Windows phone

What's New in Windows Mobile 6.5

June 2009

Applies to: Release Information

Contents

Overview and Highlights

Windows Mobile 6.5 has made significant enhancements to business productivity, consumer messaging, and mobile Internet. It focuses on key areas to help partners target professionals and also target new consumer messaging positions for Windows phones.

Areas of focus include the following:

New visual style for Windows Mobile Professional

The visual style of Windows Mobile 6.5 has received significant updates, particularly for Windows Mobile Professional. The new design of Windows Mobile Professional is focused on touch. The new Start screen has a touch friendly pattern that is fun and interactive as the user taps, flicks, pans, and scrolls.

A new Lock screen lets users interact with user interface elements and view some notification data without having to enter a simple PIN.

Mobile Internet

Browser improvements, widget framework support, and rich Internet application (RIA) support allow partners to add applications on the Start screen, thereby enabling an original equipment manufacturer (OEM) to differentiate itself from competitors.

Developer value proposition

OEMs, mobile operators, ISVs, partners, and third-party developers can now optimize experiences on the phone by using developer portals, tools, widgets, custom icons, themes, and backgrounds.

Furthermore, Windows Mobile 6.5 offers the ability to do the following:

- Differentiate phones and build customer loyalty through co-branding, user experience (UX) customization, and software and hardware extensibility.

- Display the mobile operator name based on information stored in the SIM card, and display current roaming status. This reinforces the mobile operator brand and helps eliminate surprise roaming charges for customers.

- Customize phones to meet your needs with greater flexibility. Windows Mobile 6.5 provides several new features and lets you extend and customize many elements.

- Create dynamic themes that match branding.

- Add any application or service, even if it duplicates a Microsoft feature.

- Implement new and different ways to build mobile operator and OEM brands by increasing awareness and reducing costs. Microsoft Services teams can introduce you to revenue growing and cost reducing opportunities.

- Windows Mobile 6.5 includes a more compelling, competitive experience for businesses and consumers.

Although Windows Mobile 6.5 contains new and different features and functions, it also improves the fundamentals, including the following:

- Significant improvements in overall stability, battery life, and performance, which can increase customer satisfaction and reduce returns.

- The ability for users to switch between Code Division Multiple Access (CDMA) and Global System for Mobile Communications (GSM) without rebooting the phone. This is a necessary feature for business power users who need broad international coverage.
- Added support for digital TV tuner and display of HDTV content for 480x854 and 480x864 pixels at 192 dpi.

Messaging

Users can now stay up to date with a rich messaging experience.

When used with Microsoft Exchange Server 2007, Windows Mobile 6.5 automatically discovers Exchange Server settings for company e-mail.

When using the future release of Exchange, Microsoft Outlook Mobile users will be able to manage e-mail messages more efficiently and take advantage of the following capabilities:

- A conversation view lets them quickly triage mail.
- A voice-to-text translation accompanies each voice mail so that they can better triage incoming information.
- Reply and forward flags let them quickly see what they have already replied to.

Rich HTML mail is supported across various versions of Microsoft Exchange.

Contacts are automatically updated if users have the next version of Outlook on their desktop and it is connected to Exchange and their phone. Contact pictures are displayed in messaging views and on contact cards.

On Windows Mobile 6.5, Office Communicator lets users stay in touch with work contacts. Users can also use one business number for all business contacts, and they can forward calls to their phone to pick up or leave voice mail.

Services

Windows Mobile 6.5 includes support for several new services. These services offer partners revenue growth opportunities or cost savings:

- Marketplace lets customers expand their phone's capabilities through powerful software.
- Windows Live services let users stay up to date with a rich messaging experience, including the familiar Windows Live Messenger and push e-mail for their Windows Live Hotmail account.
- MyPhone is a new service that lets customers easily back up and manage phone information and allows them to access information from any personal computer as well as their phone.

Personalization

New capabilities help make the phone personal to the user. For instance, the users can:

- Personalize their phone with exciting new applications, ring tones, and themes.
- Go wireless with full stereo Bluetooth headphone support.
- Use personal photos for photo contact cards and for the Home screen background.
- Easily transfer music and video to their phone using Windows Media Player, and choose widgets to display on the Start screen.

Using only their fingertips, users can personalize their Start screen. They can set a favorite in Internet Explorer Mobile and then add it to the Start screen, or list their favorite Web sites on the Start screen directly.

Partners can make further refinements to help deliver the best customer experience.

Most changes affect the code for Windows Mobile Professional. However, there are some improvements to the code for Windows Mobile Standard.

The functionality described in this paper fits with the main areas of focus as follows:

New visual style for Windows Mobile Professional

Touch

Shell

Mobile Internet

RIA Framework

Security

Mobile Operator Services Traffic (MOST)

Developer value proposition

Performance and Reliability

Recommendations

License and Pricing

Messaging

Typing Shortcuts

OTA Firmware Updates

Internet Explorer Mobile 6

Outlook Mobile

    General Enhancements

    SMS and MMS Enhancements

    Exchange Enhancements

Services

Marketplace

Microsoft My Phone

Windows Live Services

Personalization

Outlook Mobile

Phone

Personal Information Management (PIM)

Start

Windows Media Player

What's New in Internet Explorer Mobile 6

Internet Explorer Mobile 6 is a new version of Internet Explorer Mobile that is based on the Trident rendering engine of Internet Explorer 6. This version is the new default for Windows phones. Browser features such as the address bar, status bar, and soft keys function the same as in earlier versions but look different. Windows Mobile 6.5 has transparent and opaque states.

Internet Explorer Mobile 6 has been enhanced in the following areas:

- Full compliance with the HTML 4.01 standard
- Full fidelity desktop rendering
- Inclusion of Adobe Flash Lite for YouTube, Flash ads, and games
- User interface
- Finger and touch accessibility
- Performance
- Enhanced Script and AJAX support based on JScript v5.7 from Internet Explorer 7

The updates to the user interface include the following:

- Scroll bars have been removed to maximize the viewable content area. A miniature document map is now available to provide orientation when the user scrolls the page.
- The progress bar has been incorporated into the address bar.
- Favorites support retrieving and displaying Web site favicons.
- The Web site title is displayed in the title bar.
- Exit command is now available on the soft key menu.
- Internet Explorer Mobile 6 can be set as the default browser.
- Layout fixes for small screens
- Multiple Zoom levels
- The zoom bar can be set to appear on the left or right side of the device screen.
- Integrated Search functionality with the address bar

The following improvements have been made to finger and touch accessibility:

- Redesigned address bar has touch-friendly autocompletion. The autocomplete engine now includes history, favorites, and common Web site suffixes such as .com.
- The Favorites dialog box now allows touch-friendly access to favorites.
- A new Windows Mobile 6.5 gesture and physics engine provides the following:
  - Pan and flick gestures for page navigation on wireless markup language (WML) pages used in a Wireless Application Protocol (WAP) environment.
  - Bounce animation at the document extremes.
  - Pan and flick in the HTML viewer with pan locking.
- Support for the Adobe Flash Lite plug-in. This plug-in is an optional, royalty-free component of Internet Explorer Mobile 6 for OEMs, and is subject to a third party supplemental letter and Adobe terms and conditions. OEMs should license codecs directly. The plug-in is compatible with H.264.

Performance improvements include:

- Fixes to improve page load times.

- Enhancements to zoom responsiveness.

- Improvements to memory usage.

There are new features with Adobe Flash, such as auto-rotating a video to the portrait or landscape orientation to maximize screen space.

The interface has a new feature that allows transparent buttons when operating in the normal full-screen mode. Full-screen mode is the default setting, and there is an on-screen button to return to the title and soft key bar.

The OEM can customize the page overview, default reading view, and maximum zoom levels.

The following scenario describes a typical user's experience with the new features.

Marco can't live without Internet access, which is why he loves having access to the full Web on his phone. When he was delayed at the airport, he used the time to get some things done online, like booking his reservation for a rental car in Barcelona. And since Internet Explorer Mobile 6 can display Adobe Flash content, he kept himself sane by watching video clips on YouTube. Marco loves the fast and smooth zooming that makes it a joy to see the full Web on the phone. Using the browser as frequently as he does, Marco appreciates direct access to his favorite sites right from the Home screen and the touch-friendly user interface that doesn't make him click through layers of menus.

Internet Explorer Mobile 6 Home Screen Plug-in

The Internet Explorer Mobile 6 Home screen plug-in is a quicker, much easier and more compelling experience for a user accessing Internet Explorer on a Windows® phone. This new feature places access to the browser directly on the Home screen, along with a subset of browser favorites. A new user interface lets the user add their Internet Explorer Mobile favorites to the Home screen.

What's New in Bluetooth

There have been several enhancements for Bluetooth:

- The Bluetooth Control Panel has been updated to show Bluetooth devices as connected or disconnected, depending on their state.

- The user can now easily connect or disconnect devices to Bluetooth.

- In Windows Mobile Professional, users can now send multiple contacts over Bluetooth. The Control Panel displays Connected or Disconnected status and lets users easily change status.

- Users can easily open the Bluetooth Control Panel by tapping the A2DP Bluetooth icon in the title bar.

- OEMs can enable transfer in-call audio to and from Bluetooth headsets in the Call Progress dialog box.

- Automatic pairing of Bluetooth devices has been improved by immediately trying connections with common passwords.
- You can now query the status of dial-up networking connections over USB and Bluetooth by examining the value of a registry key.
- You can change the length of the Bluetooth dial-up time-out.

What's New in Outlook Mobile and Exchange

With Microsoft Outlook Mobile in Windows Mobile 6.5, users can be more productive through a more unified messaging experience.

- Enhancements were made to Microsoft Exchange Unified Messaging voice mails.
- Conversational view was added to help users organize their e-mails.
- Text messages can now be synchronized with a user's account in Outlook and Outlook Web Access. And, when looking at the Global Address List (GAL), users can now see whether a person is free or busy.

The following scenarios illustrate the user's experience of the new features.

Outlook Mobile and Exchange

Marco uses the Conversation View in Outlook Mobile to group e-mails within conversations so he can track issues he may have to resolve before an upcoming convention in Barcelona. The **New**, **Top**, and **Bottom** e-mail shortcuts help him triage his Inbox and respond to e-mails. He can quickly see which e-mails he has responded to by the reply/forward icon displayed in the e-mail list and within each e-mail message. The integrated free/busy information shows him whether his colleagues are available if he needs to call them or set up a meeting.

Calendar shortcuts, in addition to existing messaging shortcuts, help him work through setting up meetings or navigating his calendar in a quick and efficient manner. Marco sees that he is missing a team meeting at this very moment. With a touch he calls the number from the invitation, which includes the pass code sequence, and immediately joins in the meeting. He sets up his laptop to look at a schedule spreadsheet. While he's still on the phone, an SMS message from Anna appears in his computer's Exchange e-mail Inbox. She says hi, he says hi, and she invites him to lunch.

Marco can now manage his SMS folders and select multiple messages to move or delete all at once.

Alarms and Appointments

Anna and Marco sit in a café talking. Anna glances at the lock screen on her phone. Along with her missed calls and emails, she sees her next appointment, which is displayed on the Lock screen as text and contains the subject, time, and location.

Anna has a few minutes to talk to Marco, so she sets an alarm to remind her when she has to leave for her appointment. Soon the alarm goes off, and Anna sees an Alarm screen. Using the slider she sets it to **Snooze**. The next time it goes off she dismisses the alarm using the slider and leaves for her appointment.

Conversation View*

Anna checks her e-mail. She likes Conversation View, where she can see a list of all her e-mail grouped by conversation. She navigates to the conversation entitled "Barcelona." It contains five or six unread e-mails from Marco and Jane.

Anna could flag this conversation, clear the flag, or mark it as complete. If she wanted, she could even choose to ignore the Barcelona conversation, which would stop the synchronization of messages within that conversation and delete the existing conversation from her phone. Read or ignore? She can't decide, so she moves the conversation to a different folder, which automatically moves all e-mails associated with that conversation. She selects the "always" option, which means that future e-mails belonging to that conversation will also go into that folder.

Anna flags the Barcelona conversation with a green flag, then changes it to a red flag. She clears the flag, opens the folder, and looks at all the related messages within the conversation. She selects the latest one, which is from Marco.

*Supported with Microsoft Exchange Server 2010

Free/Busy*

Anna wants to check whether Marco Tanara from another team is available to meet today. She doesn't have Marco in her saved contacts that are stored in Exchange, so she searches the global address list (GAL) for Marco Tanara. She sees a few search results and selects from the list. The GAL card for Marco is displayed, and Ana can see his information.

Ana clicks **Get Free/Busy Information** from the GAL card and checks Marco's availability. She then quickly switches between dates to see when Marco is free in the next few days.

*Supported with Exchange 2010

Unified Messaging*

Sitting in a noisy restaurant, Anna looks at the Inbox on her Windows phone and quickly notices the new icons that show she has a voice mail from Jane. She opens the message and sees Jane's contact details. She could play the message without needing to open Media Player, but with all the noise in the restaurant she finds it convenient to simply read the voice mail text transcription in the message.*

Anna sees that the message is about their trip to Barcelona, and she returns Jane's call directly from the menu in the voice mail card.

*Supported with Exchange 2010

Nickname Cache*

At the airport, Marco checks his Windows phone and sees an e-mail from Jane. She's reminding him that he promised to connect with her at the upcoming conference in Barcelona. He begins replying and remembers the woman from the meeting earlier who was also going to the conference. Ana something. Can't remember her name—but didn't they trade e-mails a week or so ago?

He begins typing in the To field: "An…" The Windows phone's autocomplete produces a list of suggestions from its nickname cache. And there she is: Anna Bedecs. He selects her name and adds her to the recipients of the e-mail.

Marco suggests that the three of them meet at the conference. Since he knows Barcelona, he can show them around a bit…

*Supported with Exchange 2010

Reply/Forward Indication*

Anna visits Jane for dinner and talk. While Jane is cooking, Anna checks her e-mail on Jane's computer. She opens Outlook Web Access and goes down the list of e-mails, making short replies, until she gets to one from Marco. This one will take a more considered answer, so she flags it and goes to help Jane in the kitchen.

Later, in the cab going home, Anna opens her Windows phone and synchronizes her email. Looking through the list of messages she notes the message icons, which tell her immediately whether the message has been replied to or forwarded. If she were to open any of these e-mails, she would see the date and time of the reply—but she doesn't open them. She opens instead the flagged e-mail from Marco, the one she had saved until now.

*Supported with Exchange 2010

General Enhancements

Users can now save e-mail addresses that are embedded in the body of an e-mail message or in an SMS message in any folder to their Contacts list.

You can customize e-mail as follows:

- Allow the user to bypass Secure Sockets Layer (SSL) probing for incoming and outgoing e-mail.

- Disable auto-configuration for e-mail accounts. You can now configure the initial state of the **Try to get e-mail settings automatically from the Internet** check box.

- Customize the string for the Digital Rights Management (DRM) error message.

Other changes include:

- Icons identify DRM-protected content in File Explorer.

- Support for China Mobile PushEmail client for the Monternet mailbox has been added as an optional component. For additional information on how to enable this functionality, please contact your Microsoft support contact.

- Outlook Mobile now applies the user-supplied SMTP server and the OEM or mobile operator–supplied override SMTP server as backups for one another. They switch from one to the other when the one in current use does not respond. This simplifies the selection process and improves performance and reliability.

- Calendar compatibility. The calendar feature reads and allows the user to add e-mail recipients from e-mail addresses stored in Group tags that are referred to as Universal Subscriber Identity Module (USIM) categories. These categories display as a new field in the USIM contact card and can access the Category list. Categories are displayed in filtering within Contacts list view.

- Customize the strings that are displayed on phones that are running Windows Mobile Professional or Windows Mobile Classic when a user accesses the storage card through **Start > Messaging > Menu > Options**.

- New feature within the e-mail application makes it easier for users to find and add e-mail recipients. Windows Mobile now supports building and maintaining a list of commonly e-mailed people by creating a cache of e-mails received and e-mails sent.

- Contact pictures now appear in the contacts list view.

- Reply/Forward submenu in Messaging, which was previously Reply.

- Configure the first menu item in the **Tap and Hold** menu in the messaging folders to **Reply** instead of to **Delete**.

- Windows Mobile 6.5 now supports consumer push mail.

SMS and MMS Enhancements

- Messages now show high and low priority icons in the SMS conversation view.

- More competitive threaded SMS experience. Users can now scroll through unread messages in a thread, which results in all messaging being marked as "read." An added feature within the Text Messaging application allows users to select multiple contiguous or non-contiguous messages within the threaded SMS conversation view. Once the messages are selected, users can delete or move the messages.

- SMS national language 7-bit encoding based on standard 3GPP spec 23.038 Rel8+ has been added. OEMs can add other code pages as the standards expand. Users sending SMS messages with national language characters will be able to send more characters per message, which will help reduce their SMS cost.

- Ability to change the display name of a Multimedia Messaging Service (MMS) account.

- Non-threaded MMS in CHome plug-in.

The following scenario describes a typical user's experience handling threaded messages.

Marco prides himself on being organized, and this extends to the SMS messages on his Windows phone. Sitting in his office early, before the day begins, he takes a moment to organize his messages. He selects a folder named "Jane" and renames it "Jane-Anna". When he realizes how many messages he has from Anna, he changes the folder back to "Jane" and creates a new folder named "Anna". In list view he selects the important threads—contiguous and non-contiguous—between Anna and himself and easily moves them into the Anna folder. He then goes into conversation view and taps just Anna's messages from the remaining conversations and moves them into her folder. Finally he selects the unimportant messages that have accumulated over the last two days and deletes them with a couple of taps.

Exchange Enhancements

- Global address list (GAL) lookup. The "Search Company Directory" option displays in the drop-down list box / auto-suggestion list box when a user types the name or e-mail address of an e-mail recipient. Users can also search the Global Address List (GAL) or company directory contact details for a suggested recipient.

- New icons in the e-mail list view lets users quickly view e-mail messages that were forwarded or replied to from Outlook Mobile and Exchange 2010. Users can now also see the date and time that the e-mail was forwarded or replied to when they open the e-mail.

Enhancements that were made for Exchange 2010 include:

- Conversational view.
- Unified Messaging voice mail enhancements, also known as the Unified Messaging (UM) form.
- E-mail recipient auto-suggestions that synchronize with the auto-suggestion list in Outlook Web Access.
- GAL lookup.
- Free/Busy information.

Personal Information Management (PIM)

Windows Mobile 6.5 now supports multi-selection in the Contacts application. The Windows Mobile Standard user can select more than one contact at a time and perform any of the following actions:

- Beam multiple contacts using either Bluetooth or infrared.
- Copy multiple contacts to the SIM card or to Outlook Contacts.
- Delete multiple contacts.

USIM contacts

Windows Mobile 6.5 increased the user interface (UI) support for the Universal Subscriber Identity Module (USIM) **Contacts**. Windows Mobile 6.5 can display, read, and write USIM (3G SIM) phonebook contacts that include additional fields such as multiple phone numbers, e-mail address, nickname, and grouping. This is an improvement over the 2G SIM that had only a name and a number field.

Customize

You can customize PIM as follows:

- Prioritize time zones for areas outside of the United States. When you release devices outside the United States that use the MS NITZ implementation, you can now prioritize the time zones of the target location.
- Control whether the transfer from non-numeric characters to numbers is enabled for the Simple-PIN edit control.
- Automatically set the system volume when you activate profiles. You can configure Windows Mobile to automatically adjust the system volume to the preferences of a newly-activated user profile rather than leaving the system volume unchanged.
- Save phone numbers from the dialer and Call History screen directly to the SIM card without creating an Outlook contact. You can also save, directly to a SIM card, phone numbers that are embedded in the body of an e-mail message, a Short Messaging Service (SMS) message, or in a browser window.

- Configure phones to set the date and time automatically from information that the carrier network sends. To support Network Identity and Time Zone (NITZ), you must support the NITZ Radio Interface Layer (RIL) protocols.

Other Items

- Users can now save e-mail addresses that are embedded in the body of an e-mail message or in a Short Messaging Service (SMS) message in any folder to their **Contacts** list. When users save e-mail addresses, they can update an existing e-mail address in Contacts or can create a new contact.
- By default, users can access fixed dialing numbers (FDN) and service dialing numbers (SDN) from the Contacts list. When the FDN and SDN registry keys are not present, these numbers appear in the Contacts list.
- Windows Mobile now supports Bluetooth Phone Book Access Profile (PBAP).

What's New in Phone Features

Phone Features

Hyperlinked Phone Number

The user can now call a phone number from a meeting invitation on a phone that runs Windows Mobile Professional. Meeting invitations commonly have a call-in phone number embedded in the body of the invitation. This functionality has been available for Windows Mobile Standard and is now available for Windows Mobile Professional. A phone number in the body of the invitation is hyperlinked and will open the Edit Before Call screen, where the user can conveniently and quickly progress to making the call. This includes a properly formatted conference call number and passcode sequences, such as 18001234567p123456#.

Speaker Phone and Mute

When the user answers an incoming phone call on a device-locked Windows phone, they now have access to Speaker Phone and Mute options while in the call. These two options are available from the Soft Key 2 menu. On Windows Mobile Professional, these options are available when the new Lock screen is not enabled.

In previous versions, users did not have this capability. This functionality applies to all resolutions, orientations, and supported languages. It is also in effect with the Simple PIN, Strong Alphanumeric, and Code Word screens. The Code Word screen is the screen that prompts the user to type a1b2c3 when incorrect passwords were typed more than the allowable number. The user still cannot make a call, access contacts or call history, or use other phone settings while the phone is locked.

Note:

This functionality does not apply to third-party or OEM-replaced Local Authentication Plug-ins (LAPs).

Customize

Emergency call dialing

On phones that do not support hardware **Talk** and **End** buttons, you can now let the user dial emergency calls from the Local Authentication Plug-in (LAP) during the Sensitive Data Protection (SDP) process. This functionality is set in the registry and utilizes the left soft key.

Speed dial behavior

You can now customize speed-dial behavior to prevent unintentional speed dialing when a user is in a call and wants to enter a PIN or interact with Interactive Voice Response (IVR) systems.

Silencing Notification Sounds by Using the END Key

The user can now silence all alert or notification sounds that are associated with an incoming phone call in addition to dismissing the call itself by pressing the **End** key. If you want the user to only be able to dismiss the phone call itself, and not silence the associated alert or notification sound, you can revert to the old behavior for the **End** key, that is, dismissing only the incoming call and letting the alert or notification sounds play entirely, by setting the following registry key:

HKEY_Current_User\ControlPanel\Notifications.

Disabling Non-numeric Character Mapping on PIN Editing Controls

OEMs can now control whether non-numeric characters can be mapped to numeric values on simple PIN-edit controls by configuring the **HKEY_LOCAL_MACHINE\Security\Phone\PhoneKeyMatch** registry key.

This allows OEMs to prevent users from entering non-numeric characters on simple PIN-edit controls.

Phone Network Operating Mode Settings

Phone network settings are stored in the registry **HKEY_CURRENT_USER\ControlPanel\PhoneNetSelMode\Option**.

New dwFlags Options for PhoneMakeCall

The dwFlags variable of structure PHONEMAKECALLINFO, which is an argument of function PhoneMakeCall, has two new options:

- PMCF_ALLOWSUPSVCS — lets the user dial MMI codes within an application without being prompted to use the keypad.
- PMCF_NOPROGRESSINFOONCALL — lets you suppress interface notifications.

Shortening the Phone Unlock Sequence

Registry value **SkipKeyLockConfirm** can be set to shorten the sequence to unlock a phone.

Other changes

- When a Windows phone user is in a call and has a second call on hold, the device can now display a notification when a third call is received.
- Push-to-talk has been integrated with Contacts, SmartDial, and Call History. You can customize menus, soft keys, dialog boxes, and other user-interface elements for better push-

- to-talk functionality. These features can also be used for any Session Initiation Protocol (SIP)-based services.

- The Windows phone user can now record a voice call from the **Call Progress** dialog box. The recorded calls are stored in the same directory as the recordings the user makes in Voice Notes.

- The user can now ignore an incoming call and automatically send a predefined SMS message as a reply to the call.

- A Quiet beep was added for notifications and alarms while a user is in a call. Notifications and alarms are captured, and a more subtle sound will play in the user's ear instead of the default sound.

- When the user dials and is connected to an emergency number from a simple or strong PIN-locked screen, the text "Emergency" (Windows Mobile Standard) or "Emergency Call" (Windows Mobile Professional) is displayed on the screen.

CellCore

Global Phone Support

Global Phone supports two radio types on the same phone — Code Division Multiple Access (CDMA) and Global System for Mobile Communications (GSM). On a Global Phone only one radio type is active at a time but the phone is able to switch between CDMA and GSM without rebooting.

Insert Country Code Menu Option

A new menu option in Windows Mobile Standard provides the ability to insert a country code in the phone number being entered by selecting the code from a list.

Phone Settings Options Support

When phone settings options are displayed, they will be the GSM options if the phone is registered on GSM, and the CDMA options if the phone is registered on CDMA.

Connection Manager

Connection Request Preprocessing

You can use connection-request (CR) preprocessing to delay Connection Manager's processing of a connection request. During this delay your code can run and when it is finished, signal Connection Manager to start to process the connection request. For example, you can use CR preprocessing to reduce power use on a phone by only turning on the Wi-Fi chipset as needed, or "on demand," for a Wi-Fi connection.

What's New in Mobile VPN

A new menu option, **Connect**, was added to the VPN Client UI to allow a user to force a Mobile VPN to reconnect if it is disconnected. Menu options also allow a user to disable the Mobile VPN when it is disconnected but still enabled.

The following modifications have been made to improve the reliability of Mobile VPN on cellular networks when bad network conditions produce packet loss or when a network connection performs a time-out during a period of inactivity:

- The Mobile VPN now sends the Network Address Translation (NAT) keep-alive in-band, encapsulated in an Encapsulating Security Protocol (ESP) packet, instead of IKE packets. This helps to recover from packet-loss and avoids having to reconnect after a connection has performed a time-out.

- You can now configure the lifetime of a Mobile VPN Security Association (SA). This allows the SA re-key tuning, if necessary.

The Mobile VPN feature is not active by default on Windows phones. This feature is activated only after the phone's domain enrollment to a System Center Mobile Device Manager (MDM) system. When the phone is not enrolled in an MDM system, the Mobile VPN feature is not activated and does not in any way affect the behavior of the phone.

Other enhancements to Mobile VPN include:

- Mobile VPN data now synchronizes with AirSync.

- You can block access points for Mobile VPN. You can configure a registry list of access point names (APNs) that cannot be used by the VPN client. This list can be set during the initial provisioning at the time of a cold boot, or the mobile operator can update it later by using continuous provisioning.

- You can now configure the cellular connection profile that is to be used by the Mobile VPN client.

- The Mobile VPN now supports the MOBIKE protocol to update VPN security associations when a connection must be re-established after it was lost. Using the MOBIKE protocol allows the Mobile VPN to reconnect without having to perform a full Internet Key Exchange (IKE) v2 renegotiation. The benefits of this approach are faster reconnection time, improvement in phone performance during reconnection, and less bandwidth usage.

The following scenario describes the user experience with the new Mobile VPN features.

From a lounge in the airport, Marco accesses his corporate network through an always-on VPN tunnel, which exists concurrently with a VPN tunnel to his mobile-operator network. His SMS messages all flow unimpeded, he has access to mobile-operator services just as he did prior to having the corporate VPN—and at the same time he can access SharePoint sites and internal applications within his corporate network. His Windows phone also receives and respects all policy settings, just as his previous Windows phone did.

Other

Other improvements include:

- Wireless networks are made more secure by preventing automatic configuration of unplanned networks unless the user selects the Only Computer-to-Computer option on the Configuration menu.

- The enrollment client to MDM now supports autodiscovery of the instance in which the phone needs to be enrolled when a company has an MDM deployment with multiple instances.

Mobile Operator Services Traffic (MOST)

The Mobile VPN provides an encrypted, authenticated channel from the Windows phone to a company's perimeter network. The perimeter network is also known as the DMZ or screened subnet. The IT department can control the traffic allowed through the perimeter network to the company network.

Until now, to provide the enterprise full control of the traffic, Windows phones did not allow traffic outside the VPN tunnel while the VPN was enabled. Because multihoming was not supported, traffic originating on the phone was sent over the VPN to the company perimeter network for screening, and was then forwarded or dropped. Traffic that tried to bypass the VPN was dropped.

For operator-subsidized phones, MOST allows selected mobile operator service traffic to access mobile operator servers directly instead of being blocked by the VPN. For operator non-subsidized devices, MOST is enabled by default.

For security reasons, all functionality related to enabling MOST with VPN is allowed only over a cellular connection.

What's New in OTA Firmware Updates

Persisting an OMA DM Session during Update

If power is lost or the phone goes out of service during an OMA DM update, Windows Mobile 6.5 saves the device state to resume the session when possible. This new functionality helps make sure that the phone is not left in a half-configured state, and the mobile operator does not need to retry the update session from the beginning.

Note:

This functionality applies only to firmware update sessions. It does not apply to application updates.

OTA Firmware Update while Roaming

In Windows Mobile 6.5, mobile operators can use the push capability of OTA Firmware Update to send updates to users, even roaming users. System Center Mobile Device Manager (MDM) can push non-roaming updates concurrently with roaming updates.

Using configuration service providers, mobile operators can configure the default phone behavior to be the same for all firmware updates.

The phone updates will continue to reboot the phone. Therefore, the delay reboot option will continue to be offered so the user can choose when to take the phone offline.

Silent OTA Firmware Update

Mobile operators now have the option to push updates to mobile phones without user intervention. Although this feature bypasses the user downloading an OTA Firmware Update, the user has the option to cancel or accept the update. The update does not install automatically.

Customize

You can customize OTA Firmware Update as follows:

- Configure the behavior of the pop-up message boxes that appear for low-, medium-, and high-priority service-indication (SI) messages.

- Specify the time interval in minutes during which the device will retry a download job.

- Create a customized application to display a message before Windows Update runs that informs users that they may incur packet communication charges.

- Customize the message that appears when the user installs an OTA firmware update download package.

OTA Firmware Update Registry Settings

The timeout setting determines how long the download agent will allow for an over-the-air (OTA) firmware update. If the relevant timeout registry setting is exceeded, the download agent will stop its attempts to download firmware and return an error. Until the setting is exceeded, the agent will continue to retry using exponential retry logic.

What's New in Shell and UI

Shell

Dramatic differences have been made to the shell in Windows Mobile 6.5, particularly for Windows Mobile Professional. Designed for a more engaging user experience, the new Start screen has a hexagon design that is interactive as the user taps, flicks, and pans. Enhanced touch and gestures support on list views and menus makes them easier to navigate for a better user experience.

If the phone is locked with a simple PIN, the user can now respond to interactive user interface elements without having to enter a PIN. For better protection, the new Lock screen cannot be used when the PIN is alphanumeric or strong.

Multi-level menus give you more options in how to organize tutorial topics that you include in the Getting Started application. Each menu can now have sub-menus.

You can now enable the battery icon to blink when a Windows phone is charging.

The call status was moved to the top of the screen, which is especially important for devices in landscape mode. If the user dials an emergency number from the Personal Unlock Key (PUK) Required screen, the emergency call status is now visible.

A new Japanese sample code Input Method Editor (IME) helps OEMs create Japanese standard builds that improve the user experience for input. Sample code does not contain an actual IME dictionary or engine. An OEM can use a third-party IME to use the sample code.

The Graphical Device Interface now sends strings instead of single characters, which reduces the amount of system overhead and significantly improves text performance.

As an option, you can include Adobe Reader LE 2.5 on phones. This is a royalty-free component that lets users read Portable Document Format (PDF) files.

Home Screen

Windows Mobile 6.5 Standard keeps the same Home screen style as Windows Mobile 6.1. You can replace this Home screen if desired, but the replacement must follow the title bar and soft key requirements.

Windows Mobile 6.5 Professional now has a Today screen, the Windows Default Today screen, which is similar to the Home screen in Windows Mobile 6.5 Standard. The new Today screen for Windows Mobile Professional is focused on touch and gestures (tap, flick, and pan) and is designed to be fun and interactive. It supports all orientations.

Users can view high-level information for the various plug-ins at a glance. There are separate notification plug-ins for Live services, e-mail, SMS/MMS, missed calls, and voice mail. This new Today screen contains plug-ins from the Windows Mobile Standard Home screen, such as Home/Clock, Calendar, Getting Started, Music, and Photos. OEMs and mobile operators can create customized plug-ins for the new Today screen.

Users can toggle between the new Today screen and the legacy Windows Mobile 6 Today screen. The following scenario describes some of these interactions with the enhanced Home screen.

> Marco loves the fresh new look and improved usability of his Windows phone. The scrolling Home screen allows him to effortlessly view and access his most frequently used tasks. With flicks and drags of his fingertips, he scrolls past the translucent bar mid-screen, which highlights phone, e-mail, music, text message, and other categories. "Phone1" tells him he has one missed call. A touch sends phone to the highlight bar, where he sees immediately the call is from Jane. There's her picture right in the bar. Another tap opens the phone dialer screen, and Marco returns the call. Then with a few more flicks and taps he checks the weather to see what clothes one should take to Vermont this time of year.

OEMs, mobile operators, and ISVs can create custom home screens to showcase high-profile services and Internet services. You can build your ultimate layout and content.

A new hardware Start control opens a new Start menu, which gives you more flexibility. You can now remove the software Start control and replace or hide soft keys on the Today screen.

The new Today screen, Start screen, and Lock screen require the following minimum hardware prerequisites:

- 400-megahertz (MHz) processor
- 128 megabytes (MB) of RAM
- 256 MB of ROM
- Must have cursor enabled

- Must use the updated user assistance (UA) strings for Microsoft Internet Explorer 6.0 and Internet Explorer Mobile 6.

Phones that don't meet this bar will use the legacy Windows Mobile 6 Today screen.

📝 **Note:**

The Start and Lock screens are not updated in Windows Mobile 6.5 Standard. The Windows Mobile Professional Today screen is now similar to the Home screen in Windows Mobile Standard. Windows Mobile Standard had no major feature work and no asset or icon updates.

Start Screen

The Start screen for Windows Mobile 6.5 Professional has changed dramatically. The new Start screen provides style, simplicity, and better response to touch than the legacy Today screen. This new Start screen features a different user experience. With a grid design, the new Start screen is also focused on touch and gestures (tap, flick, and pan) and is designed to be fun and interactive. It supports all orientations.

You can customize the Start screen. Specific ways to customize are described in the Visual Refresh portion of this document.

Visual Refresh

In addition to the new Start screen with the grid design, Windows Mobile 6.5 includes an overall visual refresh. It provides several new features and lets you extend and customize many elements, some of which are described in the following user scenario:

Waiting for his flight to Paris, Marco takes out his Windows phone. Without unlocking it, he immediately sees how many missed calls and voicemails he has and that he has a few new messages. He unlocks his e-mail account directly, without having to go to Home or Start. Nothing of importance. Without unlocking, he can also put a call on speaker, adjust the volume, or put it on mute. When the alarm goes off, he can snooze it with a gesture. The phone rings, and Marco sees a picture of the person calling. It's Jane.

Somewhere over the mid-Atlantic, Marco is still thinking about the phone. He takes it out again. He really likes the new Lock, Home, and Start screens. The icons and controls are crisp and new. The hexagon theme is great for Marco, who can easily feel clumsy with lesser phones. The background picture, which is shared between the Home, Start, and Lock screens, makes the phone more familiar, more pleasant to use. He replaces the picture of Jane in Times Square—which now seems too busy—with a stark beach scene, overcast, hazy. In addition, he changes the layout of the Home screen and picks a new theme. It's like a new phone.

Marco launches Start, and immediately he sees Phone, Contacts, Calendar, Messaging, Settings, and Internet Explorer at the top of the Start Menu. The screen feels responsive to his touch. When he wants to scroll he scrolls, without worrying about accidently selecting the wrong thing. He loves to play the solitaire game, which he moves to the top of the Start Menu. From there it takes him only one click to go straight to solitaire.

New four-color themes adjust backgrounds, focus areas, tabs, title bar, scroll bars, and status bar icons. Menus and title bars are now finger friendly. And there are many more ways in which you can customize the phone.

Extend

- You can extend the Themes, or add your own vibrant themes to help add a sense of ownership for users.
- OEMs and third-party developers can develop custom themes to mobile operators that match their brand colors.

Customize

You can also customize many elements in the user interface (UI), including the following:

- Configure the amount of horizontal and vertical space between icons and the font size of the icon title.
- Customize text color and font that are used in the **Security/PIN entry** dialog box by setting registry values.
- Customize right and left arrow icons with a custom resource module by setting a registry key.
- Configure the icon in the roaming slot to be consistently displayed in the taskbar of all UI screens. By default, the icon is displayed only in the taskbar on the Today screen or the Call Progress screen.
- Hide or customize the data connection name that appears in the notification bubble.
- Prevent the loss of notification messages when the clamshell is opened.
- Enable or disable the IME for the Today screen. The IME must be enabled on the Today screen for all Windows Mobile Professional devices that have multi-tap keys. If the IME is not enabled, plug-in edit controls such as Live Search on the Today screen will not accept multi-tap keys.
- Configure the right soft key as an additional device unlock key for phones using Windows Mobile Professional and Windows Mobile Classic by setting a registry key.
- Retrieve and modify the alpha opacity values of the title bar and the Today screen soft key bar.
- Remove or replace the default Services property sheet in the Phone application and the default Word Completion property sheet in the Input application in phones using Windows Mobile Professional and Windows Mobile Classic.
- Configure the notification sounds so that when one notification tone is playing and a new notification comes in, the tones do not overlap.
- Override the font color of text in the **Recent Programs** list.
- Lock the default Home screen in Internet Explorer Mobile by disabling the user Home page selection feature.
- Remove the Welcome Center page.
- Configure the order of the **Recent Programs** list, and specify an image that is to be displayed as the background in the **Recent Programs** list.

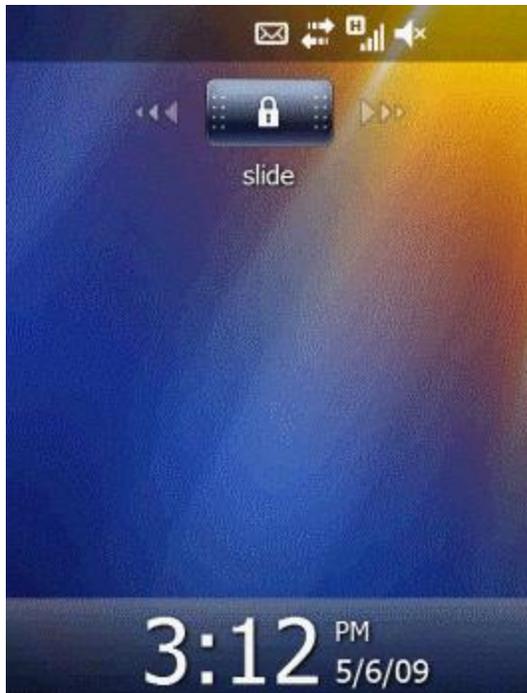Additionally, users can set the background image by using the **Settings** menu or by using Photo Viewer.

Other Changes

Other shell changes include:

- The Date and Time control has changed so that changing the **AM/PM** field is more intuitive on QWERTY keyboards. When the focus is on **AM/PM** field, any keydown event that does not map to another behavior toggles the value in the **AM/PM** field.

- There are now icons for International Mobile Subscriber Identity (IMSI)–attached indicator states for all Global System for Mobile Communication (GSM) radio types.

- A vertical scrollbar is now available for wizards, dialog boxes, and tabs in **Connections** and **Settings** so that the user can view the entire page or dialog box and the associated tabs when the software input panel obscures the controls.

- Enhanced soft key and context menus in Windows Mobile optimize the user experience. The appearance of the menu scroll arrows is enhanced; menu background color is now a gradient that is based on the theme chosen by the user; and the menu divider does not have a buffer.

- Users can now quickly start any recently run application. Users can turn this functionality on and off by using **Show Recent Programs** check box in the **Start** section in the **Settings** dialog box.

- Instead of having all menu selections in the **Sounds and Notifications** menu display in alphabetical order, the first entry is now the ringtone. You can enforce a strict alphabetical order or can change the display order for specific entries.

- Windows Mobile Professional now supports animated images when the device starts. Earlier versions of Windows Mobile Standard supported this feature.

- New Chinese (Simplified) user interface font GB18030 makes the displayed text more readable than did previous fonts. Additional steps are required for using the font and bitmaps. OEMs are responsible for certification of their phones, including the font and paying fees associated with shipping phones containing the font and bitmaps.

- Japanese Meiryo font for Windows Mobile Standard screen resolutions of 131 DPI or higher.

- Windows Mobile Professional now supports file locking with PIN 2, even when the phone is unlocked.

- CompIME supports typing shortcuts like replacing spaces in e-mail addresses with "@" and ".", pressing and holding keys to toggle between uppercase and lowercase letters, pressing and holding keys to insert accented characters, and replacing double spaces with a period and space and capitalizing the next letter.

Lock Screen

Windows Mobile 6.5 introduces a new lock experience on Windows Mobile Professional when there is no password or when simple PIN setup (six digits) is used. The user can now respond to interactive user interface elements even if the phone is locked with a simple PIN. The changes do not apply when alphanumeric or strong passwords are used.

You can now lock the auxiliary display when the main-screen keypad is locked. Device lock is no longer required.

In Windows Mobile 6.5, notifications—such as those for missed calls, voice mail, e-mail, text, and calendar items—are more intuitive and more actionable on the Lock screen. A user can intentionally navigate more easily from a notification on the Lock screen to an area of action. Other changes include reducing the set of touch actions needed to unlock a phone, and an improved alarm and emergency call experience when the phone is locked.

📝 **Note:**

Phones that do not meet the minimum system requirements default to the legacy Lock screen.

The following user scenario presents typical interaction with the enhanced Lock screen.

When Anna arrives in New York she sits down in the baggage area and pulls out her Windows phone. Without unlocking it she immediately sees how many missed calls and voice mails she has, and that she has two new messages. With the phone still locked, Anna calls Jane to pick her up. She can adjust the volume without unlocking the phone, or mute the phone or put the call on speaker, which she does briefly while rummaging through her bag for a pen. After talking to Jane, Anna directly unlocks to her e-mail account without having to go to the Home or Start screen and sends a brief e-mail to one of Jane's coworkers, Marco Tanara, who is coordinating the conference in Barcelona.

Start

The new Start menu for Windows Mobile Professional provides an appealing Start experience. This menu now has a visually striking hexagon design. Through touch and gestures, the user

traverses the long hexagon list. No longer a drop-down menu, the Start screen can be launched directly. The following user scenario presents one user's interaction with the Start screen.

When Jane launches Start, she sees icons for Phone, Contacts, Calendar, Messaging, Settings, Internet Explorer and other applications arranged in a translucent hexagon over a background picture of the Canadian Rockies, where Jane had vacationed that summer. She is delighted to find that she can move the solitaire game to the top of the hexagon by touching and holding the icon until the context menu pops up. Ever since her friend Marco taught her solitaire she's been hooked on it. A single click takes her to the game, which she plays while waiting for her plane. When she's finished she touches the left soft key, locking the phone, and drops it into her overnight bag.

You can customize the Start menu. You can personalize the background image, add widgets, or add your own 24-bit blended icons to the Start menu. And, with the exception of the top three positions, you can choose the applications and services to display in positions by a policy setting.

The new Start menu includes the following updates:

- A mechanism to promote Favorites, programs, and settings to the top.
- A new grid, appearance and interaction model.
- Help that goes to the main Help list.
- Enhancements to support PNG icons for programs as well as the current .ico format.
- Active icons for things such as messaging and missed calls.
- No scrollbar present on the new Start menu.
- The ability for OEMs to set the default highlighted item.
- A provision for the OEM to toggle the old Start menu and settings panes.

You can change the order in which icons appear on the Start menu by specifying the order in the registry.

Typing Shortcuts

Typing shortcuts have been added that will improve usability, such as using T to move to the top of a page, and B to move to the bottom. The following user scenario presents the convenience of using these shortcuts.

Jane likes her phones with a full keypad, and she likes the many shortcuts that make using her Windows phone easier than ever. While waiting for the bus she decides to go through recent e-mail messages. She scrolls quickly through the list, then presses and holds T, which takes her back to the top, where she finds a message from her friend Anna, who is writing to say she will be joining their team in New York for two months. Jane presses and holds N, which opens a new message, which she addresses to Marco. She tells him that Anna is coming from the San Francisco branch. Jane types out the message quickly, pressing and holding letters to capitalize them, hitting two spaces to make a period and a space, and using the many other keyboard shortcuts on her phone.

*Requires OEM to use MS CompIME and turn on the registry key for the shortcut feature.

Touch

Touch capabilities are expanded in Windows Mobile 6.5 to include gestures. Recognition for a standard set of gestures—such as tap, tap and hold, pan, and flick—improves user navigation and the input experience. To provide feedback to the user, each gesture has an associated set of animations (rubber band, bounce, and scroll) that are powered by the Gesture Physics Engine. The following user scenario provides a description of one user's touch experience.

> Anna can't stop playing with her new Windows phone. She scrolls through the attractive translucent hexagon on the Start screen and touches the cell containing the icon for Internet Explorer Mobile 6. She calls up a Web page on Barcelona and smoothly scrolls and pans through the text, zooming in and out, from a close-up reading view to an overall page view— using only gestures. How much easier and more intuitive this is than the old hardware controls! Touch is fast and gestures now work in most E-mail, Contacts, and Calendar levels. And cut, copy, and paste are still as intuitive as ever.

Gesture support is now added to components across the platform, from individual controls like the ListBox, ListView, TreeView, Tab Control, and WebView to applications and complex components like the Today screen, Calendar, Contacts, and Windows Media Player. Moreover, the Gesture APIs are public, and gestures can be added to third-party applications and plug-ins.

What's New in Applications and Services

Updating Applications and Services

Application developers can improve the overall user experience by making applications more consistent with Windows Mobile 6.5. For example, they can use the new seamless theme integration and create applications that support finger touch. Additional new features and recommendations follow.

Running on the Windows Mobile Browser

The Windows Mobile 6.5 browser now handles touch interactions. The following items would add value to applications that run on the browser:

- Touchable zoom
- Session initiated protocol (SIP) accessible by user
- Miniature document map to provide orientation when the user scrolls the page

Icons

Use Windows Mobile 6.5 icons for your applications as appropriate, and use similar measurements and style for your own icons.

Focus Status

Use focus status similar to that used in Windows Mobile to traverse hierarchical patterns in your applications. That is, when an action that is highlighted (in focus) is selected, move the focus to the next deeper level.

Graphical Elements

If your application depends on text in focus status, be aware that the treatment of this text is theme dependent, much like focus state graphics. For example, Windows Mobile 6.5 maintains a consistency between the theme color (dark blue) and text color (light blue). Maintain a similar consistency in your applications.

User Interface Elements

In your application, provide finger-friendly access to the following elements to be similar to Windows Mobile 6.5 functionality:

- Menus
- Dialog boxes
- Tabs
- Buttons
- Scroll bars
- Shell notifications (bubble or toast)

Touch

Use gestures in your applications similar to those in Windows Mobile 6.5, such as double tap, hold, pan, and flick. You can use the gesture APIs to add these gestures to third-party applications and plug-ins.

Messaging

You can now customize the messaging icons.

The SMS client is improved in Windows Mobile 6.5. Because SMS and MMS are threaded together in the same screen view, third-parties can modify their MMS client to take advantage of these improvements.

Windows Media Player

In Windows Media Player (WMP), users can now flick on album cover art to go to the next or previous song.

Other enhancements and changes include:

- You can now configure the time period for which WMP will buffer the encoded data so that the CPU idle time is increased and power consumption is reduced.
- Video scaling support was added for full-screen mode with the new IAMVideoTransformComponent interface.

- Audio playback enhancements. The audio file pauses if the user receives a call, and resumes playback automatically when the call is finished. When WMP goes to background mode, the audio file plays in the background.

- Video playback enhancements. The video file pauses if the user receives a call, but remains in pause mode even after the call is finished. When WMP goes to background mode, the video file goes into pause mode.

- When WMP is streaming a video file, the video file is stopped if the user receives a call and remains in that state even after the call is finished. When WMP goes to background mode, the streaming video file is stopped.

RIA Framework

Rich Internet Application (RIA) support will be enabled in Windows Mobile 6.5 primarily to implement the Widget framework so that Microsoft and its partners can develop widgets for end users. We encourage you to be creative as you design and develop widgets. The following user scenario depicts the use of two useful widgets.

Sitting on a dark porch in Vermont, Marco turns up his collar and pulls out his Windows phone. On the Home screen he scrolls to Favorites and selects his MSN Money widget. The widget reminds him that he's roaming, but he doesn't care, he wants to see what's happening on Euronext. Though it's a widget, it occupies the full screen like any application. He checks the Hong Kong Stock Exchange, NASDAQ, Madrid… Marco's thoughts are elsewhere, however, so he opens the Weather widget. It's 56 degrees and overcast in Vermont, but he checks the weather in Pensacola, Florida. Still in the 70s. That's where he would rather be!

Applications

Specifying Form Order on the New Menu of the Text Messages Account

There is now a registry value that can be used to specify the order of forms on the New menu of the Text Messages account.

Adding a Picture to a Contact on the Contact Summary Card

It is now easier to add a picture to a contact. If there is no picture for a contact a default icon appears at the top of the contact summary card. Tapping on the icon, or selecting the top of the summary card and pressing the Edit (left) soft key, immediately invokes a dialog for selecting a picture to add.

The default icon can be overridden with a different image. The resource ID is IDB_OVERRIDE_CONTSCRD_PICTPLACEH.

This feature is available on Windows Mobile Standard, Windows Mobile Professional, and Windows Mobile Classic.

Pocket Outlook Object Model

Contacts Groups

A contacts group is a collection of addresses created by a user. There are two types of contacts groups:

- A messaging contacts group contains SMS addresses; i.e. phone numbers.
- An e-mail contacts group contains e-mail addresses.

The user populates a contacts group by selecting from contacts. Though SIM contacts cannot be selected directly, they can be copied to the phone and then selected.

A user may specify messaging contacts groups as recipients of text messages, and e-mail contacts groups as recipients of e-mails (and in some cases text messages).

The registry value **LimitSMSRecipients**, if it is greater than zero, limits the number of recipients of an SMS message. When a contacts group is a recipient, each member of the group individually counts against this limit.

If the mobile operator supports sending SMS messages to e-mail addresses, and this capability is enabled, then text messages may be sent to e-mail contacts groups as well as to messaging contacts groups.

Online Address Book Search Functions API

The Online Address Book Search Functions API provides applications with the ability to search the Exchange Server online address book (also known as the Global Address List, or GAL).

The API is available for Windows Mobile Standard and Windows Mobile Professional.

The API is asynchronous. It provides functions to initialize, de-initialize, start, and cancel searches. In addition, a notification is generated when search results are ready.

Services

Windows Mobile 6.5 includes support for several new services. As a partner, these services offer revenue growth opportunities or cost savings:

- Windows Marketplace for Mobile lets customers expand their phone's capabilities through powerful software.
- Windows Live services let users stay up to date with a rich messaging experience, including the familiar Windows Live Messenger and push e-mail for their Windows Live Hotmail account.
- MyPhone is a new service that lets customers easily back up and manage phone information and allows them to access information from any personal computer as well as their phone.

The following scenario depicts how a user might take advantage of these services.

Before leaving on his trip, Marco aggregates his e-mail accounts and backs up his data with Microsoft MyPhone. Then, in London, he accidentally leaves his phone in a cab as he dashes to the airport. Upon landing in New York, Marco stops at a kiosk and replaces his Windows phone. Within minutes of configuring it, he has all his phone settings, photos, videos, and

music automatically downloaded to his new phone—and his calendar and e-mail are syncing again. Even his SMS messages have been saved. Total recovery, without going back to his computer! Finally, he initiates a remote wipe of his old phone to ensure that none of his e-mail and messages falls into the wrong hands. Marco finds the game solitaire right where had moved it to on his old phone, at the top of the Start menu. He decides he wants to try a new game, so he downloads one from Windows Marketplace for Mobile, a secure source he can trust for both business and personal applications.

Windows Marketplace for Mobile

In Windows Mobile 6.5, Marketplace is an integral part of the mobile experience.

Marketplace lets customers expand their phone's capabilities through powerful software. Customers can manage their Marketplace account and application purchases directly from their Windows phones.

Note:

Microsoft anticipates that Marketplace services and other services will be available in targeted geographies in 2009.

Microsoft MyPhone

Windows Mobile 6.5 includes support for Microsoft MyPhone, a service that allows users to back up their phone data to a server online. MyPhone lets users access information from their phone through the Web browser on any Windows-based PC that is connected to the Internet.

MyPhone automatically backs up contacts, photos, calendar, and SMS messages to a security-enhanced Web account. This makes it easier for the user to replace, upgrade, or change mobile phones.

MyPhone also provides remote wipe capabilities in case a phone is lost or stolen, and lets users show a message on the phone with instructions of how to return it when misplaced.

Windows Live Services

Windows Mobile 6.5 has new support for Windows Live services, such as Live Search and Instant Messaging.

Windows Live services lets users stay up to date with a rich messaging experience, including the familiar Windows Live Messenger and push e-mail for Windows Live Hotmail accounts. Users can stay in touch with social networks and upload pictures easily to Windows Live Spaces. Windows Mobile 6.5 lets OEMs place an advertisement thumbnail on the right tab. When selected, the user will see a full ad image that is integrated with ad campaigns in the OEM's infrastructure.

Windows Live Messenger is an optional feature which OEMs can remove from the build.

Live Search, which OEMs can add to the build, lets users quickly find information that they seek, such as movies, traffic, and gas prices nearby. Using LocateMe, they can determine their approximate location without having to enter an address or use GPS. Live Search supports English, French, and Italian, automatically installing the appropriate language based on the build configuration of the Windows phone.

Users can even use voice input and predictive text entry to conveniently search from their phone.

By providing Windows Live, you can strengthen device value, and potentially expand your customer base, by adding a rich client experience and device integration.

Windows Mobile 6.5 further enhances the Windows Live experience as follows:

- To help users save time, Windows Mobile 6.5 fills credentials in the Live Services sign-in boxes, which allows Live ID sharing. Users can overwrite the information, and can change the credentials on one service but not another.

- Through touch, users can scroll through text and choose emoticons to enhance their messages.

Messaging

Customizing a View Layout

The OEM can customize Messaging view layouts, such as the read view layout.

What's New in Audio

Automatically Setting the System Volume When Activating Profiles

By setting the following registry key, you can configure Windows Mobile to automatically load the system volume preferences of a new user profile when it is activated:

HKEY_CURRENT_USER\ControlPanel\Volume\SysVolIgnoreSilent

What's New in Graphics

Performance Enhancement for JPEG Decoding

An interface method has been enhanced to align the buffer it allocates on a 128-byte boundary. Such alignment is required by some hardware decoders. This enhancement eliminates the need for decoder software to create a separate 128-byte aligned buffer and thus improves performance.

What's New in Customization

Communication and Networking Customization

Automatically Configuring GPRS Settings

Windows Mobile can be set to configure GPRS settings automatically, which provides users with basic Web data access from the first time they start the device by using the Automatic Data Configuration (ADC) application. When automatic GPRS configuration is enabled, the ADC application matches the GSM code of the inserted SIM card to a group of provisioning settings and then provisions the phone with the following settings:

- Valid APNs (Access Point Names)

- User names and passwords, if required
- IP and DNS addresses, if required
- Information about the proxy server

The settings are provisioned when the device is started, when a different SIM card is detected, and when a user chooses to repair the connection.

Automatic GPRS data configuration can be added to an image by including the IMGDATACONFIG flag

The ADC functionality is configured in a standalone package that is not included in Windows Mobile Standard and Windows Mobile Professional images by default.

Viewing the Network Configuration Settings if CM_Networks is Configured as Read Only

You can now view the network configuration settings even if the **CM_Networks** Configuration Service Provider is configured as read-only. You can do this by setting the following registry key: **HKEY_LOCAL_MACHINE\ControlPanel\Network\ViewCMNetworks**.

Application Customization

Disabling Auto Configuration for E-mail Accounts

You can now configure the default state (checked or unchecked) of the **Try to get e-mail settings automatically from the Internet** checkbox by using a registry key.

Configuring the Default Connection GUID

You can configure the default network connection type in the E-Mail Account Setup Wizard by setting the appropriate GUID in a registry key.

Configuring the Behavior of Pop-up Message Boxes for SI Messages

You can now configure the behavior of the pop-up message boxes that appear for the low, medium, and high priority SI messages by using a registry key.

Security

In Windows Mobile 6.5, you can control whether the transfer from non-numeric characters to numbers is enabled for the Simple-PIN edit control by setting a registry key.

The following scenario describes how this feature would appear to the end user.

Marco locks his Windows phone and puts it in the glove compartment so he can go for a run in the park. After a few miles he returns and turns on his phone. On the screen is a circle with a number 5. Marco taps the circle and sees a collection of slider controls, which he can scroll up or down and cycle through. He reviews the sliders indicating new notifications of incoming messages, missed calls, voice mail, e-mail, and a service that tells him the scores Barça, his favorite soccer team. He sees that he has 2 new e-mails, a missed call, a voice message, and a text message. Marco pulls the text-message slider. He sees the 4 digit pin screen, enters the pin, and goes straight to his messaging application. He sends an SMS to Anna: "Have tickets to soccer match in Barcelona. Quieres ir?"

Third-party applications and OEM drivers can now post the VK_KEYUNLOCK message to unlock the keypad in Windows Mobile Standard and Windows Mobile Professional.

Servers

Disabling Automatic SSL Probing

You can disable automatic SSL probing by configuring the **DisableAutoSSL** value in the **HKEY_LOCAL_MACHINE\Software\Microsoft\Inbox** registry key.

Shell

Removing Separator Lines on the Legacy Today Screen

You can now remove the separator lines between the plug-ins on the Legacy Today screen by using the following registry setting:

HKEY_Local_Machine\Software\Microsoft\Today\HidePluginSeparators

Configuring Alarms to Sound When Device Volume is turned off

You can now configure the alarms to always play a sound even if the system volume is set to zero or vibrate, is turned off, or the alarm notification sounds are muted. You can do this using a registry key.

The user can choose between the options **Alarm sound when the device volume is off or set to vibrate** and **Alarm only sound when the device volume is on** on the Clock & Alarms page.

Consistent Clock/Battery Icon Display

You can now set the clock or the battery icon to be displayed at all times for all the screens in phones that run Windows Mobile Professional. You configure this feature by using the following registry setting:

HKEY_Local_Machine\Software\Microsoft\Shell\Taskbar\ConsistentClockOrBattery.

Setting the Amount of Space Between Icons

You can now configure the amount of horizontal and vertical space between icons and the font size of the icon title in **Settings** and **Program List** by setting the following registry keys in **HKEY_LOCAL_MACHINE\Software\Microsoft\Shell\ProgramList**:

HorizontalIconSpacing

VerticalIconSpacing

IconTitleFontSize

Showing the Roaming Slot consistently in all UI Screens

You can configure the icon in the roaming slot to be consistently shown in all UI screens by configuring the **HKEY_LOCAL_MACHINE\Software\Microsoft\Shell\Taskbar\ConsistentRoamingIconSlot** registry setting.

Configuring the Call Recording UI

You can show UI elements used for recording voice calls in the **Call Progress** menu by setting the following registry keys in **HKEY_LOCAL_MACHINE\Software\Microsoft\Voice**:

EnableCallRecordMenuItem

AllowInCallRecording

Enabling Multi-Level Menu Support for the Getting Started Application

Multi-level menus give you more flexibility in how to organize tutorial topics included in the Getting Started application. Each menu item can have multiple sub-menus. Sub-menu items are declared the same way as regular entries except the registry values are in a subkey of the parent menu.

Resover Strings

Customizing the String for DRM Error Message

You can now customize the description for the error message that is displayed when a user tries to forward an OMA DRM protected file in phones using Windows Mobile Professional or Windows Mobile Classic. You can do this using the following registry key:

HKEY_LOCAL_MACHINE\Security\ResOver

Customizing the Strings in Storage Card Settings

You can now customize the strings that are displayed in phones using Windows Mobile Professional or Windows Mobile Classic when users access the storage card through Start > Messaging > Menu > Options. You can do this using the following registry key:

HKEY_LOCAL_MACHINE\Security\ResOver

Overriding Strings in Phone Canvas Menus

You can override the Unmute string of the Call Progress menu by using the following registry setting: **HKEY_LOCAL_MACHINE\Security\ResOver\138**.

Customizing the User Interface

Enabling Vibration Feedback in Touch Input Panel

On phones that run Windows Mobile Professional or Windows Mobile Classic, you can now enable Touch Vibration in the touch input panel. Touch Vibration is a feature that causes the phone to vibrate slightly when the user touches the screen. This alerts the user to the fact that he or she has touched the screen. You can also customize the length of time the phone will vibrate when the user chooses **Short**, **Medium**, or **Long**.

You enable and customize Touch Vibration by setting values in the **HKEY_Current_User\ControlPanel\TouchVibration** registry key:

New Key for Device Unlock

Third party applications or OEM drivers can now post the VK_KEYUNLOCK message to unlock the keypad in both Windows Mobile Standard and Windows Mobile Professional.

Send and End on the Soft Key Bar

Soft key bars can now include Send and End keys if the display resolution is WVGA or better. The Send key will be placed on the left of the bar and the End key on the right whenever a soft key bar is displayed. This provides Send and End functionality to phones that do not have Send and End hardware keys. (The user must have access to Send and End functionality at all times according to LTK requirements.)

The decision to enable or disable is made at boot time and holds until the next boot. By default, the Send and End soft key feature is disabled. You can enable it by configuring the following registry value: **HKLM\Software\Microsoft\Shell\SendEnd\SoftkeyEnabled**.

Reply All on the Left Soft Key in E-mail Read View

In e-mail read view, the left soft key can be made to provide access to the **Reply All** function, rather than the **Reply** function.

What's New in Core OS Services

Improved Handling of Process Limits

Windows Mobile has a hard upper limit of 32 concurrent processes. To avoid process creation failures it also has a mechanism for closing applications when a process threshold is exceeded.

Prior to Windows Mobile 6.5 the threshold was a hard-coded value of 30. As of Windows Mobile 6.5 the threshold default is 28 and the default can be overridden with a registry value.

Prioritizing Time Zones

When releasing phones that use the NITZ implementation to areas outside the United States, you can prioritize the use of time zones for those areas by setting the following registry key:

HKEY_Local_Machine\System\DateTime\NetworkTimePriorities\1.

When set to the index value of a time zone, this time zone takes priority over the default behavior of NITZ. Multiple registry values can be created to prioritize multiple time zones. Set the registry value name, beginning with **1** and proceeding sequentially for as many time zones as you want to prioritize.

International

InputHistoryFileSize Registry Value

The **HKEY_LOCAL_MACHINE\SYSTEM\IME\CompIME** registry key has a new value, **InputHistoryFileSize**, that sets the maximum size of the CompIME input history file.

In addition to predicting words from the lexicon language model, the CompIME also records a user's input history and utilizes the words that a user has typed in the past to improve text prediction. Prediction is based on the Input History record.

What's New in Kernel

Module DLLs in Virtual Memory Slots 60 and 61

As of Windows Mobile 6.5 virtual memory slots 60 and 61 can handle MODULE DLLs as well as FILE DLLs. The benefits of this are:

- Memory usage of both code and data can be reduced in slot 0, the current-process slot, thus improving stability.

- OEM design is simplified because all DLLs can be listed in the MODULES section.

- Performance can be improved because MODULE DLLs are loaded faster than FILE DLLs (because address fix up during loading is eliminated).

What's New in Networking

Networking - Wireless

There is now easier access to Wi-Fi. A single-tap now opens Wi-Fi networks, which eliminates several configuration steps. In addition, Windows Mobile 6.5 features improved support for direct Wi-Fi Internet connections, even with mobile operators who use proxy settings for GPRS network connections.

Other enhancements include:

- The SIM Application Toolkit (SAT) now supports Bearer Independent Protocol (BIP) TCP and BIP UDP, which allows high-speed communication between SIM applications and Internet services or servers. This is implemented only for phones that support General Packet Radio Service (GPRS).

- An automatic IP address can now be assigned on an infrastructure network.

- The user can now view the network configuration settings even when the configuration service provider **CM_Networks** is configured as read-only.

- The user can now configure their GPRS settings from the Getting Started application.

Persisting Automatically Assigned IPs

You can now specify whether automatically configured IP addresses are allowed to persist on the Wi-Fi network. The following registry key is checked each time a new IP address is resolved: **HKEY_LOCAL_MACHINE\ControlPanel\WiFi\PersistAutoIP**.

The value indicates whether an automatically configured IP address in the 169.254.x.x range can persist on the Wi-Fi network.

SIM Card Access

If a SIM card is present on the phone, the user has normal access to it, including access to SMS messages and contacts, regardless of whether the phone is in CDMA or GSM mode.

Power cycling is required when inserting or removing a SIM card.

Configure to Prevent Selection of a Particular GSM Network

In the event that partners would like to disable the option for manually selecting a particular GSM network, the OEM or Mobile Operator can set the DisableGSMNetworkSelection value in registry key **HKEY_CURRENT_USER\ControlPanel\Phone\DisableGSMNetworkSelection.** This value applies only to global phones.

Networking - Remote

Resolving ActiveSync Errors

When a phone is connected to a PC via ActiveSync, the phone may sometimes show the error message "To synchronize this device, you must install ActiveSync 4.5 or newer on your desktop computer." This could be caused by a timing issue that occurs when switching from a USB serial to an RNDIS connection, and can be alleviated by configuring **DelayConnect**

value of the **HKEY_CURRENT_USER\Software\Microsoft\RAPI** registry key.
DelayConnect should not be modified unless the phone experiences this error message.

Programmatic Access to Mobile VPN

A program can obtain Mobile virtual private network (VPN) status by examining registry values.

The values are stored in the registry key
HKEY_LOCAL_MACHINE\System\IPSecVPN\CSP.

What's New in Performance and Reliability

Windows Mobile 6.5 has significant improvements in overall stability, battery life, and performance, which can increase customer satisfaction and reduce returns.

The following enhancements have been made to improve device health:

- Reduced battery usage for e-mail

- Fixed top errors reported by SQM/Watson

- Improved performance on screen rotation area

The following changes help improve performance:

- Allocation of virtual memory is improved.

- The out of process (OOP) threshold has been optimized. This change helps shut down the application at a lower threshold to prevent application errors reaching the upper OOP threshold.

- SQM data gathering and SQM data upload have been decoupled so that SQM data can be gathered before the user interface is presented. By default, SQM data is gathered and uploaded to Microsoft.

- Log entries have been added to help optimize service and device driver performance. The changes help OEMs analyze boot time and investigate the boot process by using Perfman. The change is applicable to Windows Mobile Standard and Windows Mobile Professional.

- To minimize the impact to the battery life caused by the keep-alives sent by the Mobile VPN, a request for fast dormancy is sent to the radio after each keep-alive is sent. This change only applies to 3G data connections and only if the hardware supports fast dormancy. The improvement on battery life depends on how frequently keep-alives need to be sent over a connection and on the characteristics of the phone and the network; it is expected that the impact of the keep-alives will be reduced to less than half of what it was before the modifications.

- The comparison of the daylight saving time offset in Time Zones has been changed to an absolute value to accommodate both positive and negative values from the Radio Interface Layer (RIL).

- Extend your virtual machine applications to show virtual machine processes in the Windows Task Manager. This lets users view and terminate processes on the virtual machine.

What's New in Configuration Service Providers

IPSecVPN Configuration Service Provider

By default, when there is an IPSec VPN connection, the Connection Manager blocks all traffic except Internet Key Exchange version 2 (RFC 3406) on the real interfaces on the phone (for example, Wi-Fi and GPRS).

Mobile operator service traffic (MOST) lets users access services offered by mobile operators outside of the IPSec VPN connection while VPN is being used.

The IPSecVPN MOST Configuration Service Provider lets you configure the MOST IP addresses and hostnames. Typically the OEM includes the mobile operator's MOST rules (hostnames and IP addresses) on a commercialized device. The mobile operator can then use this configuration service provider to update the rules through provisioning.

This Configuration Service Provider can be managed over both OMA Client Provisioning (formerly WAP Client Provisioning) and the OMA DM protocol.

Recommendations

There are ways that application developers can improve the overall user experience by making applications more consistent with Windows Mobile 6.5. They can use seamless theme integration and create applications that support finger touch. Additional recommendations follow.

Windows Mobile Browser

The Windows Mobile 6.5 browser now handles touch interactions. The following items would add value to applications that run on the browser:

- Touchable zoom

- Session initiated protocol (SIP) accessible by user

- Miniature document map to provide orientation when the user scrolls the page

Icons

Use Windows Mobile 6.5 icons for your applications as appropriate, and use similar measurements and style for your own icons.

Focus Status

Use focus status similar to that used in Windows Mobile to traverse hierarchical patterns in your applications. That is, when an action that is highlighted (in focus) is selected, move the focus to the next deeper level.

Graphical Elements

If your application depends on text, be aware that the treatment of this text is theme dependent, much like focus-state graphics. For example, Windows Mobile 6.5 maintains a consistency between the theme color (dark blue) and text color (light blue). Maintain a similar consistency in your applications.

User Interface Elements

For your application to be similar to Windows Mobile 6.5 functionality, provide finger-friendly access to the following elements:

- Menus
- Dialog boxes
- Tabs
- Buttons
- Scroll gars
- Shell notifications (bubble or toast)

Touch

To be similar to Windows Mobile 6.5, use the new gestures in your applications, such as double tap, hold, pan, and flick. You can use the gesture APIs to add these gestures to third-party applications and plug-ins.

Messaging

You can now customize the messaging icons.

The SMS client is improved in Windows Mobile 6.5. Because SMS and MMS are threaded together in the same screen view, third parties can modify their MMS client to take advantage of these improvements.

License and Pricing

Microsoft provides a broad range of price points for Windows Mobile 6.5. Talk to your Microsoft Business Development or Account Manager for licensing and pricing information.