User Guide for MobiLink 2.0™

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1 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide high level user interface information regarding the appearance and operation of the **MobiLink™** Connection Manager application developed for Windows 2000, XP Pro, and XP Home.

1.2 Applicable Documents

All software names and version numbers displayed should meet the requirements outlined in the ***Consistency & Naming Conventions Requirements Document***. This document also covers the requirements for the desktop, including the necessary icons and the use of the *Start* menu.

For more details on meeting the requirements for Microsoft Windows certification, refer to the document entitled, ***Application Specification for Microsoft Windows 2000 and Windows XP for Desktop Applications***, which can be found on Microsoft's web site.

2 OVERVIEW

The Novatel Wireless MobiLink™ Communications Software Suite is a family of wireless connectivity applications that connect mobile devices using wireless wide area networks (WWAN) as well as WiFi and Ethernet in a single application to allow quick and easy access to email, the Internet and corporate networks anytime, anywhere. With MobiLink and a wide area wireless device, mobile users can stay productive and connected to customers and colleagues while out of the office. MobiLink is optimally engineered to work with all of Novatel Wireless' Merlin™ Family Wireless Modems for best in class 3G wireless broadband access solutions.

The MobiLink Communications Software Suite of applications contains a messaging client that manages 2 way SMS operations, an addressbook client that manages contacts and phone number, connection manager that manages the connectivity, and a customization utility to manage and generate install customization settings. The following section will detail the features of each application.

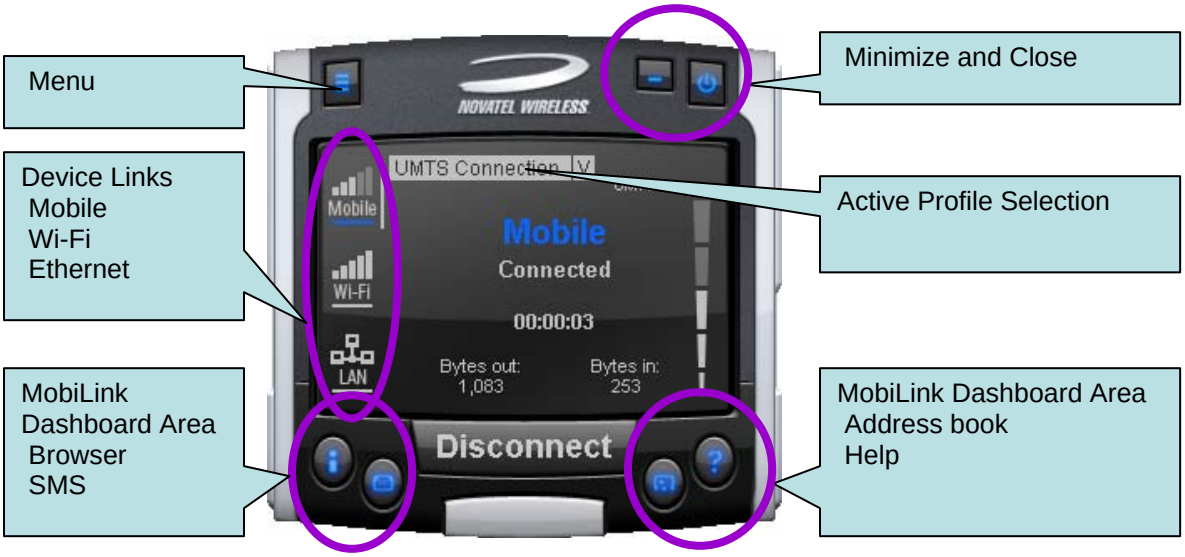
3 GENERAL FEATURES

3.1 General User Interface Functions

The first design principle for MobiLink applications is that the basic information and controls needed for day-to-day operations are quickly and easily accessible while less frequently used functions are located deeper in the menu system. The user interface is designed to be intuitive to use and will not require a large learning curve for the average user. The second design principle for MobiLink is to be easily customizable in order to be able to meet the various requirements of a global market.

3.1.1 Layout

The general layout of the main windows is designed to display important information for connectivity while making it easy to navigate to other functions. The main function such as mobile status and signal strength display is shown in the main window. The connection button is prominently displayed and easily accessible. The main MobiLink display is shown below.



The menu button is located on the left upper corner and contains additional functionality such as settings and configurations. The menu system is designed as a button that when clicked, shows a drop down list of other options. Because it's a drop down list, it allows for expansion of functions as well as reduces the clutter on the main display.

The Device Links area is an active navigation bar that shows status for all the three types of connections as well as a clickable area to shift the main display information to the specific type of connection

The Dashboard Area in the layout is designed as a launching area for other applications. The default applications in the current design are internet browser, SMS client, Addressbook, and Help file. Other applications can be launched.

The Active Profile Selection is a list that allows for easy access to choose the active profile to use for connection. For 3G, this list is a list of connection profiles while for WiFi, this is a list of access points found. For WiFi, this list also shows the signal quality and whether the access point is encrypted.

Lastly, there are the standard minimize and close buttons that are the main stay of any application. The minimize button hides the application as a tray icon and the close button gracefully closes the application.

3.1.2 Mouse Over

Mouse over is a feature of the application that displays helpful hint about the function of the application as the mouse is moved over an active area of the application such as the menu button.

3.1.3 Snap to Edge

Snap to edge is a feature that makes the MobiLink application window snap to the sides of the Windows desktop as the user drags the application close to the edge.

3.1.4 Hot Swapping

The design of MobiLink allows for hot swapping of the 3G device. Users can plug and unplug a 3G wireless device and MobiLink will automatically recognize the technology and dynamically change the display to show the relevant information.

3.1.5 Skinning Customization

Due to the software design and the underlying graphics engine used, the main “skin” of MobiLink is completely customizable. The skin is contained in separate resource files that can be easily changed for branding or function. Two different designs are shown below and more can be developed.

NOVATEL WIRELESS
UMTS Connection
V
UMTS
Mobile
Wi-Fi
LAN
Mobile
Connected
00:00:03
Bytes out:
1,083
Bytes in:
253
Disconnect

Design #1

Design #2

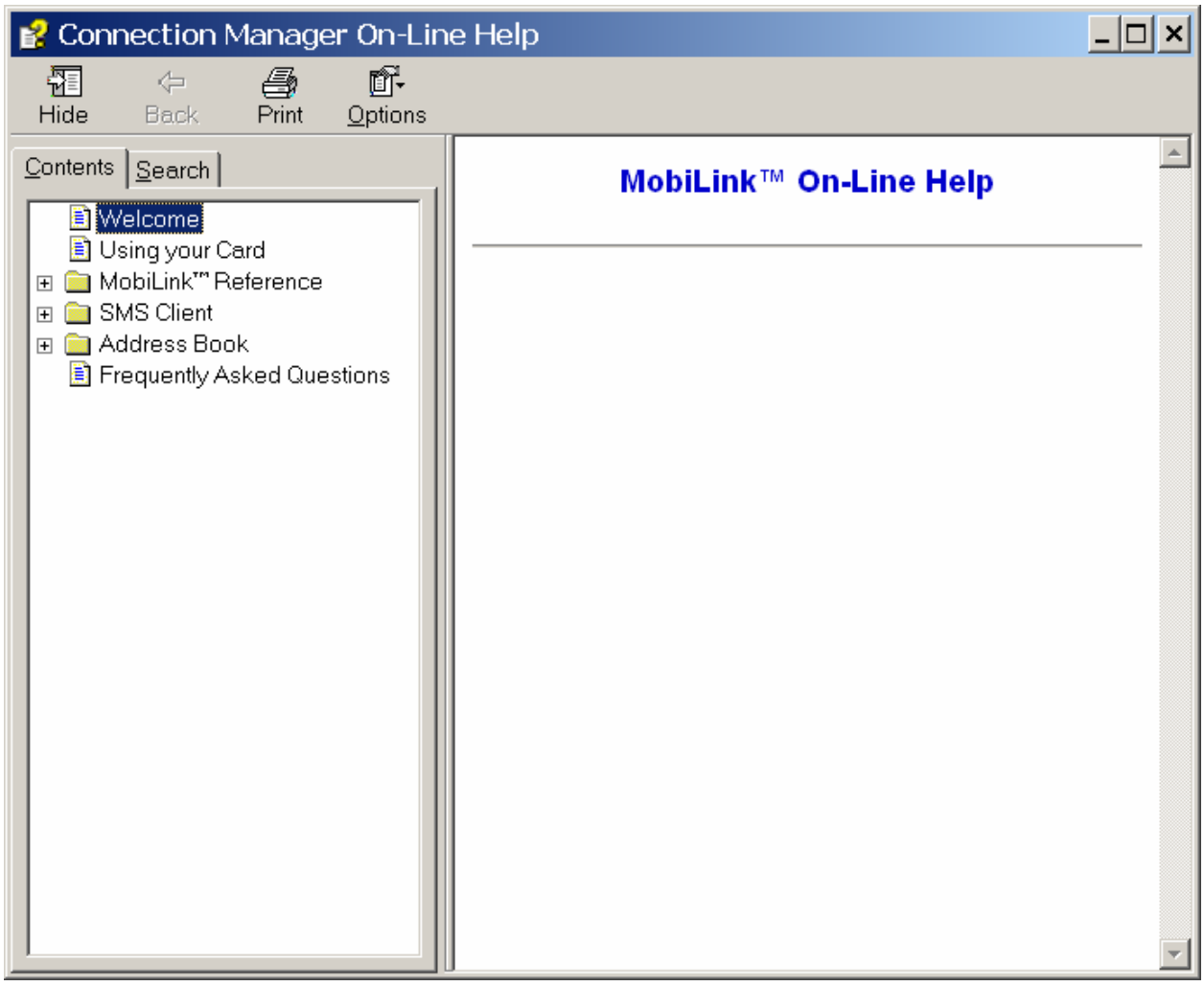
3.1.6 Localization

It is the intent of the MobiLink™ connection manager design to be able to support localization. Double byte Unicode is used and all the text used by MobiLink is kept in resource files that can easily be translated and added. Currently MobiLink supports the following languages:

- Chinese Simplified
- Chinese Traditional
- Danish
- English
- French
- German
- Italian
- Spanish
- Swedish
- Polish

3.1.7 Help File

The MobiLink™ connection manager shall contain a help file that can be accessed through a help button or via F1 key. The help file is also localizable and is in HTML format as shown below:



4 MOBILINK™ FEATURES

The following sections describe the various features of MobiLink.

4.1 Main Display Window

The main display area of MobiLink is used for status indication of the different types of connections. The following information is displayed.

Number Reference	Status Information	Description
1	Signal Strength Bar	This is the quality of the signal for the selected
2	Connection Status	This is a text indicating the connection status
3	Connect Duration	This indicates the number of hours, minutes, and seconds the current connection has been up
4	Bytes Out/Packets Out	This indicates the number of bytes sent for the current connection
5	Bytes In/Packet In	This indicates the number of bytes received for the current connection

6	Network Name	For UMTS/HSDPA, this would show the network name received from the AT+COPS command
7	Profile List	This is the list of supported profiles that contains the connection settings such as username and password and QoS for 3G. This is a list of the 3G profiles for the 3G networks and a list of WiFi profiles for the WiFi network. The displayed profile is the active profile.
8	Indicators	The indicators are icons that show additional status of the 3G wireless. Each indicator will be described below.
9	Connection Type Selection Bar	This is a navigation bar that selects which connection information is displayed in the main window. As the connection is selected, the main window will slide to show the right information. Each of the connection icons for this navigation bar also shows the signal strength of the respective connection.

The connection navigation bar was added to support the universal connection management functionality. By having a navigation bar, the user is presented with just the information that is required for the connection of interest. The pictures below show the three views for each connection type.

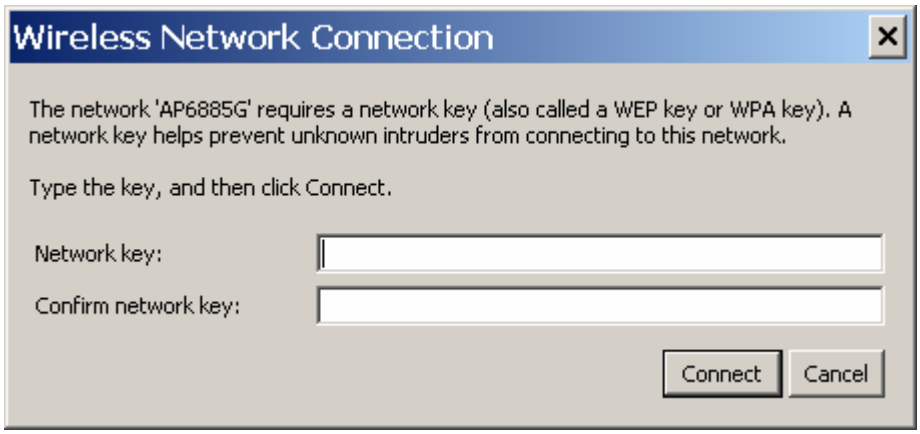
View #1: 3G Wireless

With the 3G Wireless view, connection button can be used to connect to the chosen profile displayed. The status icons for 3G will be displayed on the top right corner and when connected, byte count and time displayed will be shown. The vertical bar next to the navigation bar indicates which view is currently active. When the user clicks on the WiFi navigation button, the WiFi view will be shown.

View #2: WiFi

The WiFi view does not have a connection button since WiFi is a connectionless adaptor. The view does show signal strength, packet count, and connection time as well as connection status. Since MobiLink's WiFi is developed using Windows zero configuration, MobiLink WiFi control can coexist with Windows wireless network connection. The default hotspot is shown in the selection list in the same place as the 3G profile list. The list of hotspots is dynamically generated based on a WiFi network scan of the area. Users can chose to make another hotspot active by clicking on the selection list shown below.

The connection list displays all the available hotspots seen by the WiFi adaptor. The list is arranged in alphabetical order and the signal level for each is shown on the side. Also, if the hotspot is WEP protected, a lock icon will be shown. To change hotspot, users can select one from the list. If the hotspot is WEP protected the following dialog will be displayed to query for the network key.



Lastly, the user can view the Ethernet connection by clicking on the Ethernet navigation bar icon.

View #3: Ethernet

The Ethernet view shows the connection status, the packet count, and the connection duration.

4.1.1 Indicators

3G indicators are shown on the right upper corner of the main status display. The design of these indicators are based on standard 3G indicators used on mobile devices. The following table describes all the indicators.

Indicator	Status/Description
	3G radio is roaming
	3G in dormant mode (May not be applicable for all MAs)
	New SMS is available
	3G device is locked
WWAN Network	This is the type of WWAN protocol that is acquired. The types are: • HSDPA • UMTS • GPRS • GSM • IS95a • 1XRTT • EVDO

4.1.2 Connect/Disconnect Button

Since the main purpose of MobiLink's connection manager is for connecting the user to the internet, the connection button is prominently placed. The Connection button is used to initiate a 3G data connection. The connection button is not used for WiFi or Ethernet since the network adaptors are connectionless and will automatically connect as long as there is a valid connection.

4.2 Menu

When the Menu button is clicked, the following menu subjects are displayed:

Menu Item	Description
Profile Manager	This menu item opens up the dialog for creating, editing, and deleting profiles
Configuration	This menu item opens up a dialog for changing MobiLink settings
Properties	This menu item opens up a dialog that displays the properties of the 3G modem
Report	This menu item opens up a dialog that displays the connections statistics and connection history
Transparency	This menu item is to set the application display transparency. This feature allows the desktop items below the application to be shown through the transparency
About	This menu item brings up information about the MobiLink application

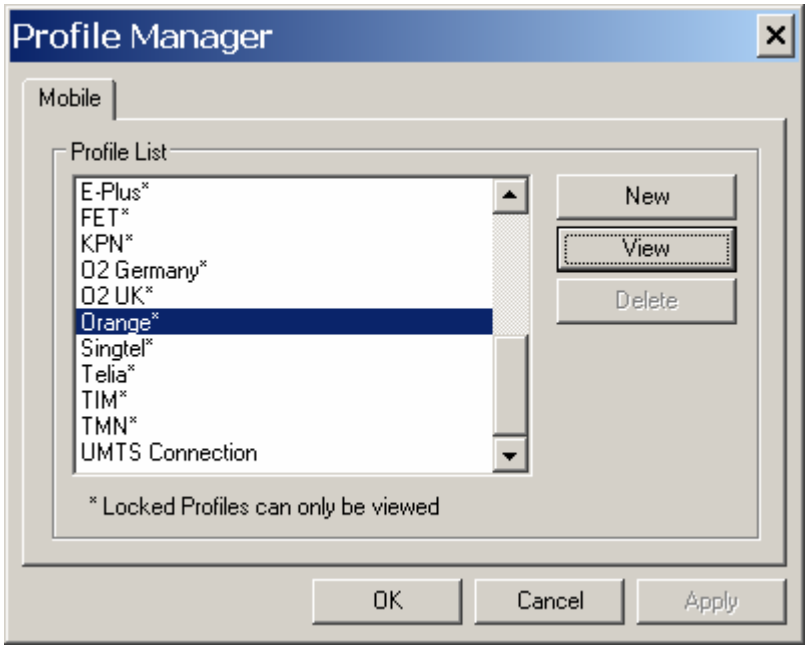
Exit	This menu item will quit the MobiLink application

4.2.1 Profile Manager

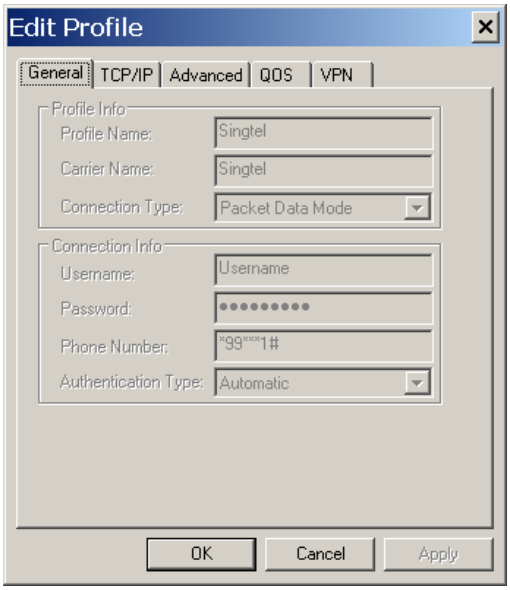
The profile manager allows the user to manage the connection profiles for both the 3G connection and WiFi connection. The user can create a profile using the New, edit or view the profile, and delete a profile.

4.2.1.1 3G Wireless Profiles

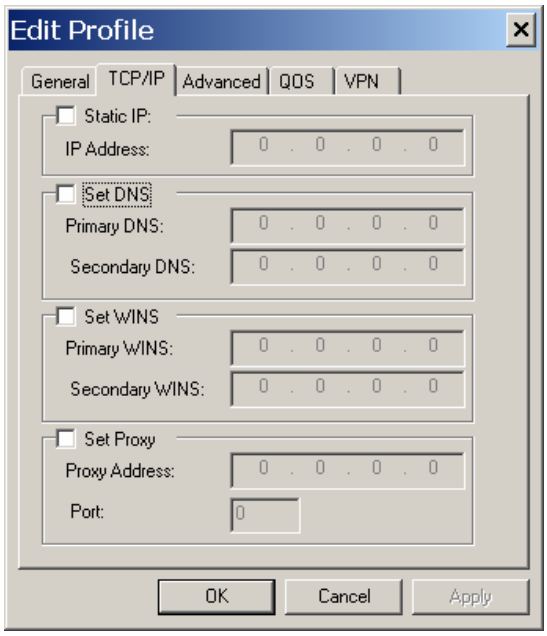
The first tab shows the 3G wireless profiles as shown below.

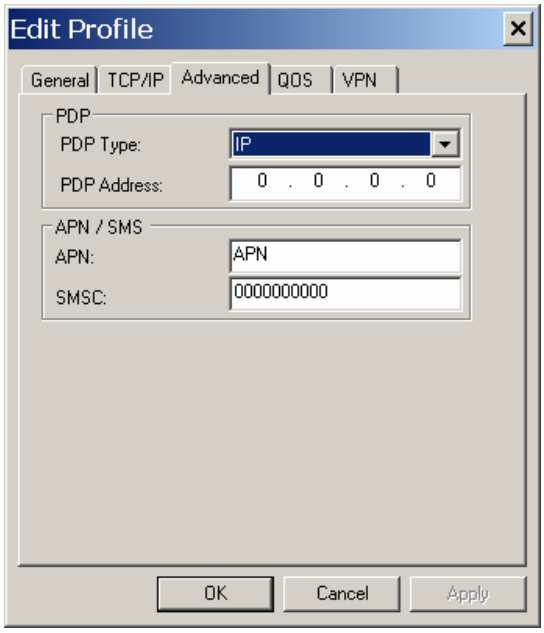


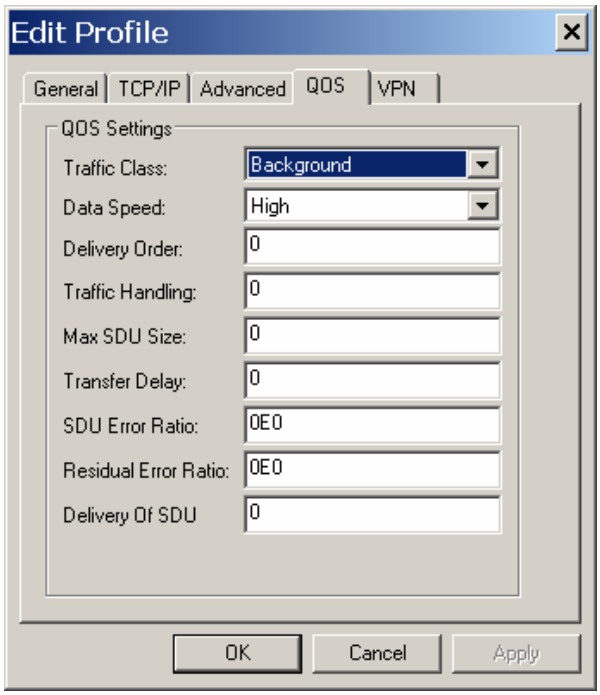
The wireless profiles can be selected for viewing in the case of a locked profile and for editing in the case of an unlocked profile. Locked profiles are preset and can not be deleted or altered. This is to reduce the incidence of connection problems related to incorrect settings due to user error. The dialog below shows the actual profile settings. For locked profiles, the settings are grayed out and cannot be modified.

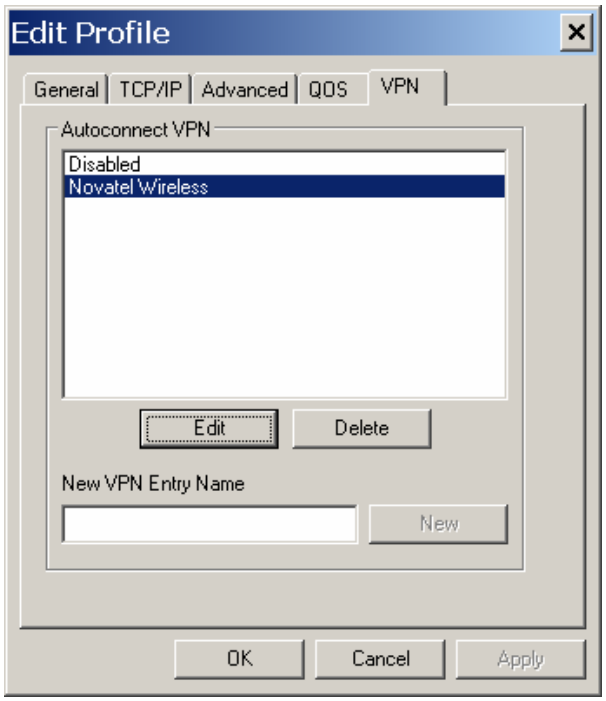


The profile setting are categorized under different tabs and can be different for UMTS and CDMA. In the case of CDMA, the QoS tab does not apply. The following screens show the various settings under each tab.



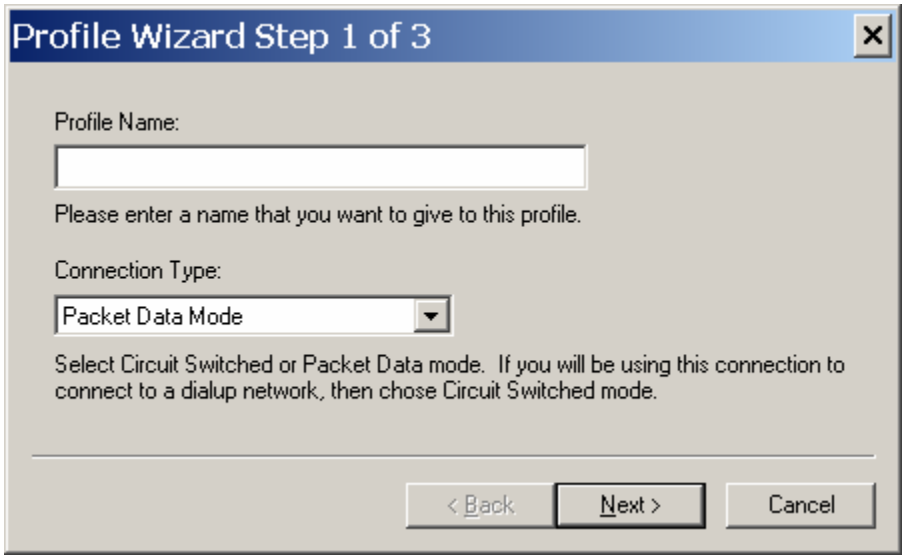




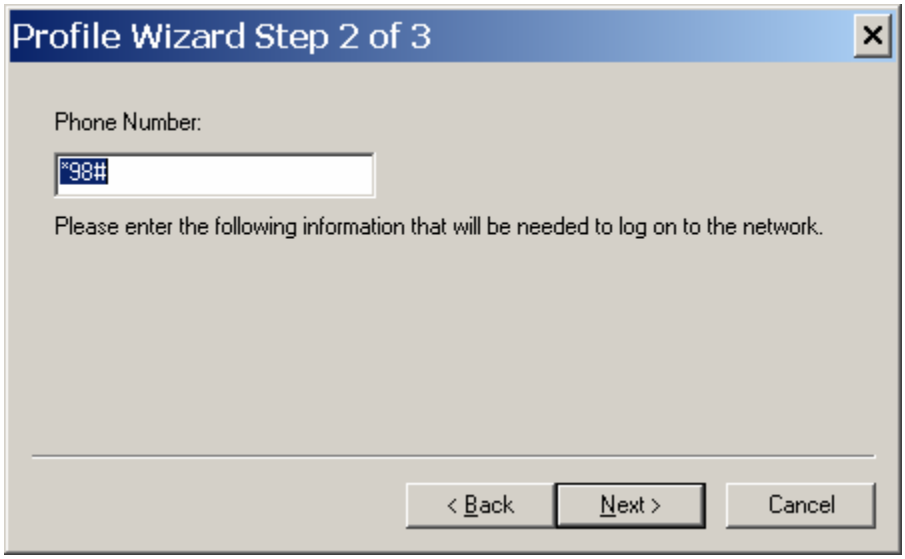


When changes are made to any of the tabs, the user must click the Apply button to effect the changes. Cancel can be clicked to cancel the settings. The exception is the on the last VPN tab. When creating a new VPN, the VPN entry is created when the user clicks the New button with an entry name. The apply button is used to change the associated VPN for the profile. VPN association is used to automatically establish a VPN session after a successful 3G connection.

When creating a profile by clicking on the New button, the profile wizard is used to guide the user through some simple steps for creating a new profile. The advanced settings are preset based on a template profile for the carrier network and hidden from the user. In the rare case where advanced parameters need to be changed, the user can then select the newly created profile and click on Edit to edit the parameters.



Profile Wizard Step 1



Profile Wizard Step #2

Profile Wizard Step #3

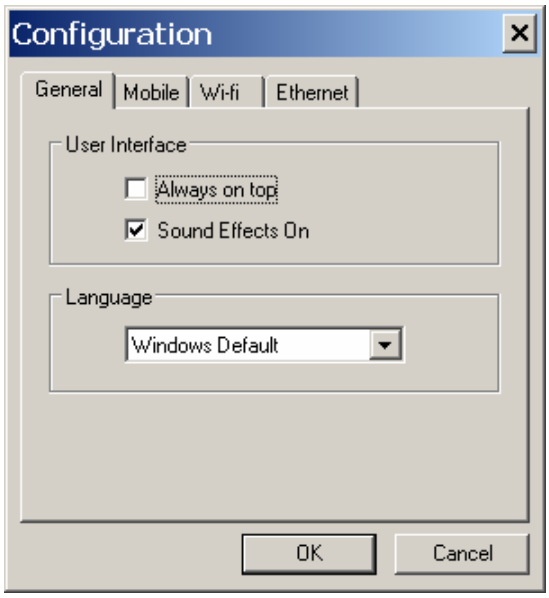
4.2.1.2 WiFi Profiles

TBD

4.2.2 Configuration

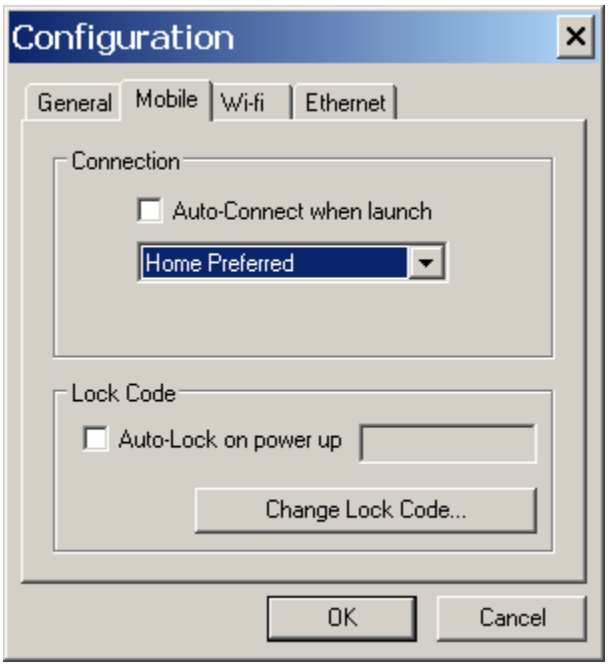
The configuration menu has all the available settings for MobiLink. The configuration window is broken down in to four functional tabs. The General tab is for the user interface settings and language selection. The Mobile tab is used to set parameters for the 3G device. The WiFi tab has settings for WiFi adaptor, and the Ethernet tab is used to set the Ethernet adaptor. Each of the tabs is shown below.

4.2.2.1 General Tab



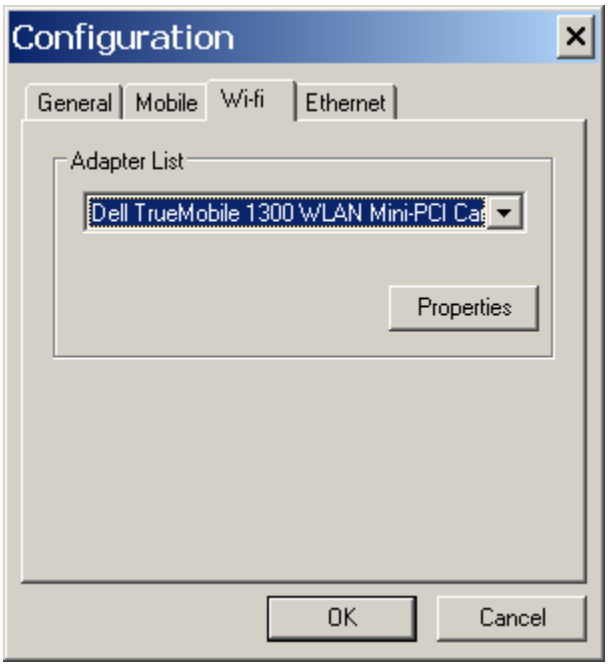
General Tab Feature	Description
Always on top	When checked, the application is always the top most application on the desktop
Sound Effects On	When checked, sounds will be played on user actions
Language	This is a selection list for choosing the language to be used for MobiLink. Windows Default will base the language on what Windows uses as the native language

4.2.2.2 Mobile Tab

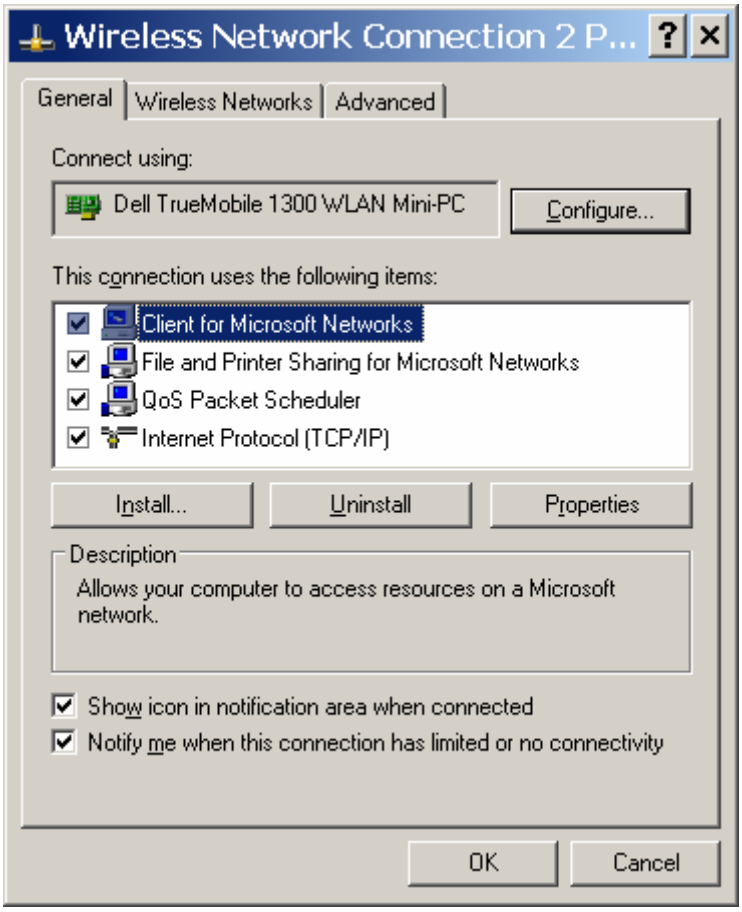


Feature	Description
Auto-Connect when launch	This feature is for MobiLink to automatically connect to the network when launched
Network Selection	This selection is used to select the network preference. For CDMA, this is to select the operating network and for UMTS/HSDPA, it's for selection the radio access technology
Auto-Lock on power up	Check to lock the SIM upon power up. A 4 to 8 digits code must be supplied to turn on and off the auto lock feature.
Change Lock Code	Chick this button to change the lock code. This button is only active if the auto-lock SIM feature is turned on.

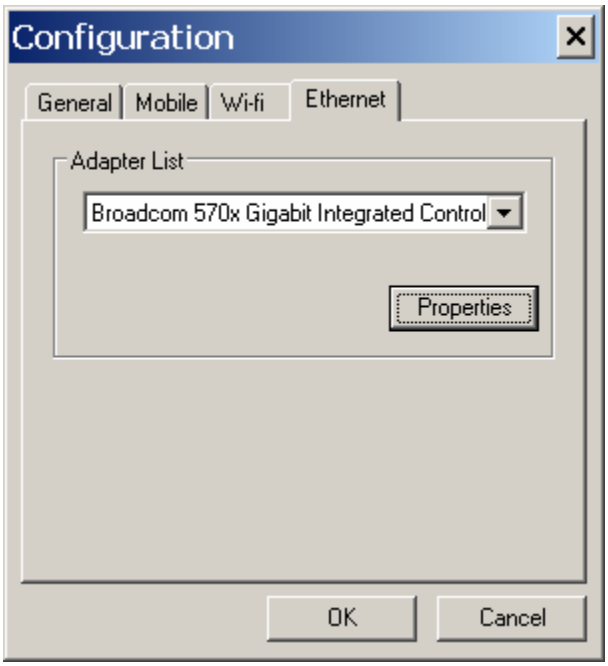
4.2.2.3 WiFi Tab



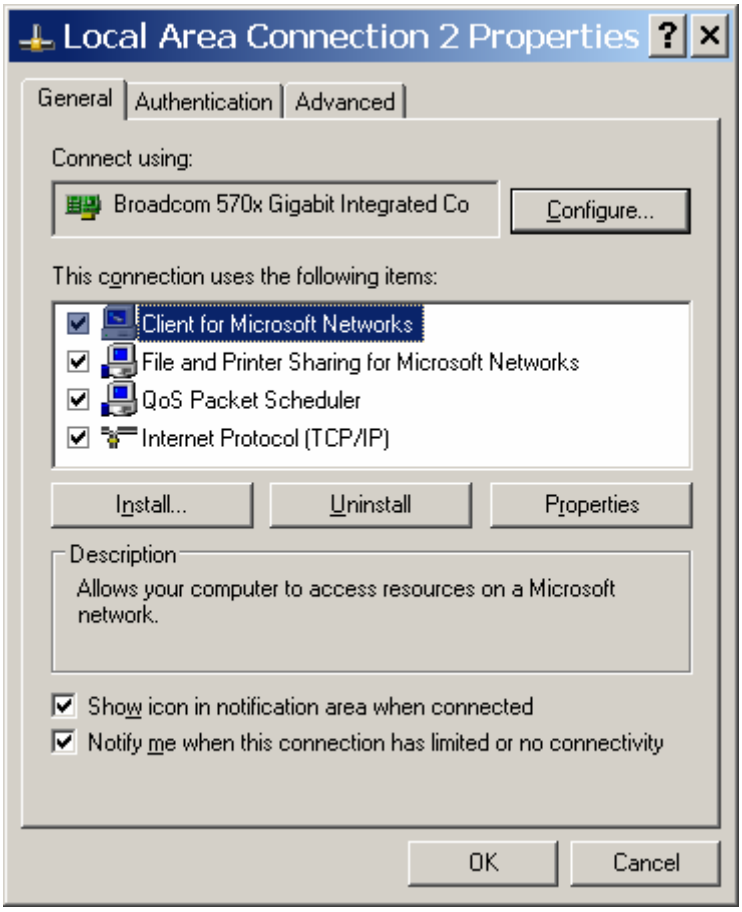
The WiFi tab allows user to choose the WiFi adaptor from a list of detected adaptors. Also, the adaptor properties can be modified by clicking on the properties button. The wireless adaptor properties window is shown below.


Wireless Network Connection 2 P...
General
Wireless Networks
Advanced
Connect using:
Dell TrueMobile 1300 WLAN Mini-PC
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol (TCP/IP)
Install...
Uninstall
Properties
Description
Allows your computer to access resources on a Microsoft network.
Show icon in notification area when connected
Notify me when this connection has limited or no connectivity
OK
Cancel

4.2.2.4 Ethernet Tab

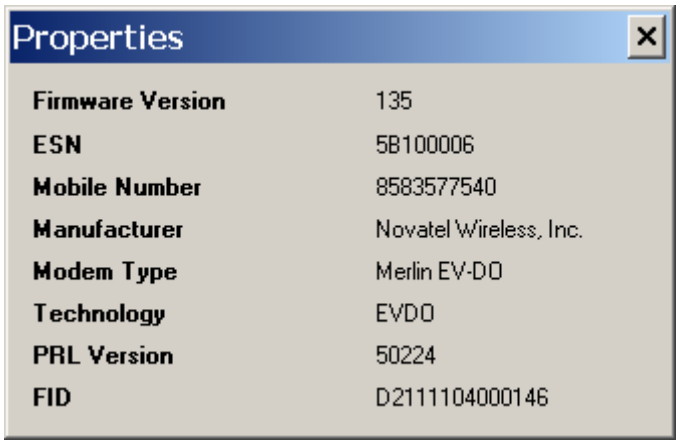


The Ethernet tab allows user to choose the Ethernet adaptor from a list of detected adaptors. Also, the adaptor properties can be modified by clicking on the properties button. The adaptor properties window is shown below.

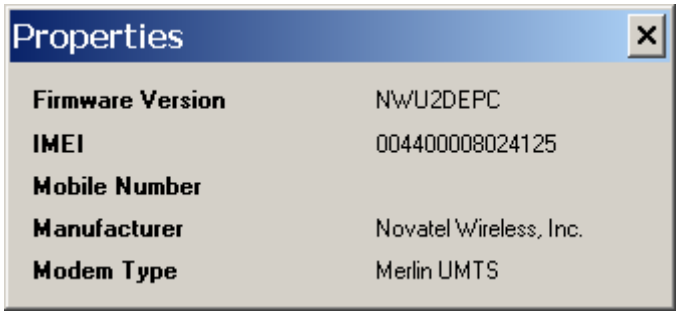


4.2.3 Properties Menu

The properties menu displays some of the key properties of the UMTS and EVDO devices.



CDMA

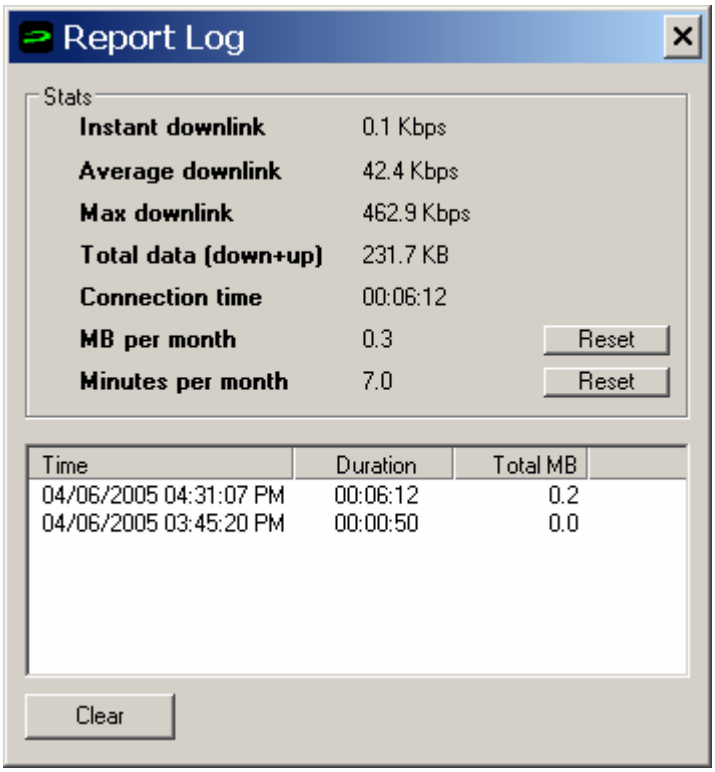


UMTS/HSDPA

Property	Description
Firmware Version	Firmware version of the 3G device
IMEI/ESN	International Mobile Equipment Identity (UMTS)/ Electronic Serial Number (CDMA)
Mobil Number	Number for the mobile
Manufacturer	Who produced the modem
Modem Type	Modem technology
Technology	3G technology
PRL version	Preferred Roaming List version number(CDMA)
FID	Factory ID. This is a unique tracking number for factory builds

4.2.4 Report Log

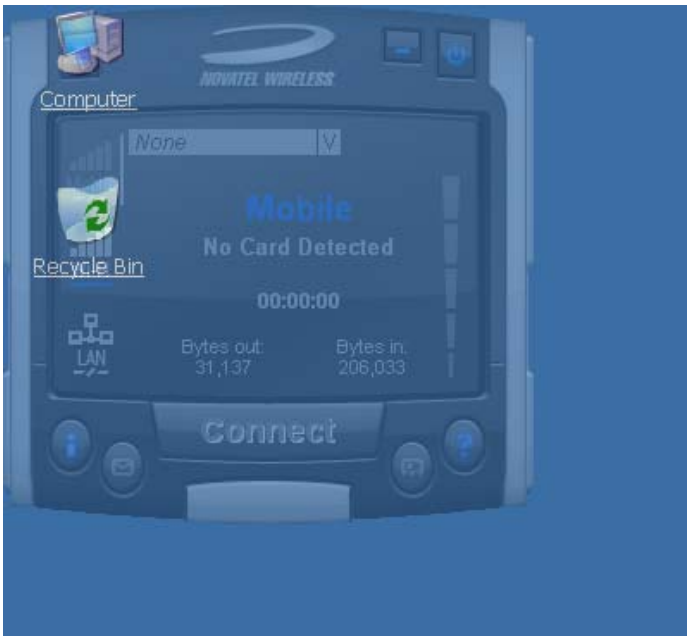
The report log has statistic information about the current connection as well as a history list of past connections.



Value	Description
Instant downlink	This is most recent measured downlink throughput
Average downlink	This is the average of all the measured downlink throughput
Max downlink	This is the maximum achieved downlink throughput
Total data	This is the total data that has been ever sent since MobiLink has been installed on the machine
Connection time	The is the amount of time the connection has lasted
MB per month	This is a resettable counter of how many bytes since the last reset
Minutes per month	This is a resettable counter of how many minutes since the last reset

4.2.5 Transparency

This menu feature allows the user to select the percent transparency for MobiLink. The choices range from 0% to 90% with 0% being solid and 90% being very transparent. Transparency allows desktop items below MobiLink to be displayed for better multitasking. Below is an example of MobiLink transparency on a desktop.



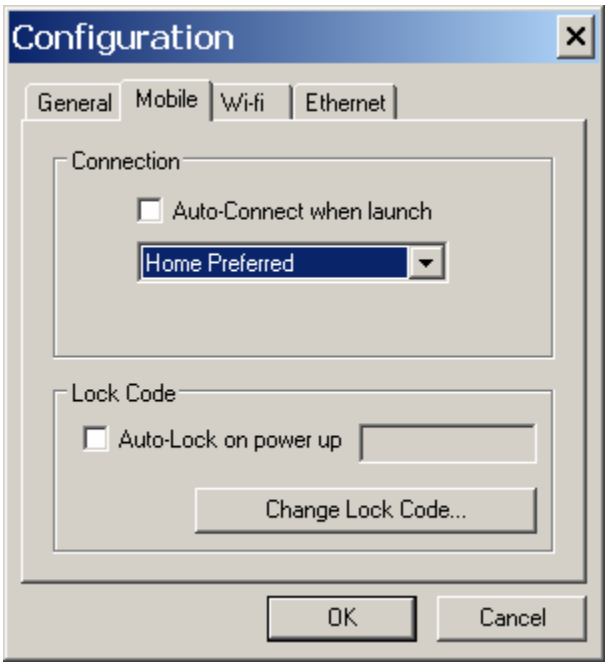
4.2.6 About

The About dialog displays MobiLink information such as version number, release date, and copyright.

4.2.7 SIM/Lock Management

Upon Mobilink startup, ff the device is locked on power up, a small dialog will be displayed such as below to ask the user to enter the unlock code prior to continuing with MobiLink.

The lock setting and code can be managed in the Mobile tab of the configuration menu shown below.



4.2.8 Quick Access Buttons

The quick access buttons are designed to provide a launch pad for other applications. Four buttons are provided and can be remapped to other applications. The picture below shows the default functions assigned to the quick access buttons.

4.2.9 Software Web Upgrade

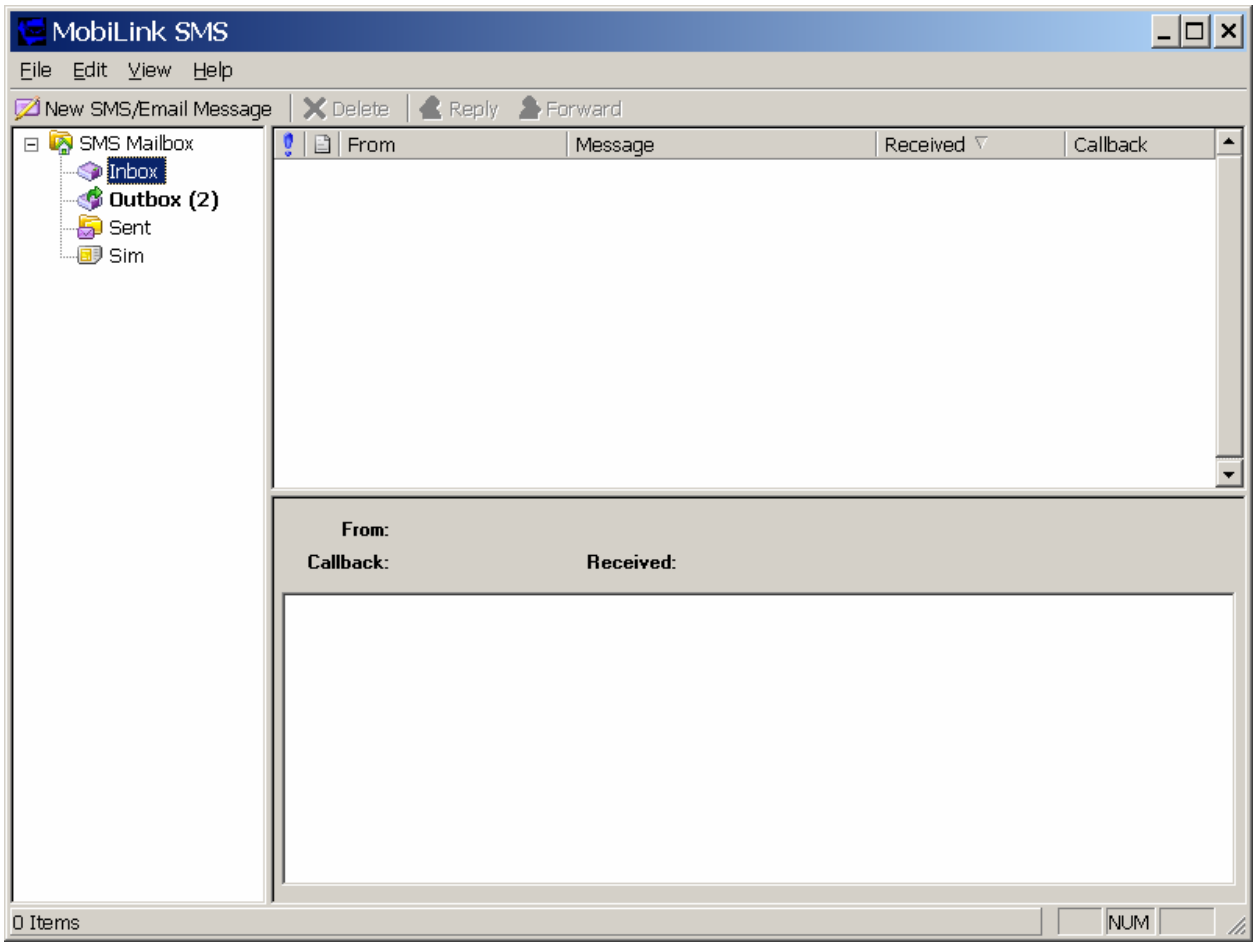
TBD

4.3 SMS Client

The MobilLink SMS client is used to manage reading and sending SMS messages. The SMS client is an application that is part of the MobiLink application suite. The design of this application is to emulate an email client to reduce the amount of new learning that is required to start using this application. This application is launched from the main connection manager Quick Access button. The following features are supported.

- Send new messages
- Reply to message
- Forward message
- Email interworking
- Concatenated SMS
- Set priority of message

- Rich text editing functions
- Printing
- Support for embedded hyper links and email links in message
- Auto language selection
- Send to multiple recipients
- Status receipt of sent messages
- Status bar to indicate number of messages, character count, etc…



4.3.1 SMS Mailboxes

Very much like an email client, the SMS client has multiple mail boxes to store different types of messages.

Mailbox	Description
Inbox	All incoming SMS is delivered to this mail box and will be highlighted if unread.
Outbox	All outgoing SMS will be put into this mailbox. If the SMS has not been sent to the Merlin card, it will be held here until it can be sent.
Sent	All sent SMS messages are placed here.
SIM	All SMS messages that are still stored on the SIM.

The message panel contains the key information for a list of messages. The messages can be reorder in the message panel by clicking on the fields located on the top strip. The fields are the following:

Field	Description
!	Importance
From	Where the message is from. Only shown when Inbox is selected.
To	Where the message is sent. Only shown in when Outbox or Sent box is selected.
Message	Displays the first few characters of the message
Received	Time when the message is received
Sent	Time when the message is sent
Callback	Callback number

4.3.2 Menu Bar

The menu bar contains the following items:

Menu Item	Description
• File	
o Exit	Exits the application
• Edit	
o Undo	Undo last text editing
o Cut	Cut the selected text

- o Copy — Copy the selected text
- o Paste — Paste text on clipboard
- o Select All — Select all text in message content panel

- View
  - o Toolbar — Display tool bar
  - o Statusbar — Display Status bar

- Help
  - o About SMSClient — Display About dialog

4.3.3 Toolbar

The tool bar is accessible across the top and gives user quick access to common tasks. The tool bar contains the following buttons:

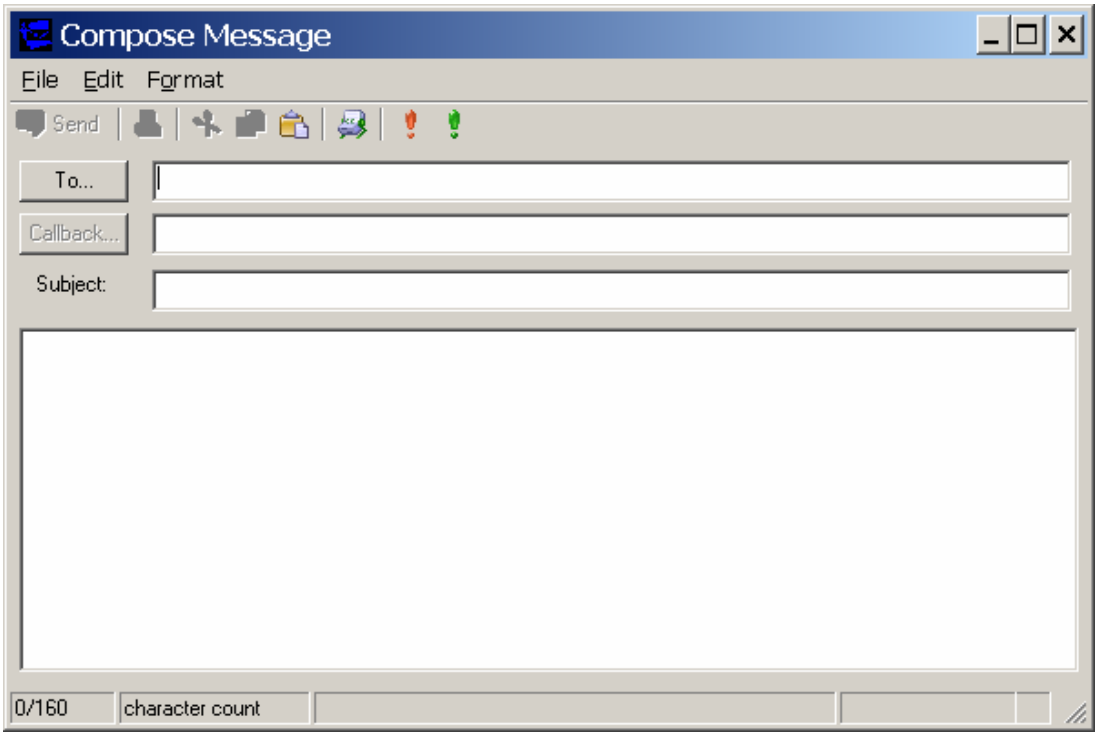
Button	Description
New SMS Message	Opens up dialog to create a new SMS message
Delete	Deletes the highlighted message or group of messages.
Reply	Reply to the highlighted message.
Forward	Forward the contents of the highlighted message.

4.3.4 Status Bar

The status bar displays information about each of the mailbox selected. It will give the number of messages and the number of unread messages. The status bar is located on the bottom strip.

4.3.5 Compose Message Window

Clicking on the New SMS Message button will bring up the following dialog:



This window allows the user to enter the destination address, SMS message, a callback number for CDMA, and a subject text. Standard text editing such as cutting, copying, pasting is supported in the message box. In addition, the user can use the tool bar or the menu to set the priority and encoding of the message. Both Unicode and ASCII are supported. Unicode is used to send characters not in the standard ascii character set.

For the destination address, users can chose to select from the address book by clicking on the **To** button. Also, multiple destinations can be entered separated by a comma or semicolon.

The toolbar supports the following functions:

Button	Description
Send	Send the SMS message
	Print the SMS message
	Editing functions. Cut, copy, and paste text
	Open the addressbook to select from

!	Emergency priority
!	Urgent priority
	Set Unicode encoding for message

Clicking on the “To” button or the Addressbook button will bring up the following dialog to select the contact to insert into the destination field. Multiple destination addresses can be selected.

4.3.6 Email Interworking

A new feature added to this version of MobiLink is the ability for email interworking. What this feature does is to allow an email message to be sent over an SMS message. If the user types in an email address in the **To** filed, the application will automatically format the SMS message so that the SMSC on the network side will forward it as an email.

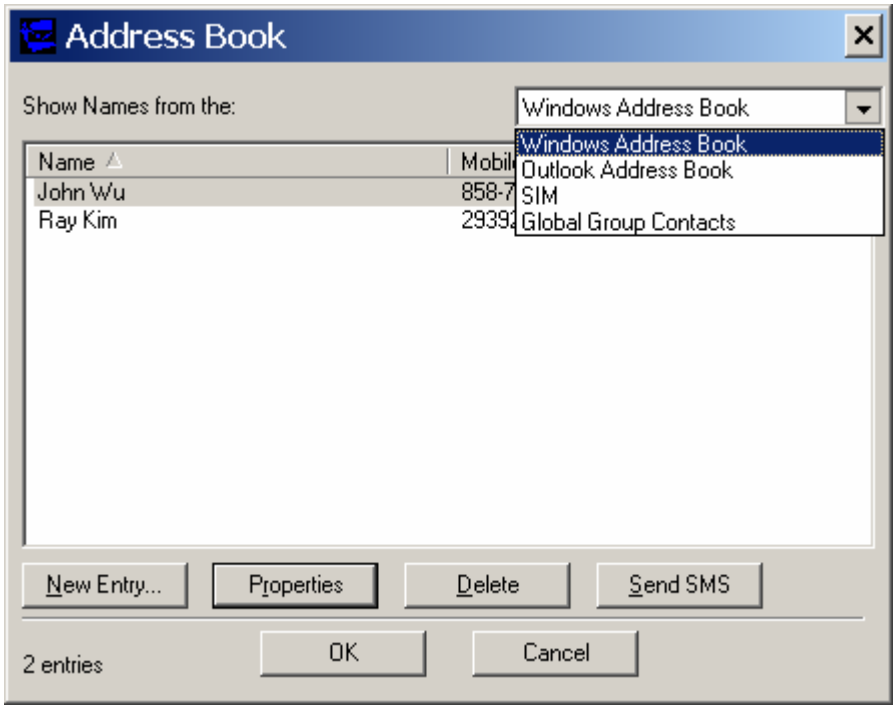
The recipient of this email can simply reply to the message and the message will be forwarded back to the wireless device.

4.3.7 Concatenated SMS

With the addition of email interworking, the ability to send an SMS that is longer than the limited 160 characters is very important. To address that issue, the SMS client will allow the user to enter a long message and automatically segment the message and send it as separate SMS with a special tag to indicates the messages are segments of a long message.

4.4 Addressbook Features

The MobiLink address book allows the management of phone numbers on the SIM, Windows Address Book and Outlook. The following screen shows the address book client.



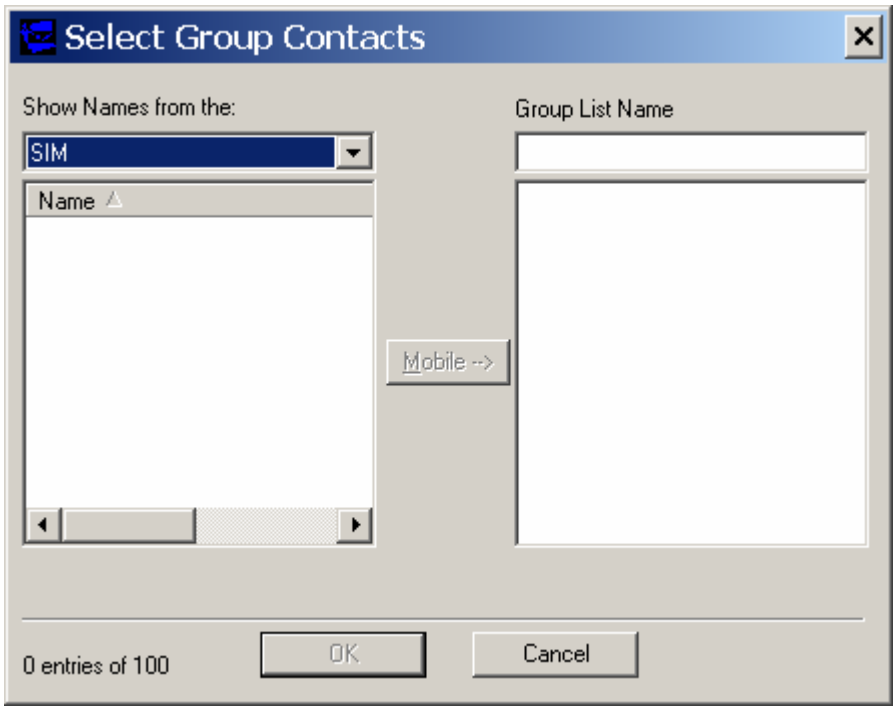
The address book client has a selection box that allow the user to chose which address book to view. The following addresses can be selected:

Addresbook	Description
Windows Address Book	This is the native Windows Addressbook that is part of Windows Accessories folder
Outlook Address Book	This is the local Outlook Addressbook. This is only accessible if Outlook is installed on the computer
SIM	This is the address book located on the 3G device or the SIM of the device
Global Group Contact	This is the group contacts that contain distribution lists created by the user. This list can contain contacts from any of the above address books

User can create, delete, and view contact properties as well as send an SMS message using the selected contact by clicking on one of the buttons on the bottom of the Address Book Client.

4.4.1 Global Group Contact

Global Group Contact feature allows users to create distribution lists for sending SMS.



When the user chooses to create a Global Group Contact, a new dialog will be opened up to allow the user to select from the different address books and move them to create a new distribution list. The total number in a distribution list is up to 100. The list can contain a mixture from different address books and can contain both mobile numbers as well as email addresses.

Appendix

RF Exposure Warning

"In order to comply with FCC RF Exposure requirements, this device must be installed such that a minimum 20cm separation distance is maintained between the EUT's antenna(s) and all persons during normal operation. In addition, the antenna(s) must not be co-located or operated in conjunction with any other antenna or transmitter. OEM integrators may not provide instructions to end-users pertaining to installation or removal of the EUT."