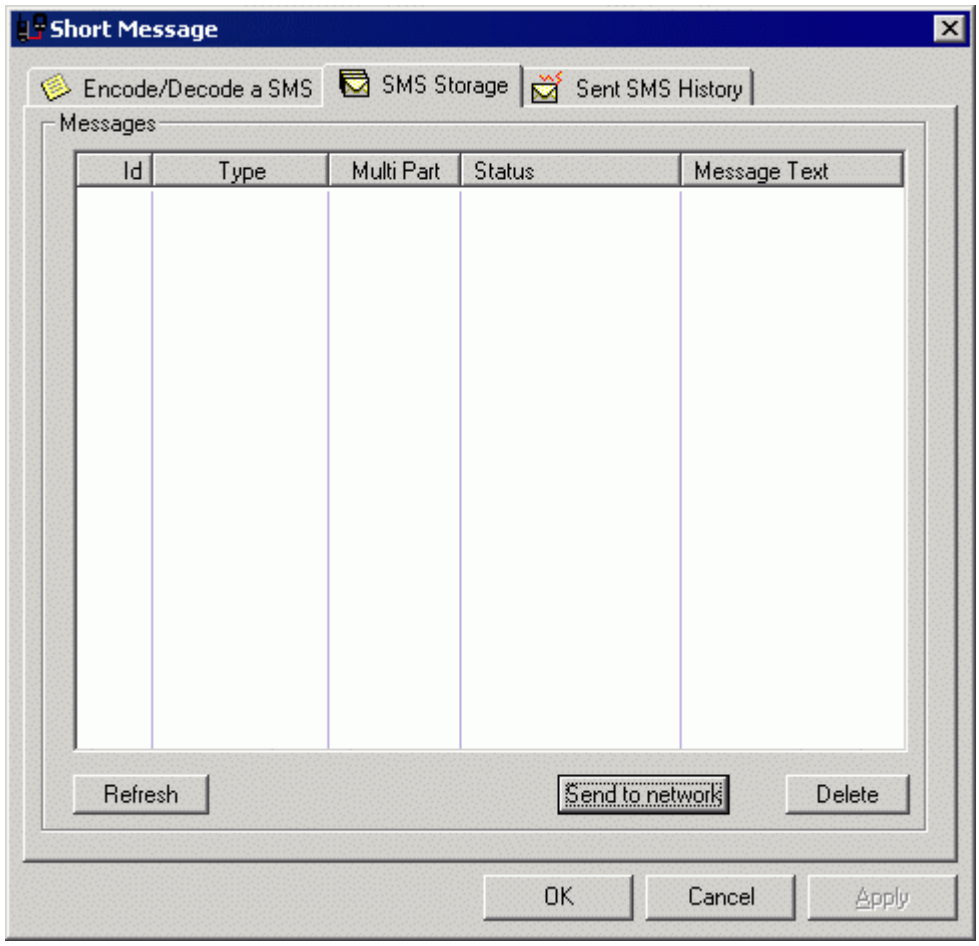
`Create PDU` `button`
Click to create a PDU.

`Receive PDU` `button`
Click to receive a PDU.

SMS Storage Tab

Use the **SMS Storage** tab, shown in Figure 3.17, to view information about stored SMS messages.

Figure 3.17 Short Message's SMS Storage Tab



Messages

`Id`
: The identification number of the message.

`Type`
: The message type.

`Multi Part`
: The SMS is composed of several parts.

`Status`
: Indicates the status of the message: received unread, received read, stored unsent, or stored sent.

`Message Text`
Content of the SMS message.

`Refresh` `button`
Click to refresh the messages table.

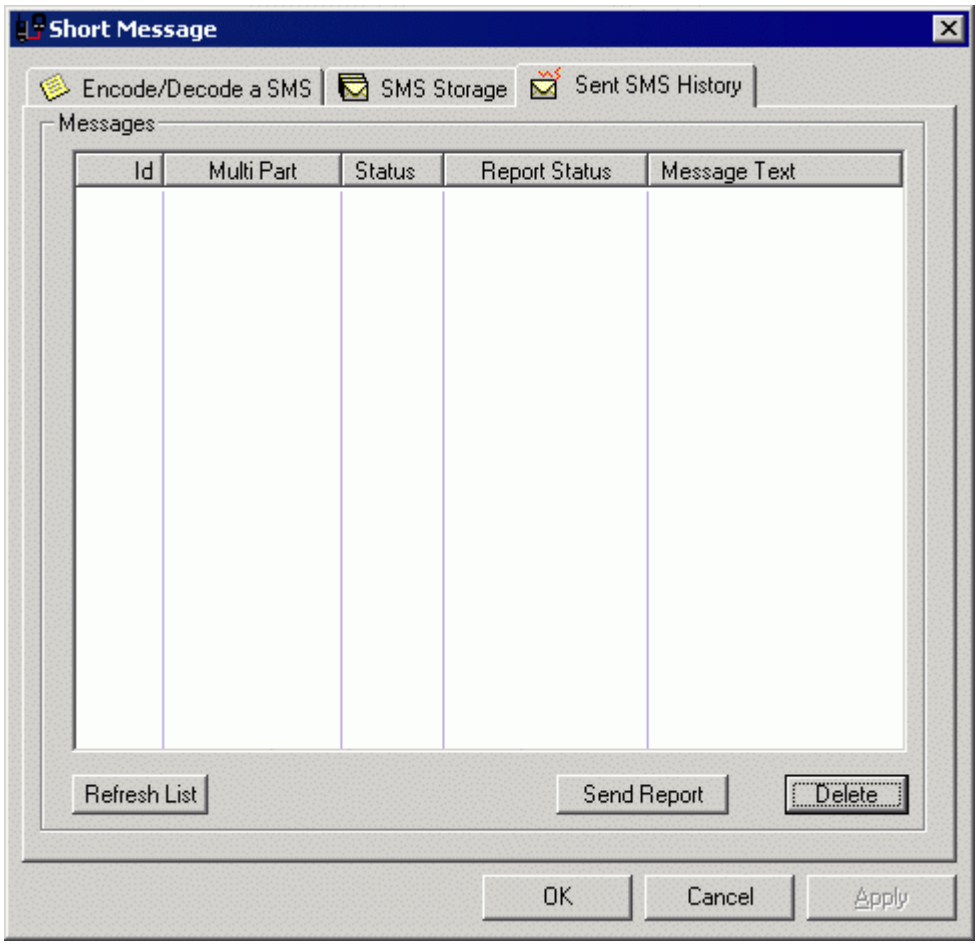
`Send to network` `button`
When the SMS message is stored in Virtual Phone but not yet sent, click to send the message to the network.

`Delete` `button`
Click to delete a selected message.

Sent SMS History Tab

Use the **Sent SMS History** tab, shown in Figure 3.18, to view information about SMS messages that have been sent.

Figure 3.18 Short Message's Sent SMS History Tab



Messages

`Id`
: The identification number of the message.

`Multi Part`
: The SMS is composed of several parts.

`Status`
: Indicates the status of the message: received unread, received read, stored unsent, or stored sent.

`Report Status`
: The SMS contains a status report request.

`Message Text`
Content of the SMS message.

Refresh List `button`
Click to refresh the messages table.

Send Report `button`
Click to send an SMS status report for the selected SMS message (if applicable).

Delete `button`
Click to delete a selected message.

A

Log and Database Files

This appendix covers the files that Virtual Phone uses:

Configuration Files

If the two configuration files are not found in the current directory upon execution, Virtual Phone generates them with the default values. These files, their structure, and their records are described below.

Application Configuration File - VPAppCfg.db

The configuration file, `VPAppCfg.db`, stores data relevant to Virtual Phone's Services and their configuration The file is divided into 12 sections, listed in Table A.1.

Table A.1 VPAppCfg.dlg File Sections

Section Name	Corresponding Services
CFG	Configuration
INF	Phone Information
SPC	Speech Call
POW	Power
NWK	Network
PHB	Phone Book
STY	Security
SMS	Short Message
TCP	TCP
Serial	Serial
ReadThread	Active connection (either TCP or Serial)
Disp	Error Reply Parameters

The following list contains the Service Name and all the variable names associated to the service and the variable default value.

VPAppCfg.db

`[CFG]`
: Configuration Service

`SmsCenter=+336534985`
: SMS Center Number

`PhNum=+336558986`
: Virtual Phone's number

`[INF]`
: Information Service

`Brand=Virtual Phone Win`
: Virtual Phone's Brand Name

`Model=3210`
: Virtual Phone's Model

`Revision=354815`
: Virtual Phone's Revision number

`[SPC]`
: Speech Call Service

`EmcNum=112`
: The emergency call number

`[POW]`
: Power Service

`Level=75`
: Battery power level

`Status=0`
: Battery status

`[NWK]`
: Network Service

`SigLev=15`
: Signal Level

`CellId=AD`
: Cell Id

`AreaCd=BC`
: Area Code

`SearchMd=1`
: Search mode

`RegStat=1`
: Registration state

`[PHB]`
: Phone Book Service

`NumBooks=4`
: Number of phone books (Max=4)

`SelBook=0`
: Selected phone book

`MaxEntries=100`
: Maximum number of entry slots

`MaxNameLen=10`
: Maximum name length

`[STY]`
: Security Service

`State=0`
: security state

`Pin=0000`
: Pin Code

`Pin2=0000`
: PIN2 Code

`Puk=0000`
: PUK Code

`Puk2=0000`
: PUK2 Code

`Phone=0000`
: Phone Code

`[SMS]`
: Short Message Service

`MaxEntries=100`
: Maximum number of message slots

`RecSent=0`
: Receive sent messages

`NDelId=2`
: Next delivery message id

`NSubId=2`
: Next submit message id

`[TCP]`
: TCP Connection

`Port=6416`
: Port number

`[Serial]`
: Serial Connection

`Port=COM2`
: Port to open

`BaudRate=19200`
: Baud rate

`StopBit=1`
: Number of stop bits

`Parity=None`
: Parity

`FlowCtl=None`
: Flow control

`DataBit=8`
: Data bit

`[ReadThread]`
: Connection to use

`ConType=1`
: Serial/TCP

`[Disp]`
: Reply Parameters

`FR0Id=1`
: Response type: According to VP state/Error

`FE0Id=0`
: Error number

`FR2Id=1`

`FE2Id=0`

```
...
```

Available Network File - AvailableNwk.db

The Available Network file, `AvailableNwk.db`, lists the networks available to Virtual Phone. You can modify, add and delete networks using an ASCII text editor (for example, `Notepad`). Remember to change the `Num` key so that it corresponds to the number of networks that you want Virtual Phone to take into account.

The Section Numbers must be consecutive.

AvailableNwk.db

```
[NWK]
Num=1
```
The number of available networks.

```
[1]
```
Section Number

```
Id=5001
```
The network's Id

```
LName=Virtual Phone 1
```
The network's long name

```
SName=VPCom 1
```
The network's short name

```
Stat=2
```
The network's state

```
[2]
Id=5051
LName=Virtual Phone 2
SName=VPCom 2
Stat=2
```

Phone Book Databases

You can use the Service Configuration's Phone Books tab to modify Virtual Phone phone book databases. See "Phone Books Tab" on page 25 for more information.

You can also modify phone books manually using an ASCII text editor. The Last Dialed Phone Book automatically contains the last dialed phone number and any changes to this file will be overridden by Virtual Phone when it dials a number.

See "Phone Book Files" on page 4 for a list of all of the phone books supported.

Phone Book Database Organization

Phone book databases are organized as follows:

```
[1]
```
Index of entry

```
Name= John
```
Name

```
Tel=+33662685921
```
Phone Number

```
[3]

Name= David

Tel=+49656654654

[4]

Name= Marc

Tel=045687654
```

SMS Files

The SMS (Short Message Services) files, `SmsStore.db` and `SmsStoreSend.db`, are generated by Virtual Phone. They both have the same basic structure and contain all the SMS exchanged between Virtual Phone and the Palm OS Emulator. The difference

between the two files are the Delivery and Submit specific data elements.

The values associated to a data elements are valid for version 1.0 of Virtual Phone.

The basic structure is:

`[1]`
: Message Identifier

`State=0`
: Represents the state of the message in Virtual Phone and should not be modified.

  `0 = Received unread message (i.e. new message)`

  `1 = Received and read message`

  `2 = Stored unsent message (only applicable to SMS)`

  `3 = Stored sent message (only applicable to SMS)`

  `4 = All messages (only applicable to +CMGL command)`

  `5 = All messages (only applicable to +CMGL command)`

  Do not change a Received message to a Sent message or visa versa. Never use states 4 and 5.

`DataSize=8`
: The length of the Message Text

`Data=656461717364617A4D`
: The Message Text, in hexadecimal followed by a check sum.

`DCS=5`
: Data Coding Scheme. Values are:

`8 Bits Encoding = 0`

`Default GSM Encoding = 5`

`PCount=0`
: Multi Part Options: Count

`PCurr=0`
: Multi Part Options: Current

`PId=0`
Multi Part Options: Part Id

`DtTimAbs=1`

`If DtTimAbs = 1 (absolute time) the date and time are absolute. If DtTimAbs = 0 the date and time are relative.`

`DtTim=3063866010`
The date and time are in palm format

`Add=+33658214566`
The address of the SMS message

`ProtocolId=0`
Protocol ID. Values are:

Default Protocol = 0

Fax Protocol = 1

X400 Protocol = 2

Paging Protocol = 3

Email Protocol = 4

Ermes Protocol = 5

Voice Protocol = 6

`ReplyPath=0`
Reply Path. Values are: 1 = true or 0= false

`SCeneter=+33668547854`
Service Center number

SmsStore.db File

The following description is valid for the `SmsStore.db` file and are specific to SMS Delivery.

`MsgIdentifier=1`
Delivery Message Identifier

`OthToRcv=0`
Other To Receive: values1 = true or 0= false

`RepDelivInd=0`
Report Delivery Indicator: Currently not supported

SmsStoreSend.db File

The following description is valid for the `SmsStoreSend.db` file and are specific to SMS Submit.

`SubId:`
: Submit message identifier

`DlvReq:`
: Network Delivery Request

`DupReq:`
: Reject Duplicate Request

Log File

The log file, `VPAppATLog.log`, is generated by Virtual Phone. It contains all the exchanged AT commands and responses between Virtual Phone and Palm OS Emulator.

The following is an example of what the log may look like.

VPAppATLog.log

```
AT
OK
AT+CPMS=?
+CPMS: ("SM")
OK
AT+CPMS="SM"
+CPMS: 1,100
OK
AT+CPMS?
+CPMS: "SM",1,100,"SM",1,100,"SM",1,100
```

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