Marathon™ Reference Guide

Microsoft® Windows® XP® Operating System

LXE | **WORX** | **Handheld Computer**

E-EQ-MARATHONRG-A

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Introduction

Overview

The LXE Marathon™ handheld computer is a rugged, Ultra-Mobile Personal Computer equipped with a Microsoft® Windows® operating system. The Marathon is capable of wireless data communications using an 802.11a/b/g/n radio. Additional connectivity options include Bluetooth and GPS.

This Marathon™ Reference Guide has been developed for a Marathon with a Windows® XP Professional operating system.

The Marathon is a tablet-style computer with a 62-key QWERTY keyboard with number pad and features a 7.1" color display. The touch screen display supports WVGA (800x480 resolution) and is available optimized for either indoor or outdoor lighting. The keyboard is illuminated to facilitate use in dimly lit areas. A biometric mouse is included for security and screen navigation. Available add on modules include a magnetic stripe card reader and a 2D imager.

The Marathon provides the power and functionality of a desktop computer in a portable unit. The desktop dock, much like a docking port for a conventional laptop, provides provisions for an external monitor and USB connections for devices such as a USB keyboard and mouse.

For information on the desktop dock and RAM Mount™ vehicle dock options see Marathon Dock Reference Guide for details.

Terminal Emulation Software

LXE provides Freefloat AccessOne for terminal emulation needs for the Marathon. Click here for the Freefloat website.

Barcode Decoder Software

LXE provides Freefloat LinqOne for barcode decoding needs for the Marathon. Click here for the Freefloat website.

Click here for the Motorola web site SDK link for the Symbol 4400 2D Imager.

Keyboard Keymapping Software

There are many keyboard key-mapping applications available on the world wide web. There is no keyboard mapping application available from LXE for the Marathon. Yet.

Magnetic Stripe Reader Software

The Magnetic Stripe Reader software supports the Microsoft Windows OLE for Point of Service (OPOS) / Unified Point of Service (UPOS) driver. Click here to download Microsoft Point of Service for .NET.

POS for .NET is Microsoft's implementation of UPOS for the .NET platform. POS for .NET is backward-compatible with existing implementations of UPOS on the Microsoft Windows platform, OPOS. POS for .NET is implemented for Microsoft .NET Framework v1.12.

Microsoft Windows License Agreement (First Boot)

If your Marathon is shipped with a Microsoft Windows operating system pre-installed, it may be necessary to complete the Windows licensing/registration screens when starting the Marathon for the first time. To complete this information, you may need the Microsoft Windows software/product key that is included with the Marathon.

Please refer to Microsoft Windows License Agreement (First Boot) for instruction.

Quick Start

This section's instructions are based on the assumption that your new system is pre-configured and requires only accessory installation and a power source.

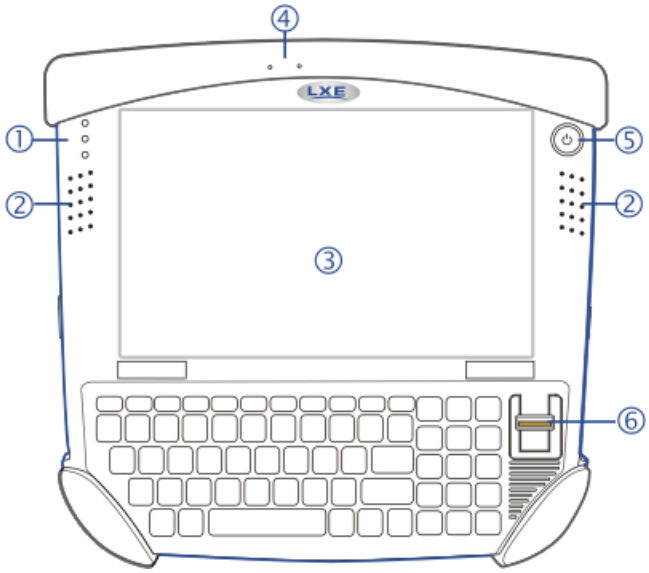
In general, the sequence of events is:

1. Install any accessory modules (magnetic stripe card reader, imager) and carrying straps.
2. Provide a power source for the Marathon:
    - Connect a power cable, or
    - Place the Marathon in a powered desktop or vehicle mount dock, or
    - Install a fully charged auxiliary battery.
3. Connect accessories, e.g. USB devices, headset, etc.
4. Press the Power button to turn the Marathon on.

Note: Installation instructions for attaching a carrying strap, connecting a power cable and placing the Marathon in a powered desktop dock or vehicle dock are in the Marathon User Guide.

Components

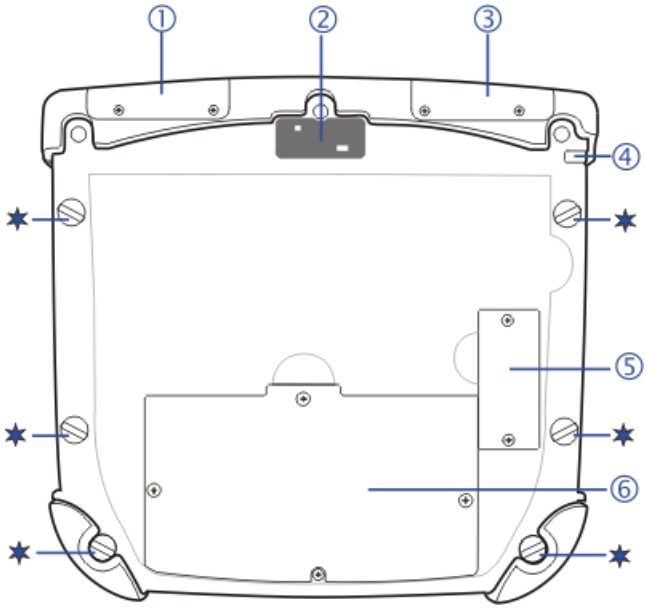
Front View



Marathon Components, Front

Position	Function
1	Status Indicators
2	Speakers
3	Touch Screen / Display
4	Microphone
5	Power Button
6	Biometric Mouse

Rear View

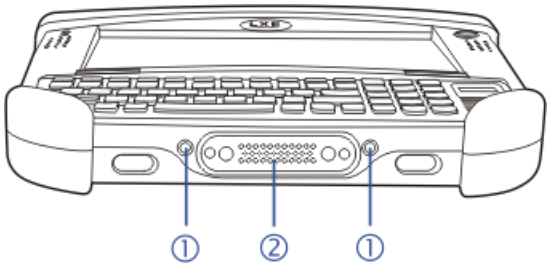


Marathon Components, Rear

Position	Function
1	Magnetic Stripe Card Reader Add-on Cover
2	Camera
3	Barcode Imager Add-on Cover
4	Tethered Stylus
5	External Battery Connector Cover
6	Internal Battery / SIM Card Cover
✶	Handstrap Connection

Auxiliary battery is not installed in image shown above.

Bottom View

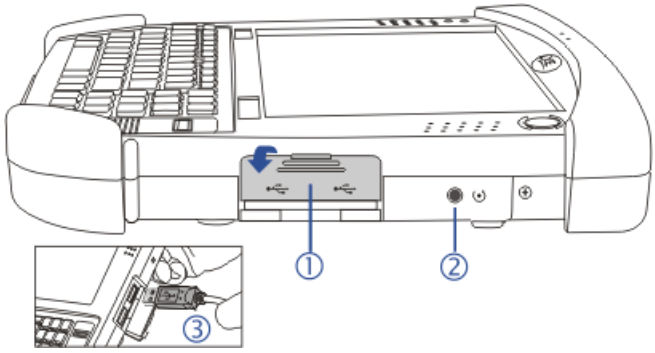


Marathon Components, Bottom

Position	Function
1	External Antenna Connections (for use in vehicle mount dock)
2	Docking Connector (for use in desktop and vehicle mount docks)

Right Side View

The components are on the right edge of the Marathon when viewed from the front.

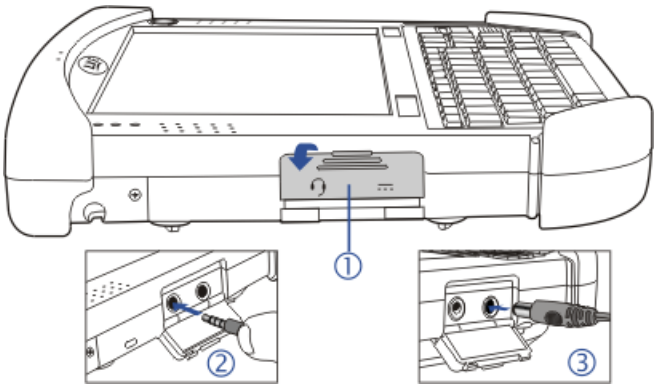


Marathon Components, Right

Position	Function
1	USB Port Cover
2	Reset Button
3	Two USB 2.0 Host Ports

Left Side View

The components are on the left edge of the Marathon when viewed from the front.



Marathon Components, Left

Position	Function
1	Power/Audio Port Cover
2	Audio Jack
3	Power Connector

LED Indicators

Power Button

The power button is backlit as follows:

- **Off** when Marathon is Off.
- Solid **blue** when Marathon is On.
- Flashes **blue** when Marathon is in Standby Mode.

Status LEDs

Status LED indicators are located next to the upper left hand corner of the display.

Symbol	Function
	Indicates the storage drive status: • Flashes **green** when drive is accessed
	Indicates the wireless status: • Solid **blue** when Marathon is On, does not blink when connection/re-connection occurs.
	Indicates the battery status: • **Off** when battery is fully charged. • Solid **green** when battery is discharged • Solid **orange** when battery is charging • Flashing **orange** when battery is low or has failed.

Using a Stylus

Note: Always use the point of the stylus for tapping or making strokes on the touch screen.

Never use an actual pen, pencil, or sharp/abrasive object to write on the touch screen.

Hold the stylus as if it were a pen or pencil. Touch an element on the screen with the tip of the stylus then remove the stylus from the screen.

Firmly press the stylus into the stylus holder when the stylus is not in use.

Using a stylus is similar to moving the mouse pointer then left-clicking icons on a desktop computer screen.

Using the stylus to tap icons on the touch screen is the basic action that can:

- Open applications
- Choose menu commands
- Select options in dialog boxes or drop-down boxes
- Drag the slider in a scroll bar
- Select text by dragging the stylus across the text
- Place the cursor in a text box prior to typing in data
- Place the cursor in a text box prior to retrieving data using an input/output device.

A right-click can be simulated by touching the touch screen with the stylus and holding it for a short time.

A right click is generated by tapping the mouse icon , usually located in the upper right hand corner of the screen. After tapping, the mouse icon highlights the right button. The next touch screen tap is treated as a right click. The mouse icon returns to the left button highlighted so subsequent taps are treated as left clicks.

Note: If the mouse icon is not displayed, this feature can be enabled by tapping the PenMount icon  *in the System Tray. From the menu that pops up, tap* **Right Button** *to enable the mouse icon. When this option is enabled, a checkmark is displayed in the menu.*

The Biometric Mouse can be used instead of the touch screen.

A stylus replacement kit is available.

Marathon Configuration Options

Many configuration options are available via the Microsoft Windows Control panel. For additional information, please refer to **Help and Support** on the **Start** menu for configuration details.

Date and Time

Use the Windows interface to set date, time and time zone.

- Double tap time display in System Tray
- Tap **Start | Control Panel | Date and Time** (Classic view)
- Tap **Start | Control Panel | Date, Time, Language and Regional Options | Change the Date and Time** (Category view)

Power Management

Use the Windows interface to set power management options.

- Tap **Start | Control Panel | Power Options** (Classic view)
- Tap **Start | Control Panel | Performance and Maintenance | Power Options** (Category view)

Speaker Volume

Use the Windows interface to control speaker volume.

- Double tap speaker icon in System Tray
- Tap **Start | Control Panel | Sound and Audio Devices** (Classic view)
- Tap **Start | Control Panel | Sounds, Speech and Audio Devices | Adjust the System Volume** (Category view)

Connect Bluetooth Devices

Use the Windows interface to manage Bluetooth devices.

- Tap **Start | Control Panel | Bluetooth Devices** (Classic view)
- Tap **Start | Control Panel | Printers and Other Hardware | Bluetooth Devices** (Category view)

Restart/Shutdown

Use the Windows interface to restart or shut down the Marathon.

- Tap **Start | Shut Down | Restart**
- Tap **Start | Shut Down | Shut down**

Calibrate Touch Screen

To calibrate the touch screen, tap **Start | Programs | PenMount Universal Driver | Utility | PenMount Control Panel**. Select **PenMount 6000 USB** and then tap **Configure**. Select **Standard Calibration** or **Advance Calibration**.

Advanced Calibration allows the user to select the number of calibration points. With either option, follow the on screen instructions to touch the red square, hold the touch and then lift the stylus to complete the calibration process.

Data Entry

You can enter data into the Marathon through several different methods. Manual data entry methods include the keyboard and touch screen. Automated data entry methods include the imager module, a wireless Bluetooth scanner, a tethered USB scanner and the magnetic card reader module.

Keyboard Data Entry

Refer to Key Maps for 101-key keyboard equivalent key presses.

The 62-key keyboard with number pad is used to manually input data that is not collected otherwise. Almost any function that a full sized computer keyboard can provide is duplicated on the keyboard but it may take a few more keystrokes to accomplish a keyed task.

When using the keyboard, some keys have multiple functions. The primary alpha or numeric character is printed on the key.

Barcode Data Entry

The Marathon supports an accessory imager module for barcode label reading, as well as a wireless Bluetooth barcode scanner and a tethered USB scanner.

Keyboard data entries can be mixed with barcode data entries.

Magnetic Card Data Entry

The Marathon supports an accessory magnetic card reading module. Keyboard data entries can be mixed with magnetic card data reader entries.

Touch Screen Data Entry

Note: If the touch screen is not accepting pen touches, the touch screen should be re-calibrated. See Touch Screen Calibration.

Note: Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil or sharp object to write on the touch screen.

The touch screen can be used in conjunction with the keyboard and a barcode decoder.

- Touch the stylus to the field of the data entry form to receive the next data feed.
- The cursor begins to flash in the field.
- The unit is ready to accept data from either the keyboard, the accessory imager, a wireless Bluetooth device or a device connected to a serial port on a powered dock.

Note: The touch screen may be disabled. Please refer to Disabling the Touch Screen.

Hardware

Hardware Configuration

Processor, Memory and Storage

The Marathon has an Intel® Atom Z530 (1.6GHz) processor.

System memory is 1 GB or 2 GB DDR2 SDRAM.

Storage is supplied by an internal solid state hard drive (8, 16, 32 or 64GB).

Display

A 7.1" WVGA (800x480) display is installed. The display includes a touch screen. Depending on the option ordered, the display is optimized for either indoor our outdoor ambient lighting. An Intel® controller is provided for the display. The controller is capable of supporting a second display when the Marathon is docked in a desktop dock with an external display attached to the VGA port on the dock.

Audio

The Marathon contains two integrated speakers and an integrated microphone. An audio connector is available for an external headset.

Wireless Communication

The following options are available:

- 802.11 WLAN radio
- Bluetooth
- WWAN (not available in this release)
- GPS

Power Management

The Marathon uses Microsoft Windows Power Management. The Marathon has two operating modes: Normal and Standby.

In Normal operating mode all systems are powered up and the video display is on. However, Microsoft Windows also allows the display and hard disks to be shut down in normal mode to conserve energy.

The Standby mode shuts down many devices such as the display and hard drives. For complete details on the standby mode, please refer to the Microsoft Help and Support (**Start | Help and Support**).

Power Input / Battery

The Marathon is powered by a main battery (Lithium Ion rechargeable 2200 mAh) concealed inside the Marathon case, that provides 3.5 hours of operation without a recharge. The main battery can only be recharged using external power sources, such as an indoor AC/DC adapter connected directly to the Marathon or an auxiliary battery (38Whr and 63Whr) attached directly to the Marathon. The main battery remains concealed in the Marathon while charging.

The main battery will also recharge when the Marathon is docked in a powered desktop dock or vehicle dock. With an installed fully charged auxiliary battery, Marathon battery life is increased to 6 or 10 hours based on the auxiliary battery selected.

The main battery and an attached auxiliary battery are re-charged whenever the Marathon is:

- connected to an AC power adapter
- placed in a powered desktop dock
- placed in a powered vehicle dock.

An auxiliary battery can also be charged, when not attached to the Marathon, when:

- an auxiliary battery is placed in the 4 bay battery charger.
- an auxiliary battery is placed in the Spare charging bay on the desktop dock

Backup Battery

The LXE Marathon has a permanent lithium battery installed to maintain time, date and BIOS setup information. The backup battery is not user serviceable and should last five years with normal use before it requires replacement. The lithium backup battery should only be exchanged by authorized service personnel.

Power Button

The power (on/off) button is a push button located on the upper right corner of the Marathon. If the Marathon is Off, pressing the power button turns the Marathon On.

If the Marathon is On, Windows determines the results of a power button press based on user configuration. For example, the Marathon may be configured to:

- Shut down
- Hibernate
- Ignore the power button press
- Ask user to choose.

Power button behavior is configured by selecting **Start | Settings | Control Panel | Power Options | Advanced** tab.

Pressing and holding the power switch for several seconds forces a shutdown.

The Marathon is designed for a controlled shutdown when using the power button. A controlled shutdown first closes any open programs, and then shuts down the Windows operating system. When the main battery is discharged, DO NOT remove external power from the Marathon without first shutting down the Marathon.

The Marathon shutdown may be initiated in any of the following ways:

- Selecting the **Shutdown** option from the Windows Start Menu.
- Selecting the **Shutdown** option from the Windows Task Manager. The Windows Task Manager is displayed by pressing Ctrl-Alt-Del and clicking the Task Manager button.
- Momentarily pressing and releasing the power button. The Marathon behavior when the power button is pressed can be configured in the Power Options Control Panel.
- Pressing and holding the power button for approximately five seconds. Any open programs and the Windows operating system are shut down before power off. Note that this option must be used to shut down when the operating system is not responding.

For more information on the Windows shutdown process, please refer to Help and Support on the Windows Start menu or commercially available Windows guides.

Reset Button

The Reset button is on the right side of the Marathon. Press the Reset button in with the tip of the stylus and the Marathon immediately reboots. A reset button press performs the same function as the software key sequence **Start | Shutdown | Restart.**

External Connectors

The following external connectors are located on the Marathon:

- Two USB 2.0 Host ports
- External power supply connector.
- Audio connector is a 3.5 mm jack for a headset.
- Docking connector on bottom for use with vehicle mounted dock or desktop dock
- External antenna connectors on bottom for use with vehicle mounted dock.
- COM 1 is accessible when docked in a vehicle mounted or desktop dock.
- COM 2 is reserved for add-on modules (imager or magnetic card reader).

USB Connectors

There are two USB 2.0 Host ports, located on the right side and protected by a sliding cover.

Audio Connector

The Audio connector is a standard 3.5mm connector for an external headset, located on the left side and protected by a sliding cover.

Power Supply Connector

The power connector is a barrel style connector, located on the left side and protected by a sliding cover. AC/DC power is supplied to the Marathon through the power connector.

The Marathon power supply connector accepts DC input voltage at 19 Volts.

Antenna Connectors

The antenna connectors are located on the bottom of the Marathon. The antenna connectors are for external GPS and WWAN antennas. The external antennas connect to the Marathon vehicle dock. No antenna connects directly to these ports on the Marathon.

Docking Connector

The docking connector is located on the bottom of the Marathon. The connector interfaces with the matching connector in the Marathon desktop and vehicle mounted dock, allowing the Marathon to interface with USB, serial or other ports present on the selected dock.

Keyboard

The keyboard has 62 keys, including a number pad. A biometric mouse is located to the right of the keyboard. When using the keyboard, some keys have multiple functions. The primary alpha or numeric character is printed on the key. Refer to Key Maps for 101-key keyboard equivalent key presses.

Marathon Keyboard

Backlighting

- Keys have a dark grey background with frosted white characters for visibility with the backlight on or off.
- Keys are backlit with a white light, except for sticky keys (see below) that have a different backlight color when the key is active.

Sticky Keys

ALT, CTL, SHIFT, FN and NUM LCK are sticky keys and function as described below:

- Press key once and key stays sticky for next keystroke.
- Press key and hold for a second and a half and the key stays sticky until sticky key is pressed again. For example, press NUM LCK once and NUM LCK stays ON, press it again and it turns OFF.

Sticky Key Indicators

- NUM LCK: **Amber** backlight indicates sticky key is active.
- ALT, CTL, SHIFT, FN: **Blue** backlight indicates sticky key is active.

Biometric Mouse

The Marathon contains a biometric mouse located on the right next to the keypad.

The biometric mouse performs two functions, security and screen navigation (simulating a mouse). Use the F9 function key to toggle between the two features.

Security Features

As a security device, the biometric mouse can restrict device access to only those users whose fingerprint scan is stored on the Marathon. Examples include:

- Windows logon can be performed with a fingerprint scan as opposed to the traditional user name and password. You must create a Windows user account with a password, then shutdown and restart the Marathon before you can add fingerprint security to that user account. After rebooting, create fingerprint security, then shutdown and restart the Marathon to save the password in the registry.
- Internet Explorer web site login information (user name and password) can be stored and accessed only after a successful fingerprint scan.
- SecureLock, a part of the Fingerprint software package, can be used to create a virtual disk that can only be accessed after a successful fingerprint scan. Without an authorized fingerprint scan, the drive is not accessible or displayed in Windows explorer.
- Files and folders may be assigned encryption that limits access to only those users who have a stored fingerprint.

For information on using the finger print security feature, select **Start | Programs | Fingerprint Software | Help**.

Navigation

By default, the biometric mouse is enabled for cursor navigation. Sliding a finger over the biometric mouse moves the cursor in the same direction the finger moves. The sensitivity (motion speed) may be adjusted or the feature disabled. Select **Start | Settings | Control Panel | TruePrint** to configure this feature.

Tapping a finger on the biometric mouse is treated as a mouse left-click. Two taps in quick succession is treated as a double-tap. Tapping and holding is treated as a right-click.

Touch Screen

Calibrating the Touch screen

Although the Marathon touch screen is installed and calibrated before the Marathon leaves LXE, users may make adjustments to the calibration. To calibrate the touch screen, select **Start | Programs | PenMount Universal Driver | Utility | PenMount Control Panel.** On the Device tab, double-click the PenMount 6000 USB icon. On the Calibrate tab, tap either the Standard Calibration or the Advanced Calibration button.

Advanced Calibration uses more calibration points than the Standard Calibration option.

Follow the instructions on the screen. The calibration utility displays a red square on the screen. Touch the center of the square with the stylus and hold for a few seconds. Release and repeat with the next square. After all locations have been touched, the calibration utility saves the settings and automatically closes.

If no input is received, the calibration utility times out. Press the ESC button to exit the calibration utility without saving any changes.

Refresh the Touch Screen Calibration Points

Select **Start | Programs | PenMount Universal Driver | Utility | PenMount Control Panel**. On the Device panel, single-click the PenMount 6000 USB icon. Click the Refresh button. The touch screen is refreshed immediately. Click OK to close the control panel.

Troubleshooting

If when using the Intel Ultra Mobile GMA Driver and rotating the screen, the touch screen will require re-calibration for the rotated screen touch areas. Connect and use a USB mouse, instead of screen touch, to access the control panels needed for re-calibration.

Disabling the Touch Screen

If desired, the touch screen can be disabled in the Windows control panel. Once disabled, the touch screen remains disabled until it is enabled again.

To disable the touch screen, access the Windows control panel and click on **System | Hardware | Device Manager | Mice and other pointing devices**. Under the list there is a listing for PenMount USB Mouse. Right click on this listing and select Disable from the Device Usage menu.

To enable the touch screen, follow the same process, selecting Enable from the right click menu.

The Display

The Marathon display is capable of supporting WVGA graphics modes (800x480). The display covering is designed to resist stains. The touch screen allows signature capture and touch input. A display optimized for outdoor viewing is available.

The touch screen is a Resistive Panel with a scratch resistant finish that can detect touches by a stylus, and translate them into computer commands. In effect, it simulates a computer mouse. Only Delrin or plastic styluses should be used. An extra or replacement stylus may be ordered from LXE.

Note: Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil or sharp object to write on the touch screen.

Adjust Display Brightness

The display can be lightened or darkened by using the Fn key and the keypad:

1. Hold the Fn key down for a few seconds until the Fn key remains illuminated (sticky).
2. Press the 9 (brightness up) key to brighten the display.
3. Press the 3 (brightness down) key to darken the display.

The display brightness and darkness have nine levels. The display levels are managed by the Windows operating system. The Fn key active sticky mode takes precedence if the NumLck key is illuminated (sticky) during this process.

Cleaning the Display

Keep fingers and rough or sharp objects away from the display. If the glass becomes soiled or smudged, clean only with a standard household cleaner such as Windex® without vinegar or use Isopropyl Alcohol. Do not use paper towels or harsh-chemical-based cleaning fluids since they may result in damage to the glass surface. Use a clean, damp, lint-free cloth. Do not scrub optical surfaces. If possible, clean only those areas which are soiled. Lint/particulates can be removed with clean, filtered canned air.

Software

Introduction

Like any personal computer, there are many aspects to the setup and configuration of the Marathon. Much of the setup and configuration of the Marathon is dependent upon the optional features (both hardware and software) installed on the computer. Since the Marathon uses the Microsoft Windows Plug and Play operating system, much of the hardware setup is automatic. The examples found in this section are to be used as samples only; as the configuration of your specific computer may vary. The following sections provide a general reference for the configuration of the Marathon and its optional features.

Please refer to commercially available Microsoft Windows user guides or to Windows on-line Help applications for more information on Windows' options for system configuration.

Operating System

This Marathon™ Reference Guide has been developed for a Marathon with a Windows® XP Professional operating system.

The Marathon is available with the following operating systems:

- Windows® XP Professional
- Windows® Embedded Standard
- Windows® 7 Professional

Microsoft Windows Setup and Configuration

After the system files are processed, Microsoft Windows begins to load. Windows maintains a System Registry and INI files. Standard Windows configuration options apply to the Marathon. Configuration options are located in either the System Tray or the Control Panel:

- The System Tray contains icons for adjusting the time, date or volume level.
- The Control Panel contains icons for many other configuration options, such as Power Management, Regional and Language Options, etc.
- The Control Panel icons are also used to add, delete or modify software installed on the Marathon.

Please refer to Help and Support on the Windows Start menu or commercially available Windows guides for more information on configuration options in Windows.

Microsoft Windows License Agreement (First Boot)

If your Marathon is shipped with a Microsoft Windows operating system pre-installed, it is necessary to complete the Windows licensing/registration screens when starting the Marathon for the first time. To complete this information, you may need the Microsoft Windows software key that was included with the Marathon.

When Microsoft Windows is started by the user for the first time (known as the "out of the box experience"), a series of questions is presented. If prompted, the product key (printed on a decal attached to the Marathon) must be entered. The series of prompts and responses allow the user to configure Microsoft Windows XP on the Marathon according to the user's needs.

Proceed with the remainder of the boot process.

Drive C Folder Structure

Microsoft Windows is installed in the \Windows folder. In addition, Microsoft Windows creates other folders and several subfolders. For more information on the folders Microsoft Windows uses, please refer to commercially available Windows reference guides.

Software Loaded on Drive C

The software loaded on the Marathon computer consists of:

- BIOS
- Microsoft Windows XP Professional
- device drivers
- radio software
- touch screen software

The software installed on the Marathon is summarized below.

Note: Due to the complex folder structure and System Registry under Microsoft Windows, software should not be removed manually. Instead use the Add or Remove Programs icon in the Windows Control Panel.

Microsoft Windows

Microsoft Windows is installed in the \Windows subfolder, which is the Windows default. In addition, Windows places files in other folders and subfolders during installation. For more information, please refer to commercially available Windows user guides.

Device Drivers

Device drivers are installed for all installed hardware options, such as the display, touch screen, radios, Ethernet port, etc. For more information on Microsoft Windows device drivers, please refer to commercially available Windows guides.

Radio Software

The Marathon is delivered with the radio software installed. Because the Marathon uses a Microsoft Windows operating system, the radio installation includes Windows device drivers.

Touch Screen Software

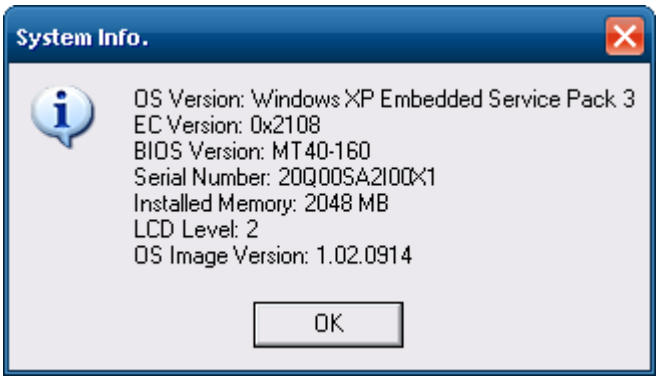
PenMount Universal software is installed for calibrating the Marathon's touch screen. Please see Touch Screen Calibration for more information.

Control Panel

Most control panel applets on the Marathon are standard Microsoft Windows items. For help and information on the standard control panels, please refer to **Help and Support**.

The panels listed below may differ from a standard Microsoft Windows equipped PC or laptop.

LXE System Info



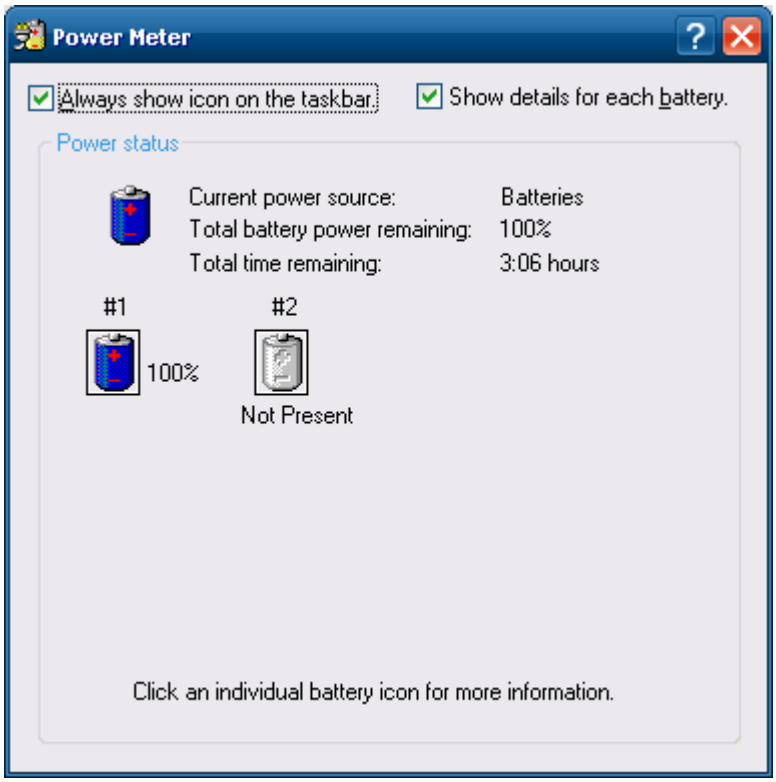
Display

This is a standard Microsoft Windows control panel applet. On the **Settings** tab, two displays are supported. By default, display #1 is the Marathon's built in WVGA display. Display #2 is an external display connected to the VGA port on the Marathon desktop dock.

Power Options

Power schemes can be configured that will be in effect when the Marathon is attached to an external power supply or docked in a powered dock as well as when running on battery power.

On the Power Meter tab, battery #1 refers to the main battery concealed inside the Marathon case. Battery #2 is an optional auxiliary battery that connects to the back of the Marathon.



TruePrint

Use the **TruePrint** control panel to configure the fingerprint module for screen navigation. Motion sensitivity can be adjusted and the fingerprint module navigation can be disabled.

Wi-Fi

The Wi-Fi icon provides access to the Summit Client Utility (SCU) where the default profile can be edited for use with the wireless network.

Bluetooth

The Bluetooth control panel can be accessed either by clicking the Bluetooth icon in the taskbar (if visible) or by clicking on the Bluetooth Devices option in the Windows control panel.

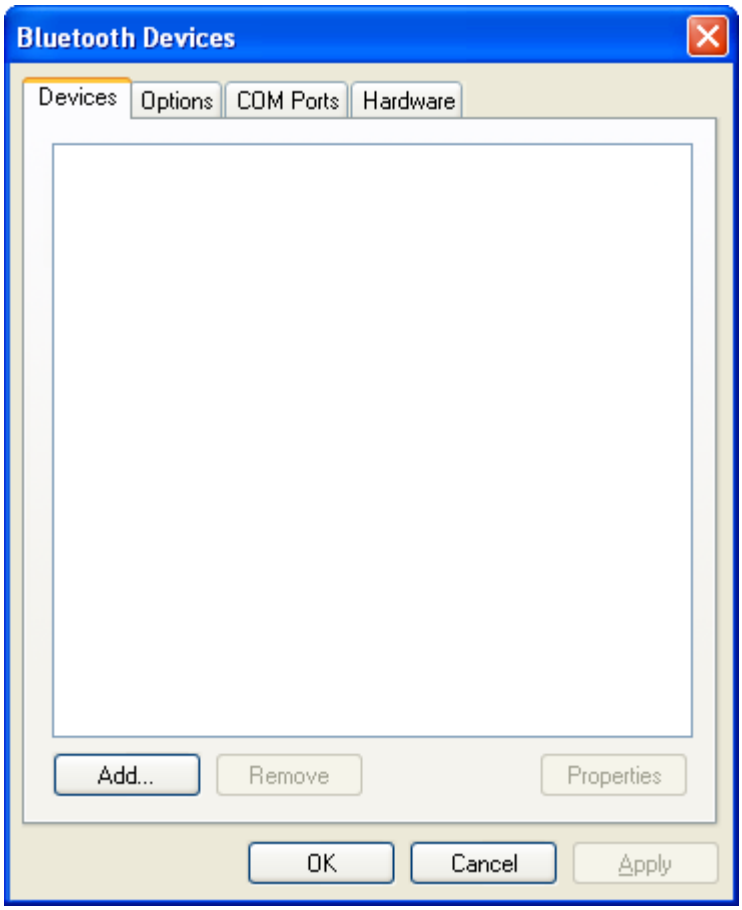
LXE 8650 Bluetooth Ring Scanner/Imager

Use the Bluetooth Device Wizard in the Microsoft Windows Control Panel to discover and manage the Bluetooth scanner connection.

Do not use the ComponentSoft wedge software (provided with the LXE 8650 series Bluetooth Ring Scanners) on the Marathon.

Devices Tab

The Devices tab displays any previously discovered Bluetooth devices.



Bluetooth Devices Tab

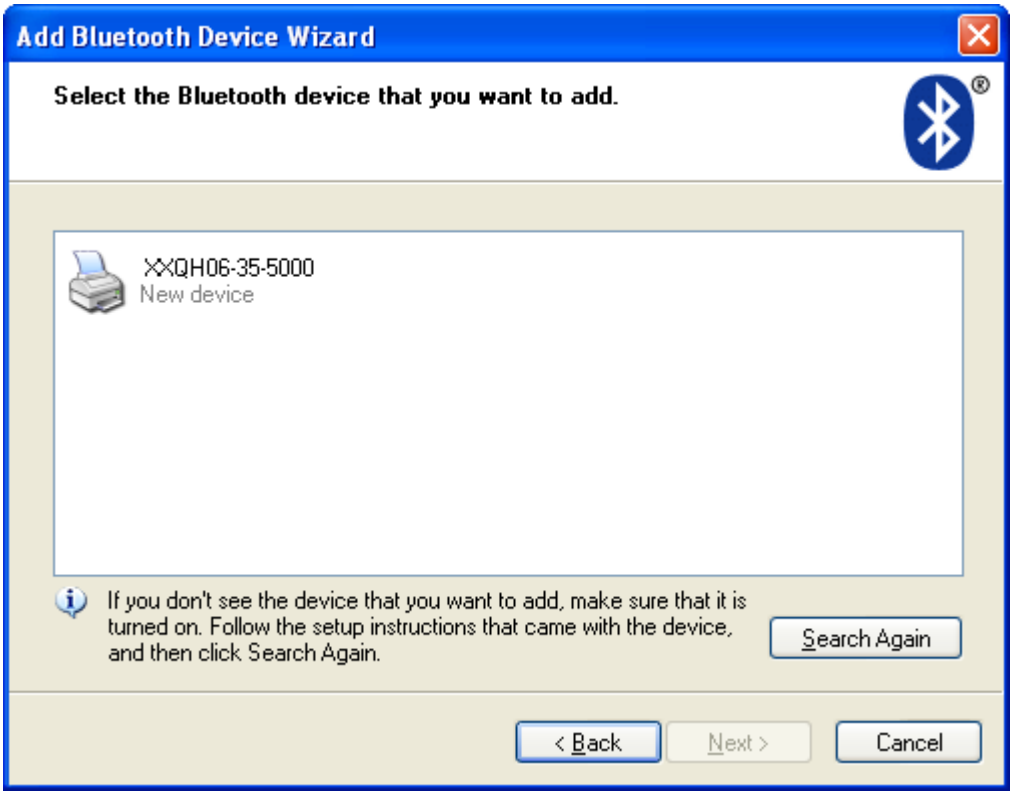
If there are no Bluetooth devices shown or if the desired device is not shown, use the Add Bluetooth Device Wizard to discover Bluetooth devices.

Click the Add button to start the wizard.

Add Bluetooth Device Wizard

The wizard cannot be started until the checkbox indicating the device is set up and ready to be found is checked.

If any Bluetooth devices are discovered, they are displayed.



Discovered Bluetooth Devices

Select the desired Bluetooth device and click Next.

Select the appropriate passkey option.

The Bluetooth device is ready to use.

Options Tab

Bluetooth Options Tab

This tab contains various Bluetooth connection options. More information can be found using Help and Support on the Windows Start menu.

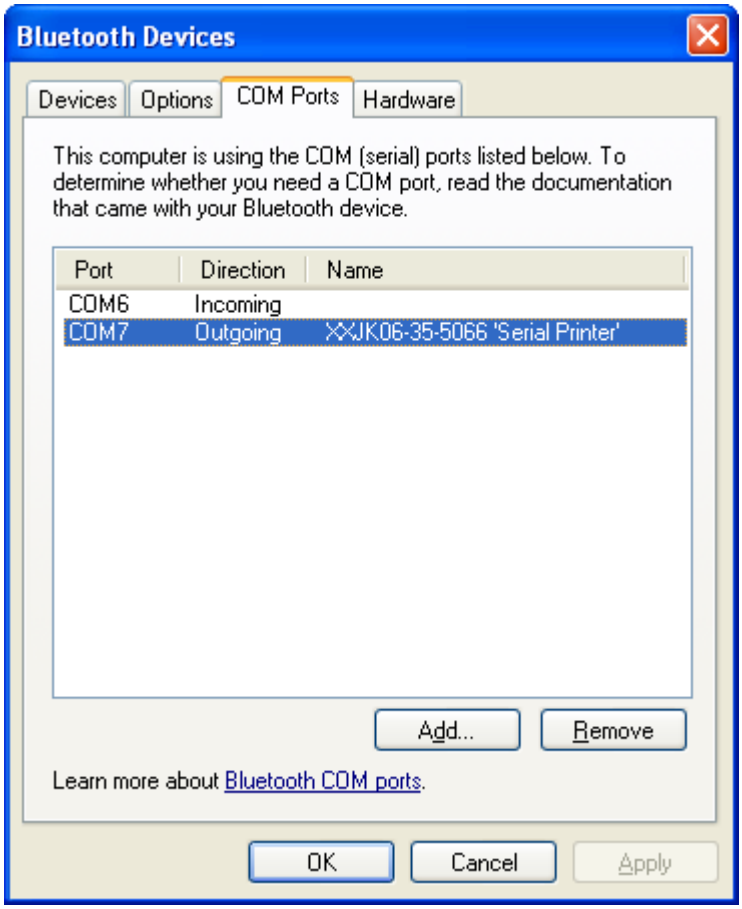
Bluetooth Icon

To add the Bluetooth icon to the taskbar enable (click to place a checkmark in) **Show the Bluetooth icon in the notification area**. When the Bluetooth icon is in the taskbar, the following right-click menu options are available:

Add a Bluetooth Device Show Bluetooth Devices
Send a File Receive a File
Join a Personal Area Network
Open Bluetooth Settings
Remove Bluetooth Icon

More information can be found using Help and Support on the Windows Start menu.

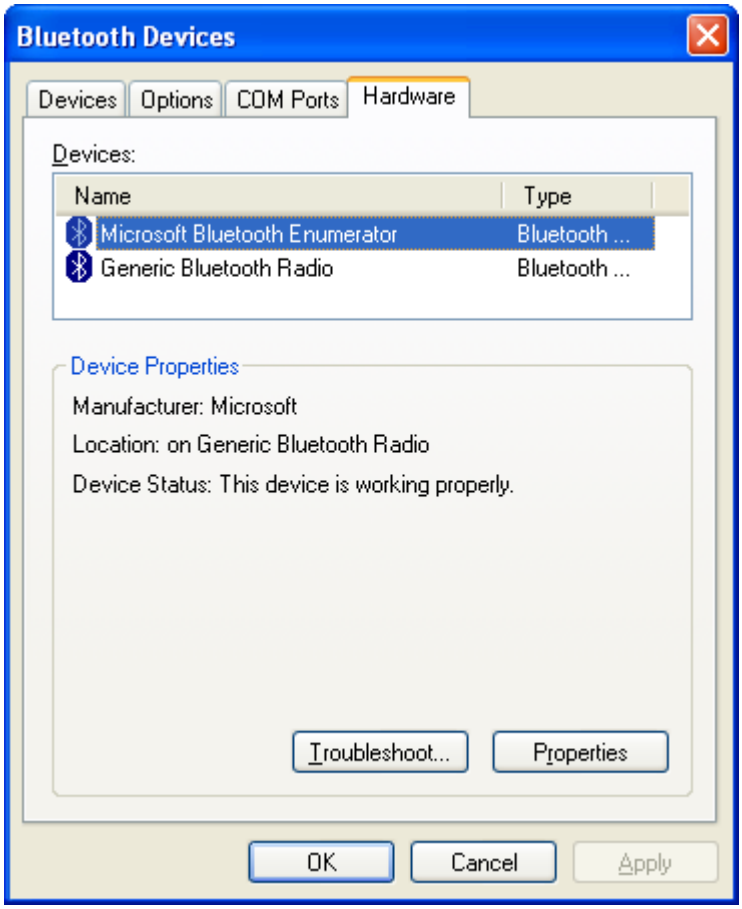
COM Ports Tab



Bluetooth COM Ports Tab

This tab displays the COM ports used by Bluetooth devices, such as the Bluetooth printer illustrated. More information can be found using Help and Support on the Windows Start menu.

Hardware Tab



Bluetooth Hardware Tab

This tab hardware information for Bluetooth. More information can be found using Help and Support on the Windows Start menu.

Network Configuration

There are several networking options available for the Marathon.

802.11 Wireless Radios

Please refer to the instructions for configuring the 802.11 radio in Wireless Network Configuration.

Ethernet Connector

A wired Ethernet connection is only available when the Marathon is docked in a desktop dock. Please see the *Marathon Dock Reference Guide* for more information.

For more information on configuring the Microsoft Windows network settings, please refer to Help and Support on the Windows Start menu or commercially available Windows networking literature.

GPS (Optional)

When the GPS module is factory installed in the Marathon, based on the current Marathon configuration the GPS module will use COM 5[1] to retrieve the Marathons latitude (the location north or south of the equator in degrees) and longitude (the angular distance from the Prime Meridian in degrees).

WWAN

Not available in this release.

Bluetooth

Please refer to the information on configuring the Bluetooth radio.

[1] Verify COM port setting: Start | Settings | Control Panel | System | Hardware | Device Manager | Ports (COM / LPT)

Wireless Network Configuration for LXE Devices

The Summit client device is a Summit 802.11a/b/g/n radio, capable of 802.11a, 802.11b, 802.11g and 802.11n data rates.The radio can be configured for no encryption, WEP encryption or WPA security.

Security Options Supported are

- None
- WEP
- LEAP
- WPA-PSK
- WPA/LEAP
- PEAP-MSCHAP
- PEAP-GTC
- EAP-TLS
- EAP-FAST

Important Notes

 Date/Time	It is important that all dates are correct on the Marathon and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail. Verify and adjust the date using the **Date and Time** control panel.
	It may be necessary to upgrade radio software in order to use certain Summit Client Utility (SCU) features. Contact your LXE representative for details.
	When using the 802.11a radio, the U-NII 1 band is the preferred band for indoor operation. For regulatory domains in which the U-NII 3 band is allowed, the following channels are supported: 149, 153, 157 and 161. The AP must be configured accordingly.

Summit Client Utility

Access:

Start | Programs | Summit | SCU *or*

SCU Icon on Desktop *or*

Summit Tray Icon (if present) *or*

Wi-FI Icon in the Windows Control Panel (if present)

The Main Tab provides information, admin login and active profile selection.

Profile specific parameters are found on the Profile Tab. The parameters on this tab can be set to unique values for each profile. This tab was labeled Config in early versions of the SCU.

The Status Tab contains information on the current connection.

The Diags Tab provides utilities to troubleshoot the radio.

Global parameters are found on the Global Tab. The values for these parameters apply to all profiles. This tab was labeled Global Settings in early versions of the SCU.

Help

Help is available by clicking the ? icon in the title bar on most SCU screens.

The Summit Client Utility (SCU) help may also be accessed by selecting Start | Help and tapping the Summit Client Utility link. The SCU does not have to be accessed to view the help information using this option.

Summit Tray Icon

 The Summit tray icon provides access to the SCU and is a visual indicator of radio status.

The Summit tray icon is displayed when:

- The Summit radio is installed and active
- The Windows Zero Config utility is not active
- The Tray Icon setting is On

Click the icon to launch the SCU.

Use the tray icon to view the radio status:

	The radio is not currently associated or authenticated to an Access Point
	The signal strength for the currently associated/authenticated Access Point is less than -90 dBm
	The signal strength for the currently associated/authenticated Access Point is -71 dBm to -90 dBm
	The signal strength for the currently associated/authenticated Access Point is -51 dBm to -70 dBm
	The signal strength for the currently associated/authenticated Access Point is greater than -50 dBm

Wireless Zero Config Utility

- The WZC utility has an icon in the toolbar that looks like a computer with a red X beside it, indicating that Wireless Zero Config application is enabled but the connection is inactive at this time (the device is not connected to a network). The WZC icon may not be visible until control is passed to the WZC utility as described below.
- You can use either the Wireless Zero Configuration Utility or the Summit Client Utility (SCU) to connect to your network. LXE recommends using the Summit Client Utility to connect to your network. The Wireless Zero Configuration Utility cannot control the complete set of security features of the radio.

How To: Use the Wireless Zero Config Utility

1. Select **ThirdPartyConfig** in the Active Profile drop down box on the Main tab.
2. A message appears that a Power Cycle is required to make settings activate properly.
3. Tap **OK**.
4. Restart the Marathon.

The Summit Client Utility passes control to Wireless Zero Config and the WZC Wireless Information control panel. Using the options in the Wireless Zero Config panels, set up radio and security settings.

How to: Switch Control to SCU

1. To switch back to SCU control, select any other profile except **ThirdPartyConfig** in the SCU Active Config drop down list on the Main tab.
2. A message appears that a Power Cycle is required to make settings activate properly.
3. Tap **OK**.
4. Restart the Marathon.

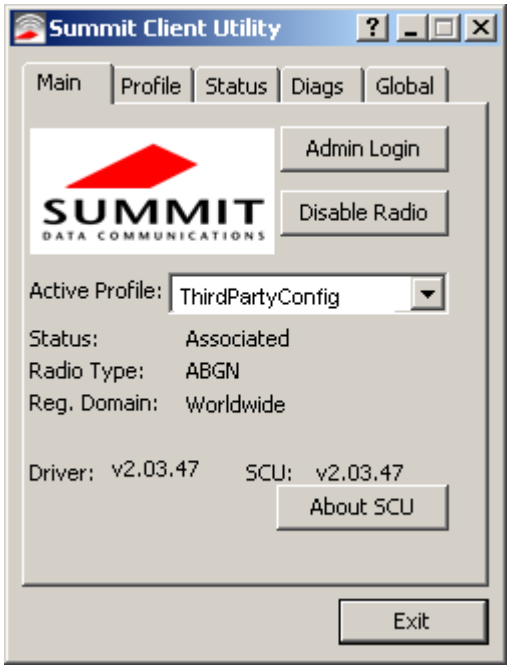
Radio control is passed to the Summit Client Utility.

Main Tab

Start | Programs | Summit | Main tab

Factory Default Settings

Admin Login	SUMMIT
Radio	Enabled
Active Config/Profile	ThirdPartyConfig
Regulatory Domain	FCC, ETSI or Worldwide



SCU - Main Tab

The Main tab displays information about the wireless client device including:

- SCU (Summit Client Utility) version
- Driver version
- Radio Type (ABGN is an 802.11 a/b/g/n radio).
- Regulatory Domain
- Copyright Information can be accessed by tapping the About SCU button
- Active Config profile / Active Profile name
- Status of the client (Down, Associated, Authenticated, etc).

The **Active Profile** can be switched without logging in to Admin mode. Selecting a different profile from the drop down list does not require logging in to Administrator mode. The profile must already exist. Profiles can be created or edited after the Admin login password has been entered and accepted.

When the profile named “ThirdPartyConfig” is chosen as the active profile, the Summit Client Utility passes control to Windows Zero Config for configuration of all client and security settings for the network module.

The **Disable Radio** button can be used to disable the network card. Once disabled, the button label changes to Enable Radio. By default the radio is enabled.

The **Admin Login** button provides access to editing wireless parameters. Profile and Global may only be edited after entering the Admin Login password.

The password is case-sensitive.

Once logged in, the button label changes to Admin Logout. To logout, either tap the **Admin Logout** button or exit the SCU without tapping the **Admin Logout** button.

Admin Login

To login to Administrator mode, tap the **Admin Login** button.

Once logged in, the button label changes to Admin Logout. The admin is automatically logged out when the SCU is exited. The Admin can either tap the **Admin Logout** button, or the **OK** button to logout.

Main Tab – Enter Admin Password

Enter the Admin password (the default password is SUMMIT and is case sensitive) and tap **OK**. If the password is incorrect, an error message is displayed.

The Administrator default password can be changed on the Global tab.

The end-user can:

- Turn the radio on or off on the Main tab.
- Select an active Profile on the Main tab.
- View the current parameter settings for the profiles on the Profile tab.
- View the global parameter settings on the Global tab.
- View the current connection details on the Status tab.
- View radio status, software versions and regulatory domain on the Main tab.
- Access additional troubleshooting features on the Diags tab.

After Admin Login, the end-user can also:

- Create, edit, rename and delete profiles on the Profile tab.
- Edit global parameters on the Global tab.
- Enable/disable the Summit tray icon in the taskbar.

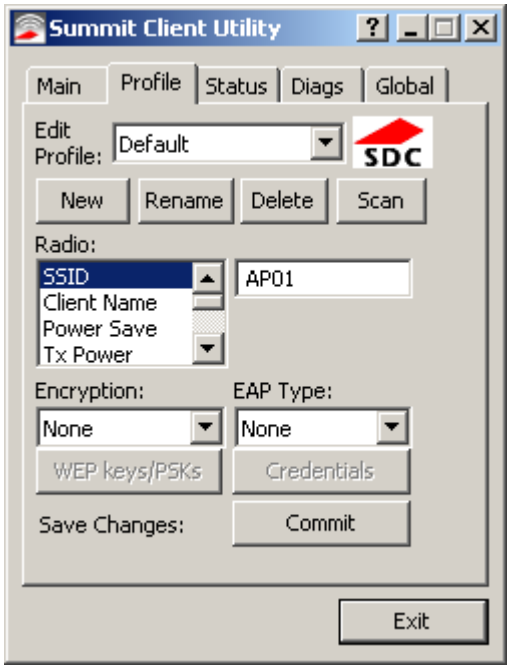
Profile Tab

Start | Programs | Summit | Profile tab

Note: Tap the Commit button to save changes before leaving this panel or the SCU. If the panel is exited before tapping the Commit button, changes are not saved!

Factory Default Settings

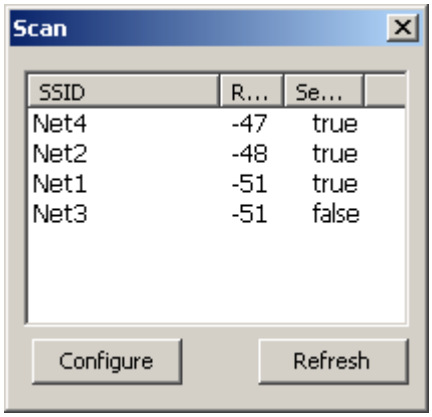
Profile	Default
SSID	Blank
Client Name	Blank
Power Save	Fast
Tx Power	Maximum
Bit Rate	Auto
Radio Mode	See Profile Parameters for default
Auth Type	Open
EAP Type	None
Encryption	None



SCU – ProfileTab

When logged in as an Admin (see Admin Login), use the Profile tab to manage profiles. When not logged in as an Admin, the parameters can be viewed, and cannot be changed. The buttons on this tab are dimmed if the user is not logged in as Admin. The Profile tab was previously labeled Config.

Buttons

Button	Function
Commit	Saves the profile settings made on this screen. Settings are saved in the profile.
Credentials	Allows entry of a username and password, certificate names, and other information required to authenticate with the access point. The information required depends on the EAP type.
Delete	Deletes the profile. The current active profile cannot be deleted and an error message is displayed if a delete is attempted.
New	Creates a new profile with the default settings (see Profile Parameters) and prompts for a unique name. If the name is not unique, an error message is displayed and the new profile is not created.
Rename	Assigns a new, unique name. If the new name is not unique, an error message is displayed and the profile is not renamed.
Scan	Opens a window that lists access points that are broadcasting their SSIDs. Tap the Refresh button to view an updated list of APs. Each AP's SSID, its received signal strength indication (RSSI) and whether or not data encryption is in use (true or false). Sort the list by tapping on the column headers. If the scan finds more than one AP with the same SSID, the list displays the AP with the strongest RSSI and the least security.  **SCU – Scan** If you are logged in as an Admin, tap an SSID in the list and tap the Configure button, you return to the Profile window to recreate a profile for that SSID, with the profile name being the same as the SSID (or the SSID with a suffix such as "_1" if a profile with the SSID as its name exists already).
WEP Keys / PSK Keys	Allows entry of WEP keys or pass phrase as required by the type of encryption.

Note: Unsaved Changes – The SCU will display a reminder if the Commit button is not clicked before an attempt is made to close or browse away from this tab.

Important – The settings for Auth Type, EAP Type and Encryption depend on the security type chosen.

Profile Parameters

Parameter	Default	Explanation
Edit Profile	Default	A string of 1 to 32 alphanumeric characters, establishes the name of the Profile. Options are Default or ThirdPartyConfig.
SSID	Blank	A string of up to 32 alphanumeric characters. Establishes the Service Set Identifier (SSID) of the WLAN to which the client connects.
Client Name	Blank	A string of up to 16 characters. The client name is assigned to the network card and the device using the network card. The client name may be passed to networking wireless devices, e.g. Access Points.
Power Save	Fast	Power save mode is On. Options are: Constantly Awake Mode (CAM) power save off, Maximum (power saving mode) and Fast (power saving mode).
Tx Power	Maximum	Maximum setting regulates Tx power to the Max power setting for the current regulatory domain. Options are: Maximum, 50mW, 30mW, 20mW, 10mW, 5mW, or 1mW.
Bit Rate	Auto	Setting the rate to Auto will allow the Access Point to automatically negotiate the bit rate with the client device. Options are: Auto, 1 Mbit, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48 or 54 Mbit.
Auth Type	Open	802.11 authentication type used when associating with the Access Point. Options are: Open, LEAP, or Shared key.
EAP Type	None	Extensible Authentication Protocol (EAP) type used for 802.1x authentication to the Access Point. Options are: None, LEAP, EAP-FAST, PEAP-MSCHAP, PEAP-GTC, or EAP-TLS. *Note: EAP Type chosen determines whether the Credentials button is active and also determines the available entries in the Credentials pop-up window.*
Encryption	None	Type of encryption to be used to protect transmitted data. Available options may vary by SCU version. Options are: None, WEP (or Manual WEP), WEP EAP (or Auto WEP), CKIP (or CKIP Manual), CKIP EAP (or CKIP Auto), WPA PSK, WPA TKIP, WPA CCKM, WPA2 PSK, WPA2 AES, or WPA2 CCKM. *Note: The Encryption type chosen determines if the WEP Keys / PSK Keys button is active and also determines the available entries in the WEP or PSK pop-up window.*

Parameter	Default	Explanation
Radio Mode	BGA Rates Full	Specify 802.11a, 802.11b and/or 802.11g rates when communicating with the AP. The options displayed for this parameter depend on the type of radio installed in the mobile device. Options: B rates only (1, 2, 5.5 and 11 Mbps) BG Rates Full (All B and G rates) G rates only (6, 9, 12, 18, 24, 36, 48 and 54 Mbps) BG optimized or BG subset (1, 2, 5.5, 6, 11, 24, 36 and 54 Mbps) A rates only (6, 9, 12, 18, 24, 36, 48 and 54 Mbps)

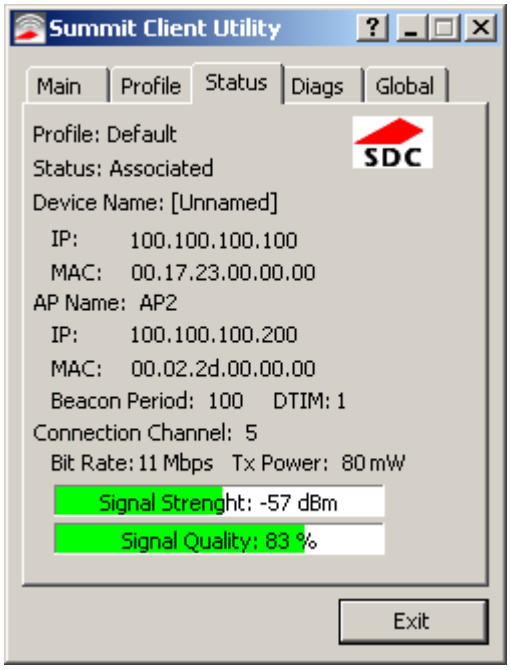
Parameter	Default	Explanation
		ABG Rates Full (All A rates and all B and G rates with A rates preferred) BGA Rates Full (All B and G rates and all A rates with B and G rates preferred) Ad Hoc (when connecting to another client device instead of an AP) Default: BGA Rates Full (for 802.11a/b/g/n radio)

It is important the **Radio Mode** parameter correspond to the AP to which the device is to connect. For example, if this parameter is set to G rates only, the Marathon may only connect to APs set for G rates and not those set for B and G rates.

Contact your LXE representative if you have questions about the antenna(s) installed on your Marathon.

Status Tab

Start | Programs | Summit | Status tab



SCU – Status Tab

This screen provides information on the radio:

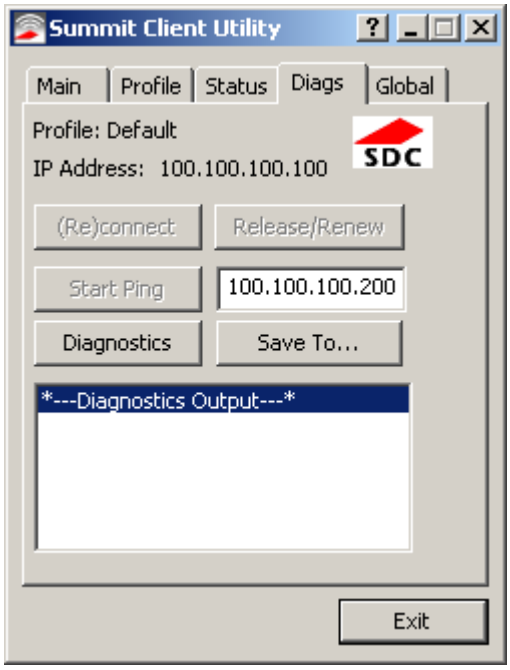
- The profile being used
- The status of the radio card (down, associated, authenticated, etc.)
- Client information including device name, IP address and MAC address.
- Information about the Access Point (AP) maintaining the connection to the network including AP name, IP address and MAC address.
- Channel currently being used for wireless traffic
- Bit rate in Mbit.
- Current transmit power in mW
- Beacon period – the time between AP beacons in kilomircoseconds. (one kilomicrosecond = 1,024 microseconds)
- DTIM interval – A multiple of the beacon period that specifies how often the beacon contains a delivery traffic indication message (DTIM). The DTIM tells power saving devices a packet is waiting for them. For example, if DTIM = 3, then every third beacon contains a DTIM.
- Signal strength (RSSI) displayed in dBm and graphically
- Signal quality, a measure of the clarity of the signal displayed in percentage and graphically.

There are no user entries on this screen.

Note: After completing radio configuration, it is a good idea to review this screen to verify the radio has associated (no encryption, WEP) or authenticated (LEAP, any WPA), as indicated above.

Diags Tab

Start | Programs | Summit | Diags tab



SCU – Diags Tab

The Diags screen can be used for troubleshooting network traffic and radio connectivity issues.

- **(Re)connect** – Use this button to apply (or reapply) the current profile and attempt to associate or authenticate to the wireless LAN. All activity is logged in the Diagnostic Output box on the lower part of the screen.
- **Release/Renew** – Obtain a new IP address through release and renew. All activity is logged in the Diagnostic Output box. If a fixed IP address has been assigned to the radio, this is also noted in the Diagnostic Output box. Note that the current IP address is displayed above this button.
- **Start Ping** – Start a continuous ping to the IP address specified in the text box to the right of this button. Once the button is clicked, the ping begins and the button label changes to **Stop Ping**. Clicking the button ends the ping. The ping also ends when any other button on this screen is clicked or the user browses away from the Diags tab. The results of the ping are displayed in the Diagnostic Output box.
- **Diagnostics** – Also attempts to (re)connect to the wireless LAN. However, this option provides more data in the Diagnostic Output box than the (Re)connect option. This data dump includes radio state, profile settings, global settings, and a list of broadcast SSID APs.
- **Save To…** – Use this save the results of the diagnostics to a text file. Use the explorer window to specify the name and location for the diagnostic file. The text file can viewed using an application such as WordPad.

Global Tab

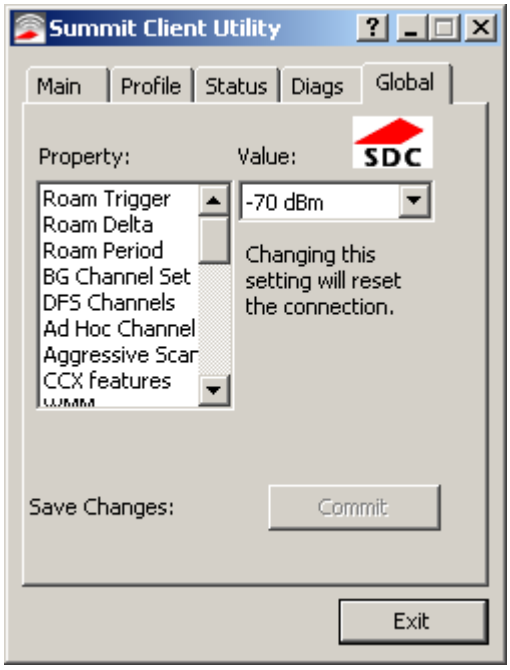
Start | Programs | Summit | Global tab

The parameters on this panel can only be changed when an Admin is logged in with a password. The current values for the parameters can be viewed by the general user without requiring a password.

Note: Tap the Commit button to save changes. If the panel is exited before tapping the Commit button, changes are not saved!

Factory Default Settings

Roam Trigger	-65 dBm
Roam Delta	5 dBm
Roam Period	10 sec.
BG Channel Set	Full
DFS Channels	Off
DFS Scan Time	120 ms.
Ad Hoc Channel	1
Aggressive Scan	On
CCX	Optimized
WMM	Off
Auth Server	Type 1
TTLS Inner Method	Auto-EAP
PMK Caching	Standard
TX Diversity	On
RX Diversity	On Start on Main
Frag Threshold	2346
RTS Threshold	2347
LED	Off
Tray Icon	On
Hide Passwords	On
Admin Password	SUMMIT (or blank)
Auth Timeout	8 seconds
Certs Path	C:\Program Files\Summit\certs
Ping Payload	32 bytes
Ping Timeout	5000 ms
Ping Delay ms	1000 ms
Login Options	Use SCU credentials



SCU – Global Tab

Custom Parameter Option

LXE does not support the parameter Custom option. The parameter value is displayed as “Custom” when the operating system registry has been edited to set the Summit parameter to a value that is not available from the parameter’s drop down list. Selecting Custom from the drop down list has no effect. Selecting any other value from the drop down list will overwrite the “custom” value in the registry.

Global Parameters

Parameter	Default	Function
Roam Trigger	-65 dBm	If signal strength is less than this trigger value, the client looks for a different Access Point with a stronger signal. Options are: -50 dBm, -55, -60, -65, -70, -75, -80, -85, -90 dBm or Custom.
Roam Delta	5 dBm	The amount by which a different Access Point signal strength must exceed the current Access Point signal strength before roaming to the different Access Point is attempted. Options are: 5 dBm, 10, 15, 20, 25, 30, 35 dBm or Custom.
Roam Period	10 sec.	The amount of time, after association or a roam scan with no roam, that the radio collects Received Signal Strength Indication (RSSI) scan data before a roaming decision is made. Options are: 5 sec, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60 seconds or Custom.
BG Channel Set	Full	Defines the 2.4GHz channels to be scanned for an AP when the radio is contemplating roaming. By specifying the channels to search, roaming time may be reduced over scanning all channels. Options are: Full (all channels) 1,6,11 (the most commonly used channels) 1,7,13 (for ETSI and TELEC radios only) Custom.
DFS Channels	Off	Support for 5GHZ 802.11a channels where support for DFS is required. Options are: On, Off. *Note: Not supported (always off) in some releases.*
DFS Scan Time	120 ms.	ABG radio only. The amount of time the radio will passively scan each DFS channel to see if it will receive a beacon. Recommended value is 1.5 times that of the AP's beacon period.
Ad Hoc Channel	1	Use this parameter when the Radio Mode profile parameter is set to Ad Hoc. Specifies the channel to be used for an Ad Hoc connection to another client device. If a channel is selected that is not supported by the by the radio, the default value is used. Options are: 1 through 14 (the 2.4GHz channels) 36, 40, 44, 48 (the UNII-1 channels)
Aggressive Scan	On	When set to On and the current connection to an AP weakens, the radio aggressively scans for available APs. Aggressive scanning works with standard scanning (set through Roam Trigger, Roam Delta and Roam Period). Aggressive scanning should be set to On unless there is significant co-channel interference due to overlapping APs on the same channel. Options are: On, Off

Parameter	Default	Function
CCX or CCX Features	Optimized	Use of Cisco Compatible Extensions (CCX) radio management and AP specified maximum transmit power features. Options are: Full - Use Cisco IE and CCX version number, support all CCX features. The option known as "On" in previous versions. Optimized –Use Cisco IE and CCX version number, support all CCX features except AP assisted roaming, AP specified maximum transmit power and radio management. Off - Do not use Cisco IE and CCX version number. Cisco IE = Cisco Information Element.
WMM	Off	Use of Wi-Fi Multimedia extensions. This parameter cannot be changed.
Auth Server	Type 1	Specifies the type of authentication server. Options are: Type 1 (ACS server) and Type 2 (non-ACS server)
TTLS Inner Method	Auto-EAP	Authentication method used within the secure tunnel created by EAP-TTLS. Options are: AUTO-EAP (Any available EAP method) MSCHAPV2 MSCHAP PAP CHAP EAP-MSCHAPV2
PMK Cach-ing	Standard	Type of Pairwise Master Key (PMK) caching to use when WPA2 is in use. PMK caching is designed to speed up roaming between APs by allowing the client and the AP to cache the results of 802.1X authentications, eliminating the need to communicate with the ACS server. Standard PMK is used when there are no controllers. The reauthentication information is cached on the original AP. The client and the AP use the cached information to perform the four-way handshake to exchange keys. Opportunistic PMK (OPMK) is used when there are controllers. The reauthentication information cached on the controllers. The client and the controller behind the AP use the cached information to perform the four-way handshake to exchange keys. If the selected PMK caching method is not supported by the network infrastructure, every roam requires full 802.11X authentication, including interaction with the ACS server. If the active profile is using WPA2 CCKM, the global PMK Caching setting is ignored and the client attempts to use CCKM. Options are: Standard, OPMK

Parameter	Default	Function
TX Diversity	On	How to handle antenna diversity when transmitting packets to the Access Point. Options are: Main only, and On.
RX Diversity	On Start on Main	How to handle antenna diversity when receiving packets from the Access Point. Options are: On-start on Main, and Main only

Contact your LXE representative if you have questions about the antenna(s) installed on your Marathon.

Parameter	Default	Function
Frag Thresh	2346	If the packet size (in bytes) exceeds the specified number of bytes set in the fragment threshold, the packet is fragmented (sent as several pieces instead of as one block). Use a low setting in areas where communication is poor or where there is a great deal of wireless interference. Options are: Any number between 256 bytes and 2346 bytes.
RTS Thresh	2347	If the packet size exceeds the specified number of bytes set in the Request to Send (RTS) threshold, an RTS is sent before sending the packet. A low RTS threshold setting can be useful in areas where many client devices are associating with the Access Point. Options are: Any number between 0 and 2347.
LED	Off	The LED on the wireless card is not visible to the user when the wireless card is installed in a sealed mobile device. Options are: On, Off.
Tray Icon	On	Determines if the Summit icon is displayed in the System tray. Options are: On, Off
Hide Password	On	When On, the Summit Config Utility masks passwords (characters on the screen are displayed as an *) as they are typed and when they are viewed. When Off, password characters are not masked. Options are: On, Off.
Admin Password	SUMMIT (or Blank)	A string of up to 64 alphanumeric characters that must be entered when the Admin Login button is tapped. If Hide Password is On, the password is masked when typed in the Admin Password Entry dialog box. The password is case sensitive. This value is masked when the Admin is logged out. Options are: none.
Auth Timeout	8 seconds	Specifies the number of seconds the Summit software waits for an EAP authentication request to succeed or fail. If the authentication credentials are stored in the active profile and the authentication times out, the association fails. No error message or prompting for corrected credentials is displayed. If the authentication credentials are not stored in the active profile and the authentication times out, the user is again prompted to enter the credentials. Options are: An integer from 3 to 60.
Certs Path	certs	A valid folder path, of up to 64 characters, where WPA Certificate Authority and User Certificates are stored on the mobile device when not using the Windows certifcates store. LXE suggests ensuring the Windows folder path currently exists before assigning the path in this parameter. See Certificates for instructions on obtaining CA and User Certificates. This value is masked when the Admin is logged out. Options are: none. The complete path is C:\Program Files\Summit\certs

Parameter	Default	Function
Ping Payload	32 bytes	Maximum amount of data to be transmitted on a ping. Options are: 32 bytes, 64, 128, 256, 512, or 1024 bytes.
Ping Timeout ms	5000	The amount of time, in milliseconds, that a device will be continuously pinged. The Stop Ping button can be tapped to end the ping process ahead of the ping timeout. Options are: Any number between 0 and 30000 ms.
Ping Delay ms	1000	The amount of time, in milliseconds, between each ping after a Start Ping button tap. Options are: Any number between 0 and 30000 ms.
Login Options	SCU	Use SCU or Windows login credentials. More info.

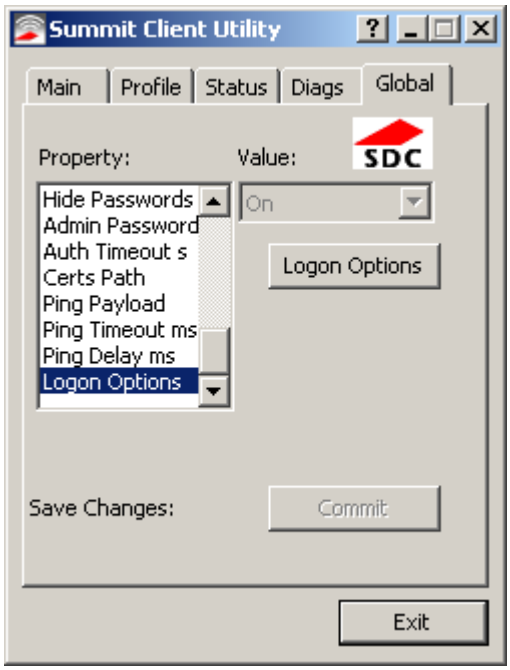
Note: Tap the Commit button to save changes. If this panel is closed before tapping the Commit button, changes are not saved!

Logon Options

There are two options available, a single signon which uses the Windows username and password as the credentials for 802.1x authentication and pre-logon which uses saved credentials for 802.1x authentication before Windows logon.

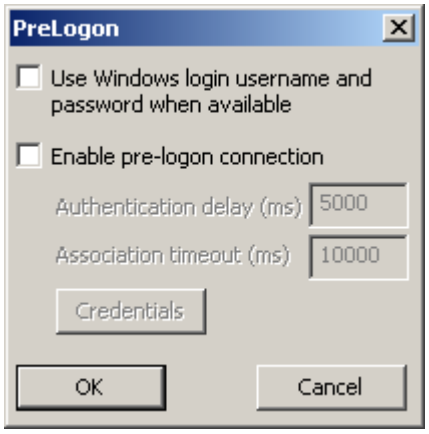
If either option is enabled, the credentials entered here take precedence over any credentials entered on the Profile tab.

To use either option, select **Logon Options** from the **Property** list which activates the **Logon Options** button.



Logon Options - Global Tab

Click the **Logon Options** button.



PreLogon Options

Single Signon

To use the Single Singon option, select the checkbox for **Use the Windows username and password when available**. When the active profile is using LEAP, PEAP-MSCHAP, PEAP-GTC or EAP-FAST, the Summit Client Utililty ignores the username and password, if any, saved in the profile. Instead, the username and password used for Windows logon is used. Any certificates needed for authentication must still be specified in the profile.

Click **OK** then click **Commit**.

Pre-Logon Connection

To use the Pre-logon connection, select the checkbox for Enable pre-logon connection. This option is designed to be used when:

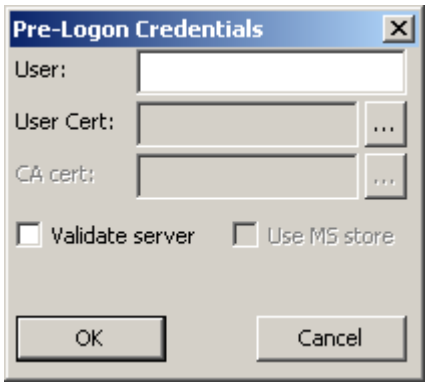
- EAP authentication is required for a WLAN connection
- Single Signon is configured, so the Windows username and password are used as credentials for EAP authentication
- The WLAN connection needs to be established before the Windows logon.

Once this option is enabled, the **Authentication delay** and **Association timeout** values can be adjusted as necessary. Both values are specified in milliseconds (ms).

The default authentication delay is 5000 ms and the valid range is 0 - 600,000 ms.

The default association timeout is 10,000 ms and the valid range is 10,000 to 600,000 ms.

Click on the **Credentials** button to enter the logon credentials.



Pre-Logon Credentials

If using the Windows certificate store:

- Check the **Use MS store** checkbox. The default is to use the Full Trusted Store.
- To select an individual certificate, click on the **Browse** button.
- Uncheck the **Use full trusted store** checkbox.
- Select the desired certificate and click **Select**. You are returned to the Credentials screen.

If using the Certs Path option:

- Leave the Use MS store box unchecked.
- Enter the certificate filename in the CA Cert text box.

Click **OK** then click **Commit**.

Sign-On vs. Stored Credentials

When using wireless security that requires a user name and password to be entered, the Summit Client Utility offers these choices:

- The Username and Password may be entered on the Credentials screen. If this method is selected, anyone using the device can access the network.
- The Username and Password are left blank on the Credentials screen. When the device attempts to connect to the network, a sign on screen is displayed. The user must enter the Username and Password at that time to authenticate.
- When using Summit with the Marathon, there is an option on the Global tab use the Windows user name and password to log on instead of any username and password stored in the profile.

How to: Use Stored Credentials

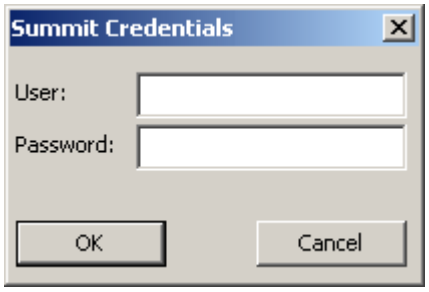
1. After completing the other entries in the profile, click on the **Credentials** button.
2. Enter the Username and Password on the Credentials screen and click **the OK** button.
3. Click the **Commit** button.
4. For LEAP and WPA/LEAP, configuration is complete.
5. For PEAP-MSCHAP and PEAP-GTC, importing the CA certificate into the Windows certificate store is optional.
6. For EAP-TLS, import the CA certificate into the Windows certificate store. Also import the User Certificate into the Windows certificate store.
7. Access the Credentials screen again. Make sure the **Validate server** and **Use MS store** checkboxes are checked.
8. The default is to use the entire certificate store for the CA certificate. Alternatively, use the **Browse** button next to the CA Cert (CA Certificate Filename) on the Credentials screen to select an individual certificate.
9. For EAP-TLS, also enter the User Cert (User Certificate filename) on the credentials screen by using the **Browse** button.
10. If using EAP FAST and manual PAC provisioning, input the PAC filename and password..
11. Click the **OK** button then the **Commit** button.
12. If changes are made to the stored credentials, click **Commit** to save those changes before making any additional changes to the profile or global parameters.
13. Verify the device is authenticated by reviewing the Status tab. When the device is property configured, the Status tab indicates the device is Authenticated and the method used.

Note: See Configuring the Profile for more details.

Note: If invalid credentials are entered into the stored credentials, the authentication will fail. No error message is displayed and the user is not prompted to enter valid credentials.

How to: Use Sign On Screen

1. After completing the other entries in the profile, click on the **Credentials** button. Leave the Username and Password blank. No entries are necessary on the Credentials screen for LEAP or LEAP/WPA.
2. For PEAP-MSCHAP and PEAP-GTC, importing the CA certificate into the Windows certificate store is optional.
3. For EAP-TLS, import the CA certificate into the Windows certificate store. Also import the User Certificate into the Windows certificate store.
4. Access the Credentials screen again. Make sure the **Validate serve**r and **Use MS store** checkboxes are checked.
5. The default is to use the entire certificate store for the CA certificate. Alternatively, use the Browse button next to the CA Cert (CA Certificate Filename) on the Credentials screen to select an individual certificate.
6. For EAP-TLS, also enter the User Cert (User Certificate filename) on the credentials screen by using the **Browse** button.
7. Click the **OK** button then the **Commit** button.
8. When the device attempts to connect to the network, a sign-on screen is displayed.
9. Enter the Username and Password. Click the **OK** button.



Sign-On Screen

10. Verify the device is authenticated by reviewing the Status tab. When the device is property configured, the Status Tab indicates the device is Authenticated and the method used.
11. The sign-on screen is displayed after a reboot.

Note: See Configuring the Profile for more details.

If a user enters invalid credentials and clicks **OK**, the device associates but does not authenticate. The user is again prompted to enter credentials.

If the user clicks the **Cancel** button, the device does not associate. The user is not prompted again for credentials until:

- the device is rebooted,
- the radio is disabled then enabled,
- the **Reconnect** button on the Diags Tab is clicked or
- the profile is modified and the **Commit** button is clicked.

How to: Use Windows Username and Password

Please see Logon Options for information.

Windows Certificate Store vs. Certs Path

Note: It is important that all dates are correct on the Marathon and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail.

	If using the Windows Certificate Store, the Windows Account must have a password. The password cannot be left blank. The Summit Client Utility uses the Windows user account credentials to access the Certificate Store. The Windows user account credentials need not be the same as the wireless credentials entered in the Summit Client Utility.

User Certificates

EAP-TLS authentication requires a user certificate. The user certificate must be stored in the Windows certificate store.

- To generate the user certificate, see Generating a User Certificate.
- To import the user certificate into the Windows certificate store, see Installing a User Certificate.
- A Root CA certificate is also needed. Refer to the section below.

Root CA Certificates

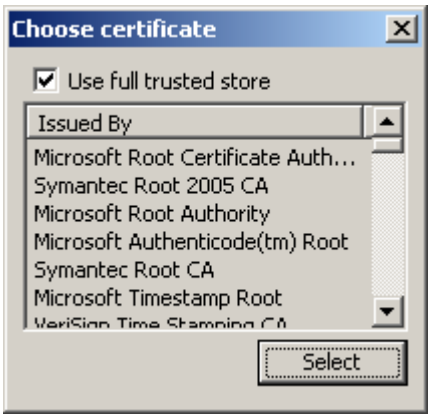
Root CA certificates are required for EAP/TLS, PEAP/GTC and PEAP/MSCHAP. Two options are offered for storing these certificates. They may be imported into the Windows certificate store or copied into the Certs Path folder.

How To: Use the Certs Path

1. See Generating a Root CA Certificate and follow the instructions to download the Root Certificate to a PC.
2. Copy the certificate to specified folder on the mobile device. The default location for Certs Path is C:\Program Files\Summit\certs. A different location may be specified by using the Certs Path global variable.
3. When completing the Credentials screen for the desired authentication, do not check the **Use MS store** checkbox after checking the **Validate server** checkbox.
4. Enter the certificate name in the CA Cert textbox.
5. Click **OK** to exit the Credentials screen and then **Commit** to save the profile changes.

How To: Use Windows Certificate Store

1. See Generating a Root CA Certificate and follow the instructions to download the Root Certifcate to a PC.
2. To import the certificate into the Windows store, See Installing a Root CA Certificate.
3. When completing the Credentials screen for the desired authentication, be sure to check the **Use MS store** checkbox after checking the **Validate server** checkbox.
4. The default is to use all certificates in the store. If this is OK, skip to the last step.
5. Otherwise, to select a specific certificate click on the **Browse (…)** button.



Choose Certificate

6. Uncheck the **Use full trusted store** checkbox.
7. Select the desired certificate and click the **Select** button to return the selected certificate to the CA Cert textbox.
8. Click **OK** to exit the Credentials screen and then **Commit** to save the profile changes.

Configuring the Profile

Use the instructions in this section to complete the entries on the Profile tab according to the type of wireless security used by your network. The instructions that follow are the minimum required to successfully connect to a network. Your system may require more parameters than are listed in these instructions. Please see your system administrator for complete information about your network and its wireless security requirements.

To begin the configuration process:

- On the Main Tab, click the Admin Login button and enter the password.
- LXE recommends editing the default profile with the parameters for your network. Select the Default profile from the pull down menu.
- Make any desired parameter changes as described in the applicable following section determined by network security type and click the **Commit** button to save the changes.

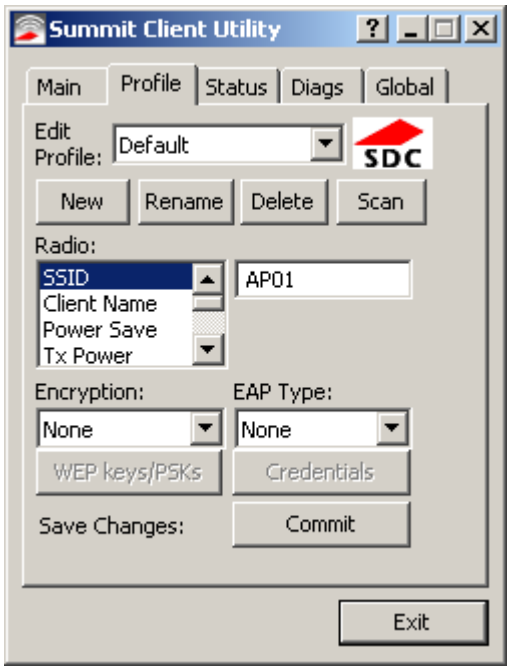
IMPORTANT – Remember to click the Commit button after making changes to ensure the changes are saved. Many versions of the SCU (Summit Client Utility) display a reminder if the Commit button is not clicked before an attempt is made to close or browse away from the tab in focus if there are unsaved changes.

If changes are made to the *stored credentials*, click Commit to save those changes first before making any additional changes.

No Security

To connect to a wireless network with no security, make sure the following profile options are used.

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **None**
- Set **Encryption** to **None**
- Set **Auth Type** to **Open**



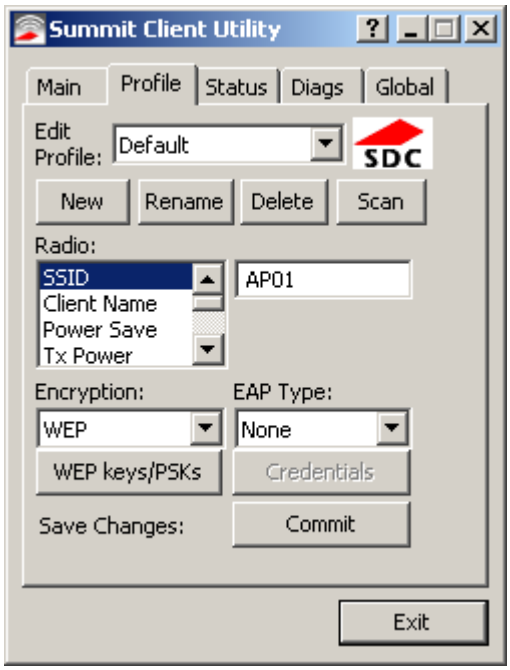
No Security Profile Configuration

Once configured, click the **Commit** button. Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

WEP

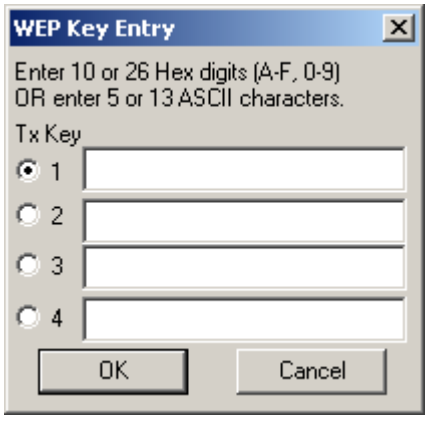
To connect using WEP, make sure the following profile options are used.

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **None**
- Set **Encryption** to **WEP** or **Manual WEP** (depending on SCU version)
- Set **Auth Type** to **Open**



WEP Profile Configuration

Click the **WEP keys/PSKs** button.



WEP Keys

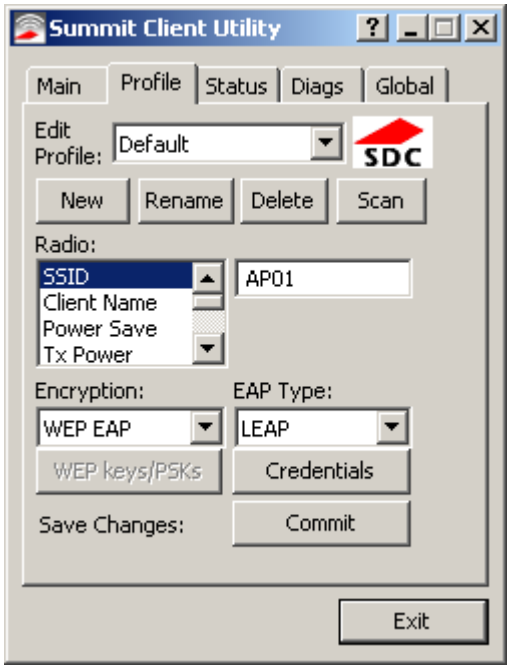
Valid keys are 10 hexadecimal or 5 ASCII characters (for 40-bit encryption) or 26 hexadecimal or 13 ASCII characters (for 128-bit encryption). Enter the key(s) and click **OK**.

Once configured, click the **Commit** button. Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

LEAP

To use LEAP (without WPA), make sure the following profile options are used.

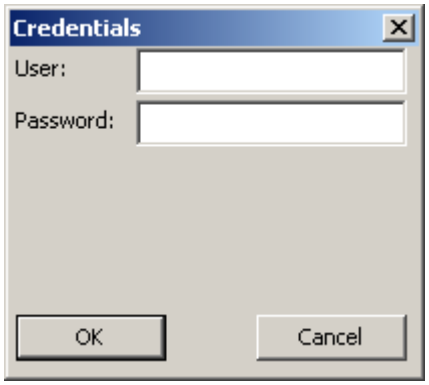
- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **LEAP**
- Set **Encryption** to **WEP EAP** or **Auto WEP** (depending on SCU version)
- Set **Auth Type** as follows:
    - If the Cisco/CCX certified AP is configured for open authentication, set the **Auth Type** radio parameter to **Open**.
    - If the AP is configured for network EAP only, set the **Auth Type** radio parameter to **LEAP**.



LEAP Profile Configuration

See Sign-On vs. Stored Credentials for information on entering credentials.

To use Stored Credentials, click on the **Credentials** button. No entries are necessary for Sign-On Credentials as the user will be prompted for the Username and Password when connecting to the network.



LEAP Credentials

Enter the Domain\Username (if the Domain is required), otherwise enter the Username.

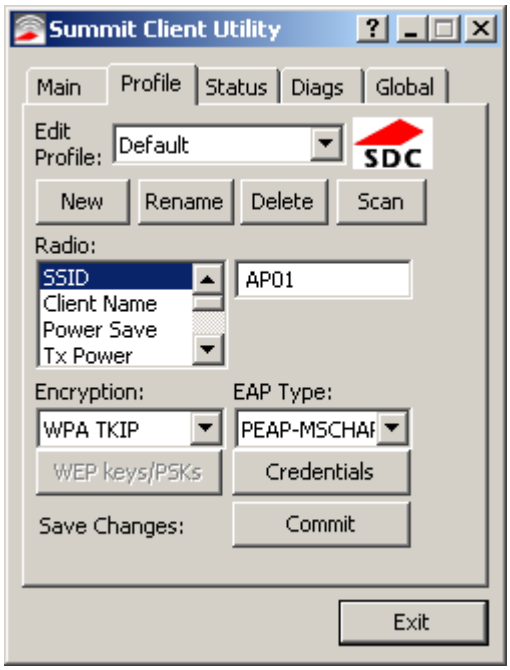
Enter the password.

Click **OK** then click the **Commit** button. Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

PEAP/MSCHAP

To use PEAP/MSCHAP, make sure the following profile options are used.

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **PEAP-MSCHAP**
- Set **Encryption** to **WPA TKIP**
- Set **Auth Type** to **Open**



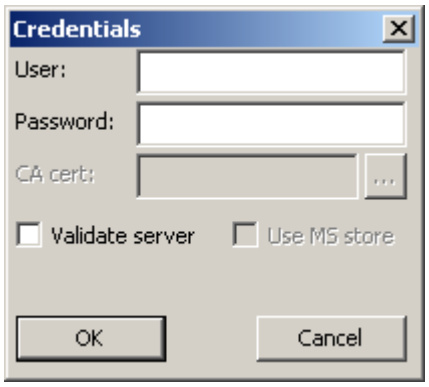
PEAP/MSCHAP Profile Configuration

See Sign-On vs. Stored Credentials for information on entering credentials.

Click the **Credentials** button.

- No entries except the CA Certificate Filename are necessary for Sign-On Credentials as the user will be prompted for the User Name and Password when connecting to the network.
- For Stored Credentials, User, Password and the CA Certificate Filename must be entered.

Enter these items as directed below.



PEAP/MSCHAP Credentials

Enter the Domain\Username (if the Domain is required), otherwise enter the Username.

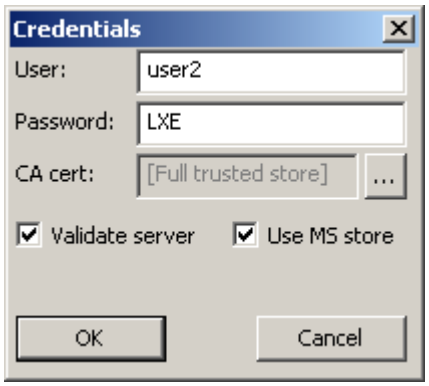
Enter the password.

Leave the CA Certificate File Name blank for now.

Click **OK** then click **Commit**. Ensure the correct Active profile is selected on the Main Tab.

See Windows Certificate Store vs. Certs Path for more information on certificate storage.

Once successfully authenticated, import the CA certificate into the Windows certificate store. Return to the Credentials screen and check the **Validate server** checkbox.



PEAP/MSCHAP Certificate Filename

If using the Windows certificate store:

- Check the **Use MS store** checkbox. The default is to use the Full Trusted Store.
- To select an individual certificate, click on the **Browse** button.
- Uncheck the **Use full trusted store** checkbox.
- Select the desired certificate and click Select. You are returned to the Credentials screen.

If using the Certs Path option:

- Leave the **Use MS store** box unchecked.
- Enter the certificate filename in the CA Cert textbox.

Click **OK** then click **Commit**.

The device should be authenticating the server certificate and using PEAP/MSCHAP for the user authentication.

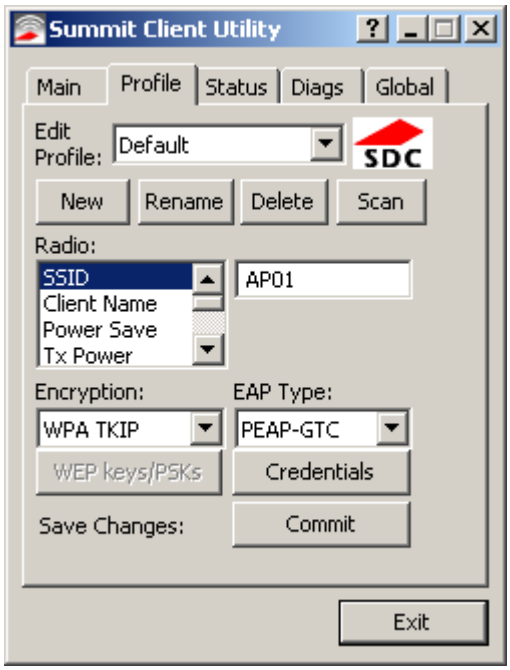
Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

Note: The date must be properly set on the device to authenticate a certificate.

PEAP/GTC

To use PEAP/GTC, make sure the following profile options are used.

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **PEAP-GTC**
- Set **Encryption** to **WPA TKIP**
- Set **Auth Type** to **Open**



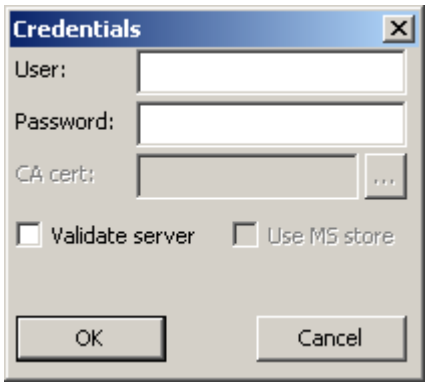
PEAP/GTC Profile Configuration

See Sign-On vs. Stored Credentials for information on entering credentials.

Click the **Credentials** button.

- No entries except the CA Certificate Filename are necessary for Sign-On Credentials as the user will be prompted for the User Name and Password when connecting to the network.

Enter these items as directed below.



PEAP/GTC Credentials

Enter the Domain\Username (if the Domain is required), otherwise enter the Username.

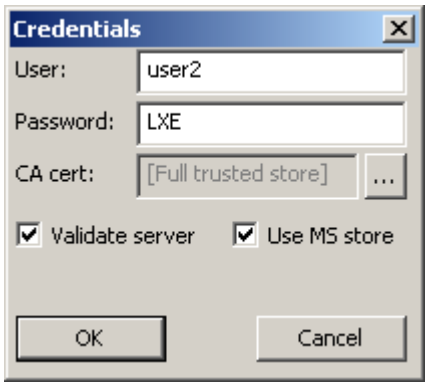
Enter the password.

Leave the CA Certificate File Name blank for now.

Click **OK** then click **Commit**. Ensure the correct Active Profile is selected on the Main Tab.

See Windows Certificate Store vs. Certs Path for more information on certificate storage.

Once successfully authenticated, import the CA certificate into the Windows certificate store. Return to the Credentials screen and check the **Validate server** checkbox.



PEAP/GTC Certificate Filename

If using the Windows certificate store:

- Check the **Use MS store** checkbox. The default is to use the Full Trusted Store.
- To select an individual certificate, click on the **Browse** button.
- Uncheck the **Use full trusted store** checkbox.
- Select the desired certificate and click **Select**. You are returned to the Credentials screen.

If using the Certs Path option:

- Leave the **Use MS store box** unchecked.
- Enter the certificate filename in the CA Cert textbox.

Click **OK** then click **Commit**.

The device should be authenticating the server certificate and using PEAP/GTC for the user authentication.

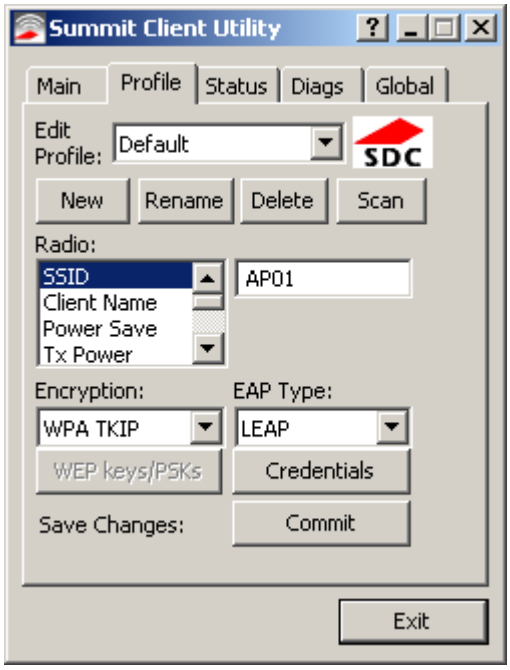
Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

Note: The date must be properly set on the device to authenticate a certificate.

WPA/LEAP

To use WPA/LEAP, make sure the following profile options are used.

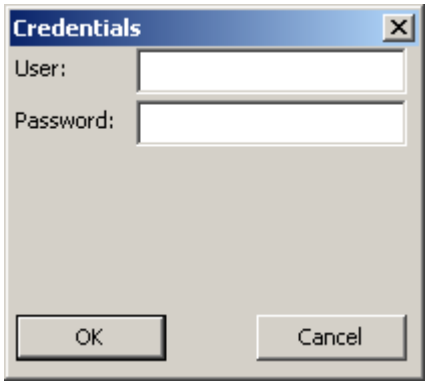
- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **LEAP**
- Set **Encryption** to **WPA TKIP**
- Set **Auth Type** as follows:
  - If the Cisco/CCX certified AP is configured for open authentication, set the **Auth Type** radio parameter to **Open**.
  - If the AP is configured for network EAP only, set the **Auth Type** radio parameter to **LEAP**.



WPA/LEAP Profile Configuration

See Sign-On vs. Stored Credentials for information on entering credentials.

To use Stored Credentials, click on the **Credentials** button. No entries are necessary for Sign-On Credentials as the user will be prompted for the Username and Password when connecting to the network.



WPA/LEAP Credentials

Enter the Domain\Username (if the Domain is required), otherwise enter the Username.

Enter the password.

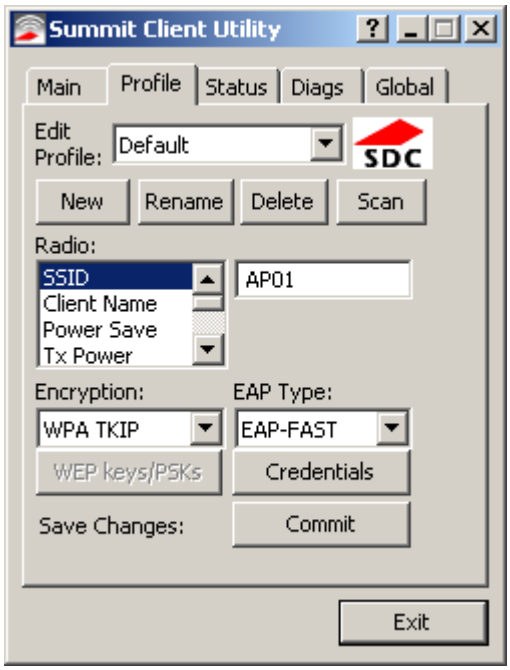
Click **OK** then click the **Commit** button. Ensure the correct Active Profile is selected on the Main tab The SCU Main tab shows the device is associated after the radio connects to the network.

EAP-FAST

To use EAP-FAST, make sure the following profile options are used.

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **EAP-FAST**
- Set **Encryption** to **WPA TKIP**
- Set **Auth Type** to **Open**

The SCU supports EAP-FAST with automatic or manual PAC provisioning. With automatic PAC provisioning, the user credentials, whether entered on the saved credentials screen or the sign on screen, are sent to the RADIUS server. The RADIUS server must have auto provisioning enabled to send the PAC provisioning credentials to the Marathon.



EAP-FAST Profile Configuration

For automatic PAC provisioning, once a username/password is authenticated, the PAC information is stored on the Marathon. The same username/password must be used to authenticate each time. See the note below for more details.

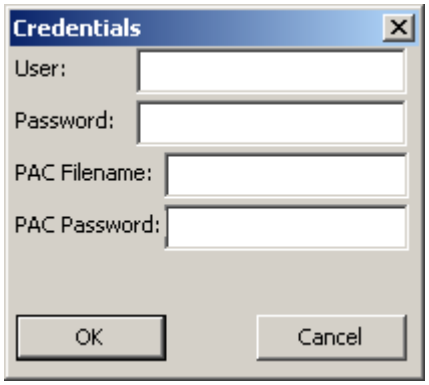
For manual PAC provisioning, the PAC filename and Password must be entered.

See Sign-On vs. Stored Credentials for information on entering credentials.

The entries on the Credentials screen are determined by the type of credentials (stored or sign on) and the type of PAC provisioning (automatic or manual).

Click on the **Credentials** button.

To use Stored Credentials, click on the **Credentials** button. No entries are necessary for Sign-On Credentials with automatic PAC provisioning as the user will be prompted for the Username and Password when connecting to the network.



EAP-FAST Credentials

To use Sign-On credentials:

- Do not enter a User and Password as the user will be prompted for the Username and Password when connecting to the network.

To use Stored Credentials:

- Enter the Domain\Username (if the Domain is required), otherwise enter the Username.
- Enter the password.

To use Automatic PAC Provisioning:

- No additional entries are required.

To use manual PAC Provisioning:

- Enter the PAC Filename and PAC Password.
- The PAC file must be copied to the folder specified in the Certs Path global variable. The PAC file must not be read only.

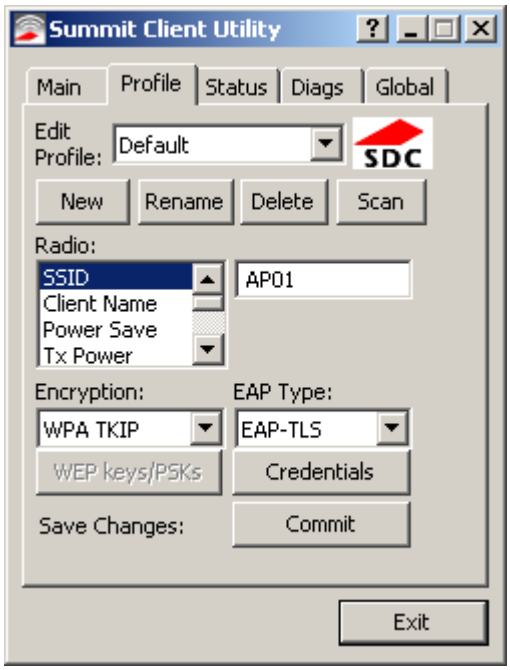
Tap **OK** then click the **Commit** button. Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

Note: When using Automatic PAC Provisioning, once authenticated, there is a file stored in the \System folder with the PAC credentials. If the username is changed, that file must be deleted. The filename is autoP.00.pac.

EAP-TLS

To use EAP-TLS, make sure the following profile options are used.

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **EAP-TLS**
- Set **Encryption** to **WPA TKIP**
- Set **Auth Type** to **Open**



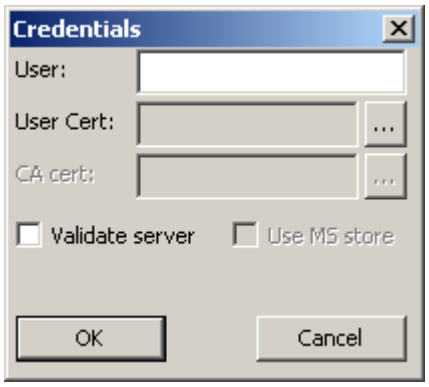
EAP-TLS Profile Configuration

See Sign-On vs. Stored Credentials for information on entering credentials.

Click the **Credentials** button.

- No entries except the User Certificate Filename and the CA Certificate Filename are necessary for Sign-On Credentials as the user will be prompted for the User Name when connecting to the network.
- For Stored Credentials, User and the CA Certificate Filename must be entered.

Enter these items as directed below.



EAP-TLS Credentials

Enter the Domain\Username (if the Domain is required), otherwise enter the Username.

Leave the certificate file name entries blank for now.

Click **OK** then click **Commit**. Ensure the correct Active Profile is selected on the Main tab.

Once successfully authenticated, import the user certificate into the Windows certificate store.

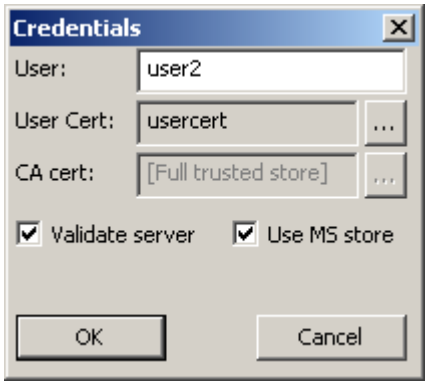
Return to the Credentials screen.

Use the **Browse** button to locate the User Cert from the certificate store. Highlight the desired certificate and press the **Select** button. The name of the certificate is displayed in the User Cert box.

Some versions of the SCU require a User Cert password. If this entry field is present, enter the password for the user certificate in the User Cert pwd box.

See Windows Certificate Store vs. Certs Path for more information on certificate storage.

Check the **Validate server** checkbox.



EAP-TLS Credentials

If using the Windows certificate store:

- Check the **Use MS store** checkbox. The default is to use the Full Trusted Store.
- To select an individual certificate, click on the **Browse** button.
- Uncheck the **Use full trusted store** checkbox.
- Select the desired certificate and click **Select**. You are returned to the Credentials screen.

If using the Certs Path option:

- Leave the Use MS store box unchecked.
- Enter the certificate filename in the CA Cert textbox.

Click **OK** then click **Commit**.

The Marathon should be authenticating the server certificate and using EAP-TLS for the user authentication.

Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

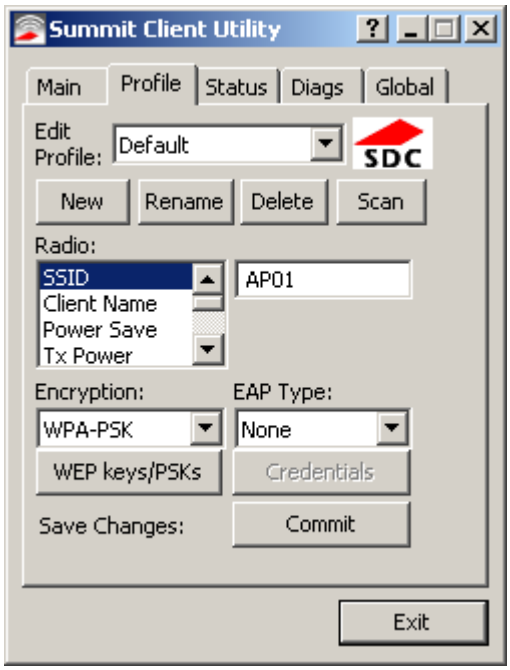
See Certificates for information on generating a Root CA certificate or a User certificate.

Note: The date must be properly set on the device to authenticate a certificate.

WPA PSK

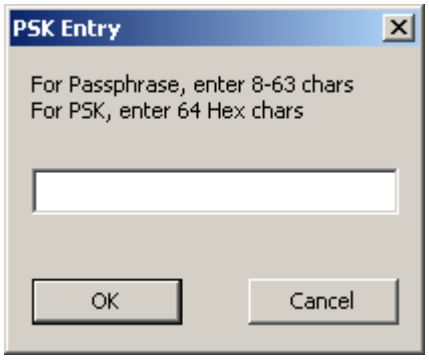
To connect using WPA/PSK, make sure the following profile options are used:

- Enter the **SSID** of the Access Point assigned to this profile
- Set **EAP Type** to **None**
- Set **Encryption** to **WPA PSK**
- Set **Auth Type** to **Open**



WPA/PSK Profile Configuration

Click the **WEP keys/PSKs** button.



PSK Entry

This value can be 64 hex characters or an 8 to 63 byte ASCII value. Enter the key and click **OK**.

Once configured, click the **Commit** button. Ensure the correct Active Profile is selected on the Main tab. The SCU Main tab shows the device is associated after the radio connects to the network.

Certificates

Note: Please refer to the LXE Security Primer to prepare the Authentication Server and Access Point for communication.

Note: It is important that all dates are correct on the Marathon and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail.

Root Certificates are necessary for EAP-TLS, PEAP/GTC and PEAP/MSCHAP.

1. Generate a Root CA Certificate either from the Marathon or using a PC.
2. If a PC was used to request the certificate, copy the certificate to the Marathon.
3. Install the Root CA Certificate.

User Certificates are necessary for EAP-TLS

1. Generate a User Certificate either from the Marathon or using a PC.
2. If a PC was used to request the certificate, copy the certificate to the Marathon.
3. Install the User Certificate.

Generating a Root CA Certificate

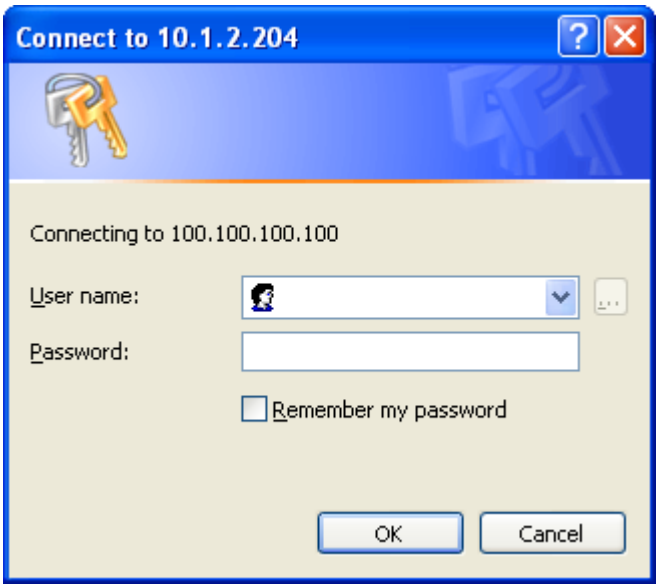
Note: It is important that all dates are correct on the Marathon and host computers when using any type of certificate. Certificates are date sensitive and if the date is not correct authentication will fail.

The easiest way to get the root CA certificate is to use a browser on a PC to navigate to the Certificate Authority. To request the root CA certificate, open a browser to

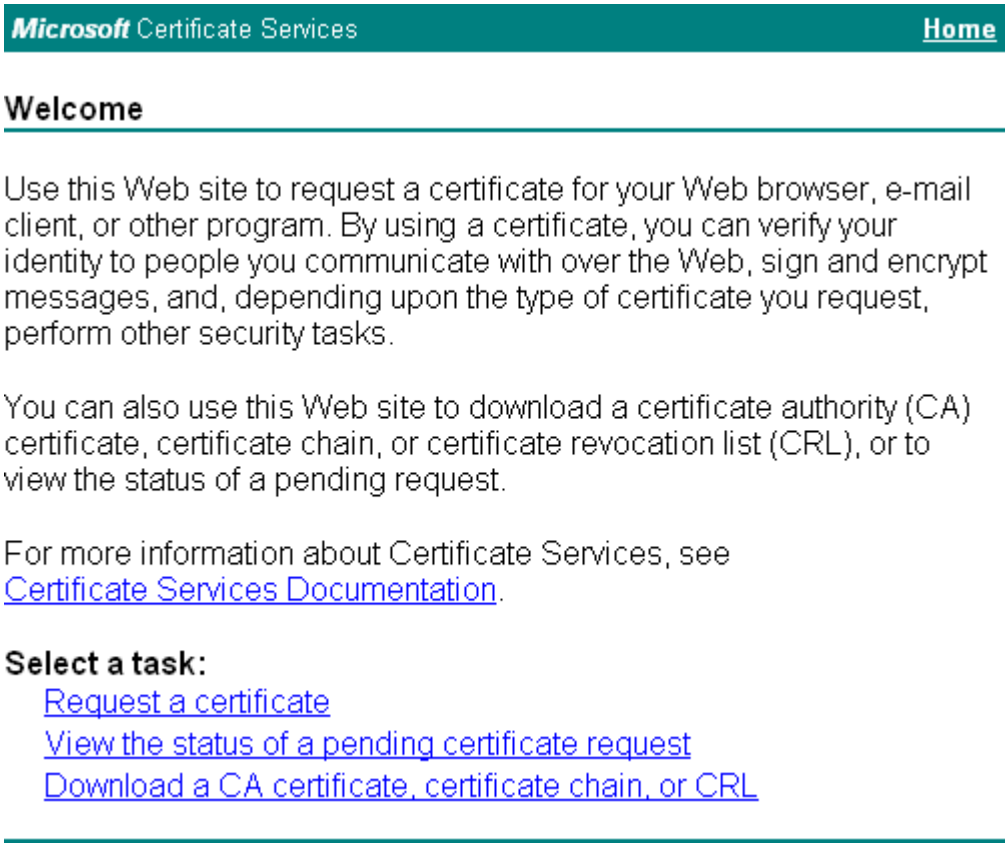
http://<CA IP address>/certsrv.

The Marathon can be used to generate the certificate instead of a PC.

Sign into the CA with any valid username and password.



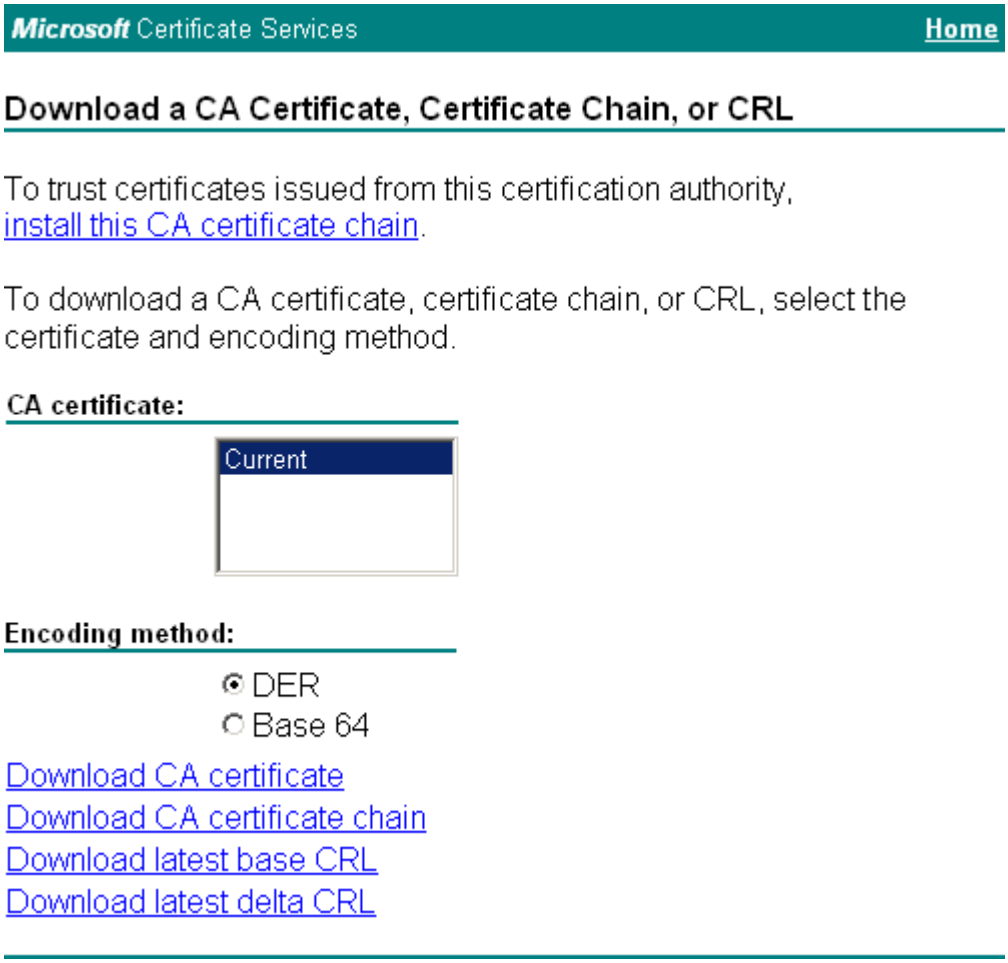
Logon to Certificate Authority



Certificate Services Welcome Screen

Click the **Download a CA certificate, certificate chain or CRL** link.

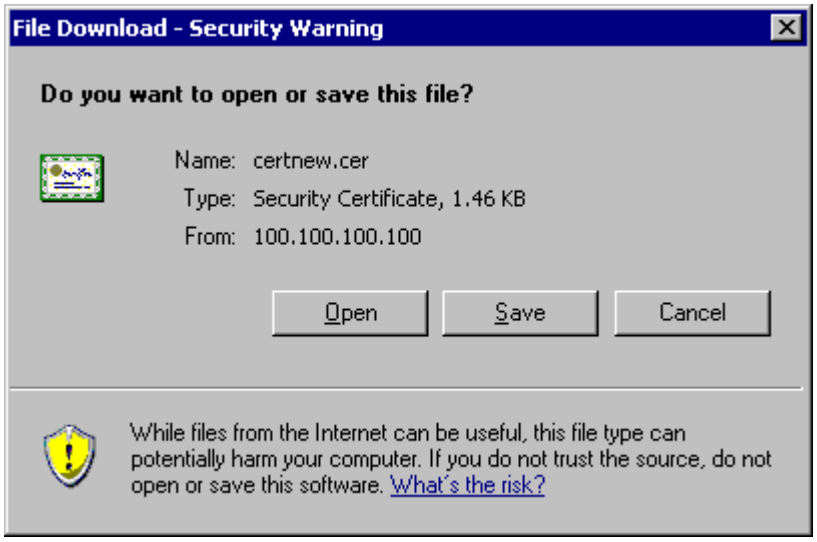
Make sure the correct root CA certificate is selected in the list box.



Download CA Certificate Screen

Click the **DER** button.

To download the CA certificate, click on the **Download CA certificate** link.



Download CA Certificate Screen

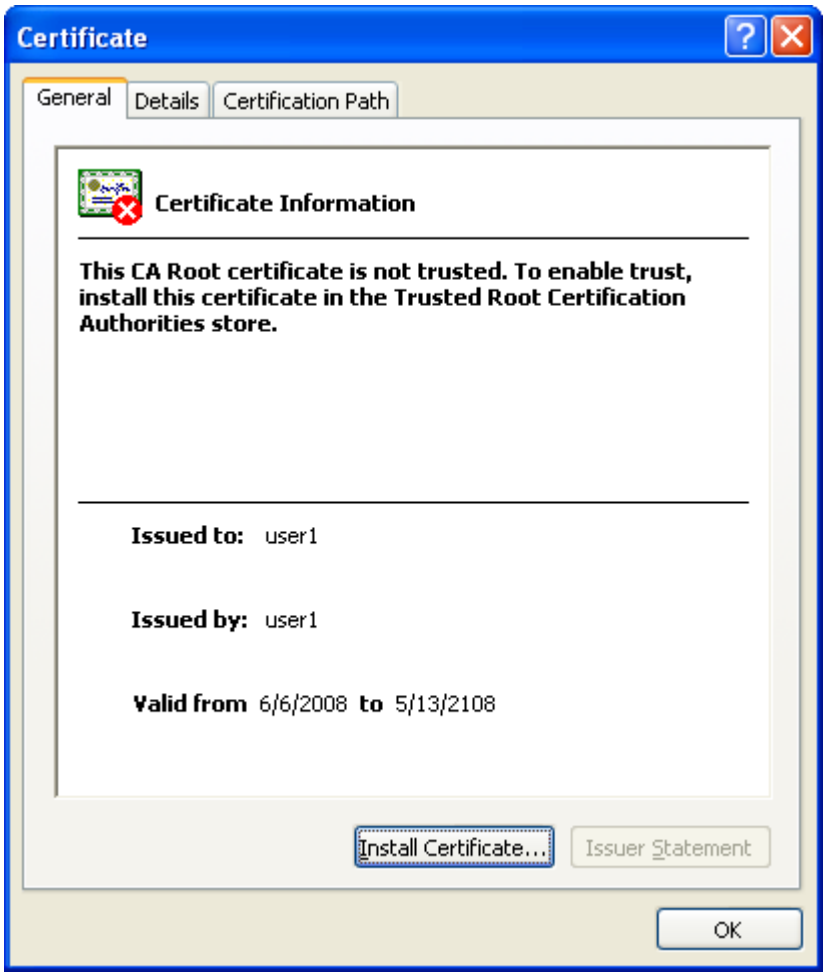
Click the **Save** button and save the certificate. Make sure to keep track of the name and location of the certificate.

Install the certificate on the Marathon.

Installing a Root CA Certificate

Note: This section is only if the Windows certificate store is used. If the certificate store is not used, copy the certificate to the C:\Program Files\Summit\certs folder or other path specified in the Summit Certs global parameter.

Copy the certificate file to the Marathon. The certificate file has a .CER extension. Locate the file and double click on it.



Certificate Information

Click the **Install Certificate** button.

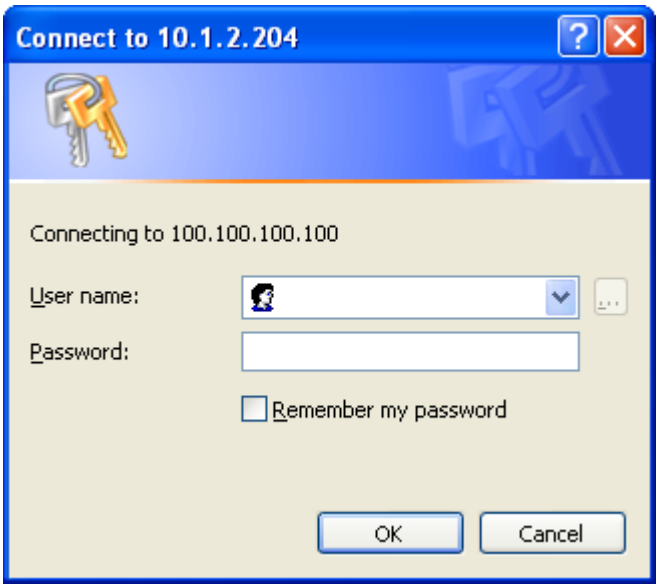
The certificate import wizard starts. Allow Windows to automatically select the certificate store. Click Next and Finish. An import successful message is displayed.

Generating a User Certificate

The easiest way to get the user certificate is to use the browser on the Marathon or a PC to navigate to the Certificate Authority. To request the user certificate, open a browser to

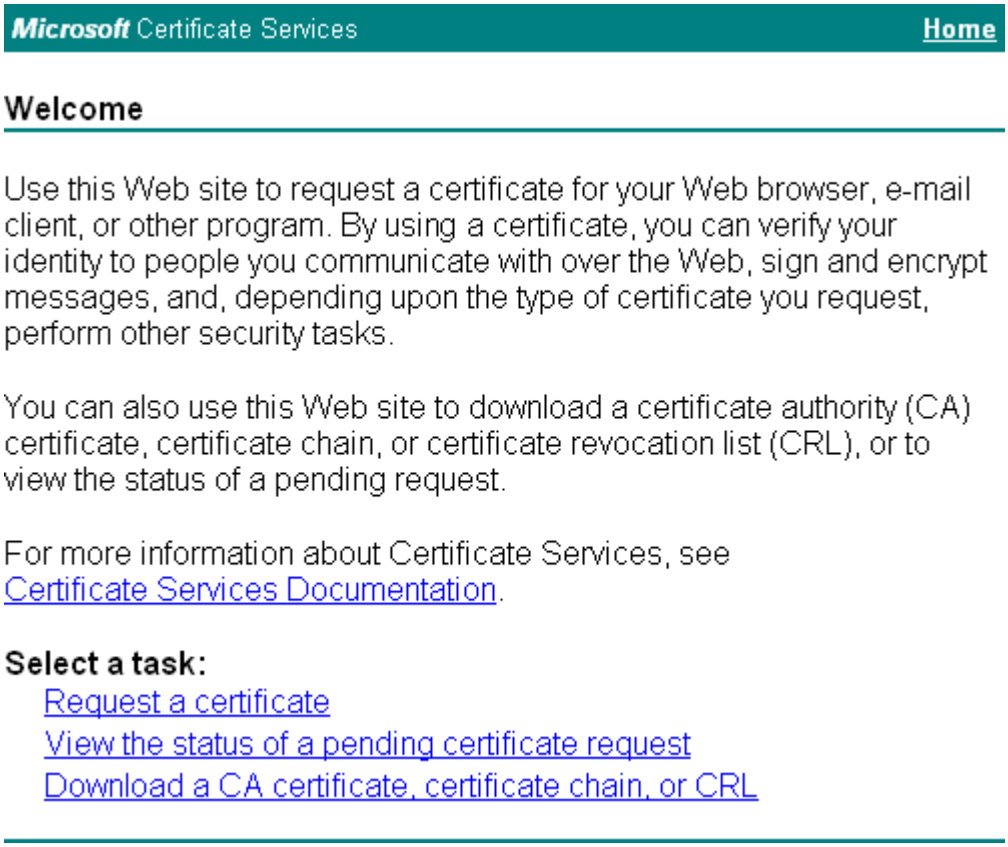
http://<CA IP address>/certsrv.

Sign into the CA with the username and password of the person who will be logging into the mobile device.



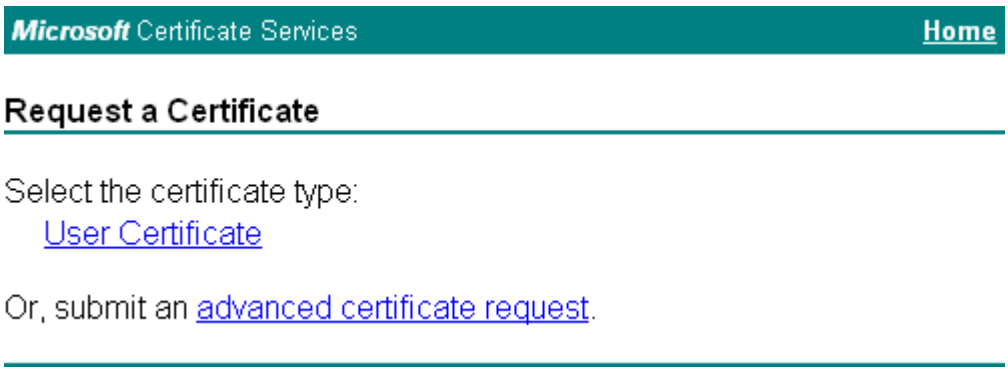
Logon to Certificate Authority

This process saves a user certificate file. There is no separate private key file as used on Windows CE devices.



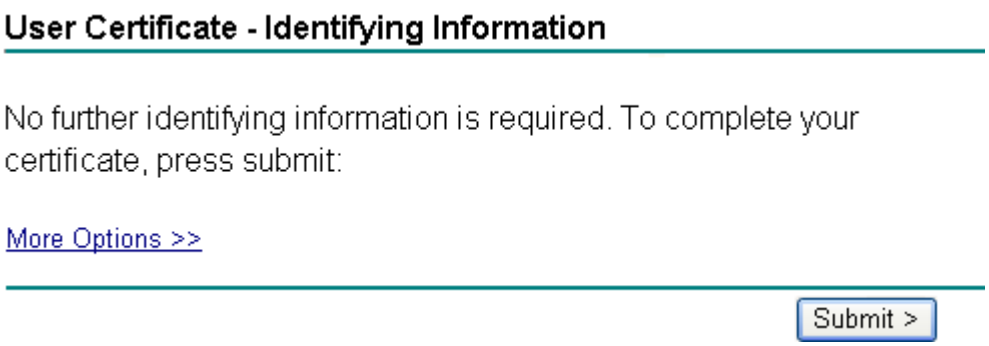
Certificate Services Welcome Screen

Click the **Request a certificate** link.



Request a Certificate Screen

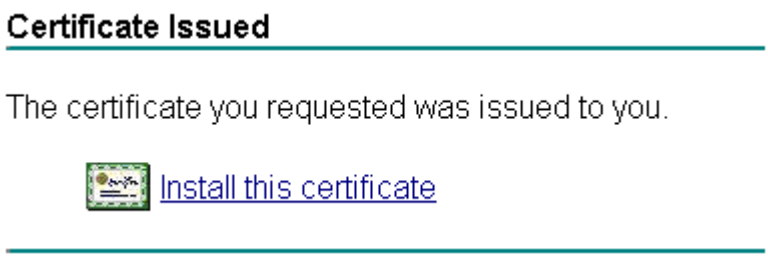
Click on the **User Certificate** link.



Submit User Certificate Request Screen

Click on the **Submit** button. if there is a message box asking if you want to confirm the request, click **Yes**.

The User Certificate is issued.



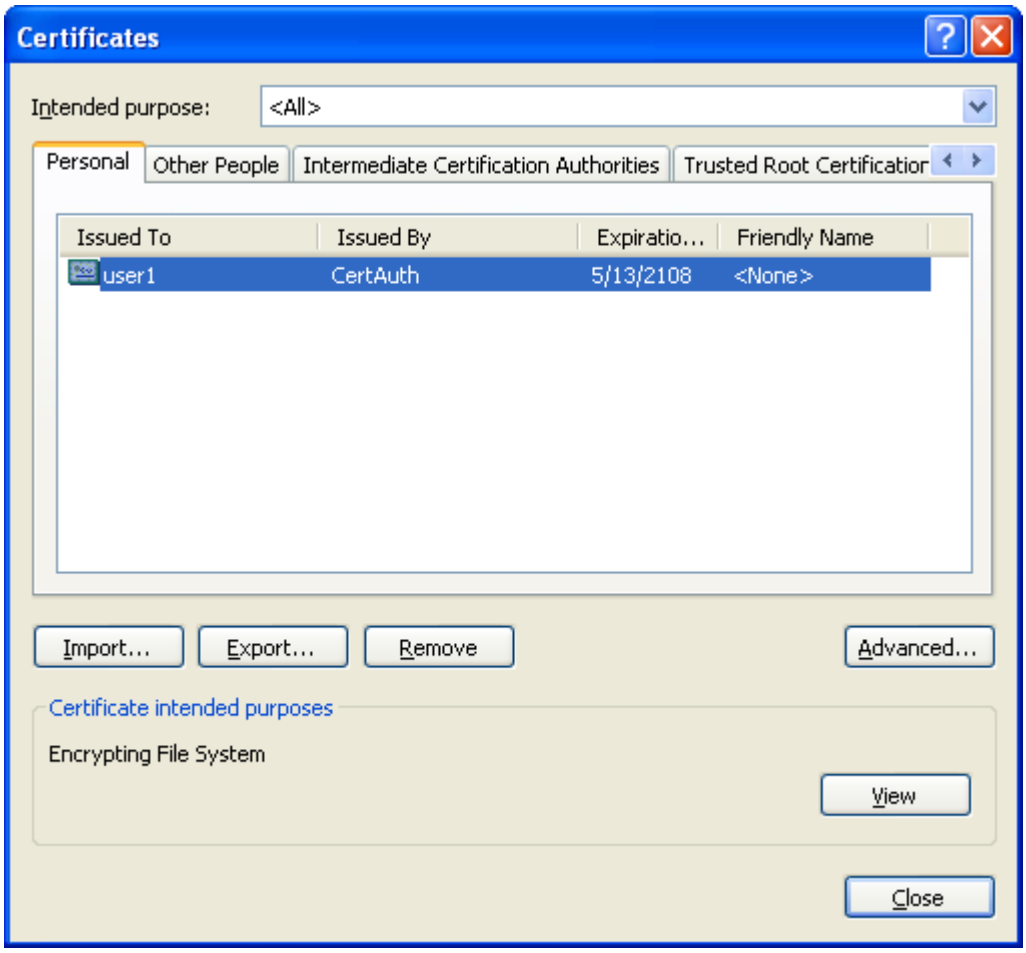
Advanced Certificate Details

Install the user certificate on the requesting computer by clicking the **Install this certificate** link.

If the requesting computer is the Marathon, then the process is finished. otherwise, export the certificate as described below.

Exporting a User Certificate

Select **Tools | Internet Options | Content** and click the **Certificates** button.

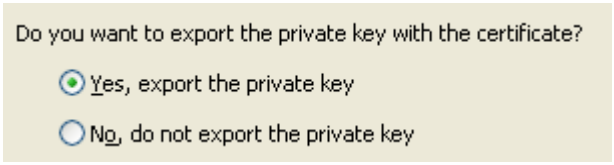


Certificate Listing

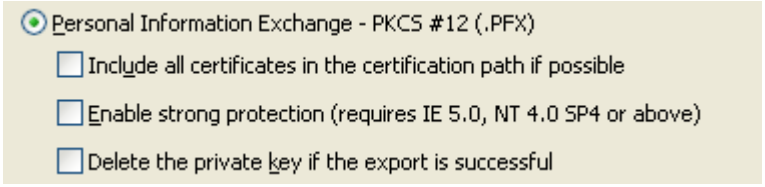
Make sure the **Personal** tab is selected. Highlight the certificate and click the **Export** button.

The Certificate Export Wizard is started

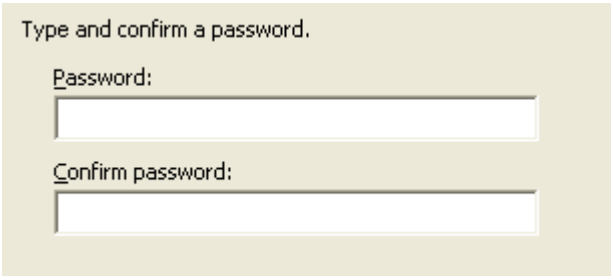
Select **Yes, export the private key** and click Next.



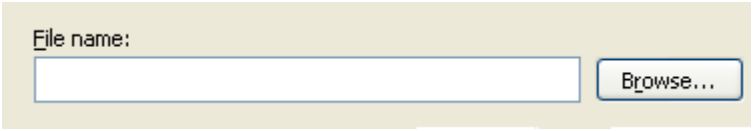
Uncheck **Enable strong protection** and check **Next**. The certificate type must be PKCS #12 (.PFX).



When the private key is exported, you must enter the password, confirm the password and click **Next**. Be sure to remember the password as it is needed when installing the certificate.



Supply the file name for the certificate. Use the **Browse** button to select the folder where you wish to store the certificate. The certificate is saved with a .PFX extension.



Click Finish. and OK to close the Successful Export message.

Locate the User Certificate in the specified location. Copy to the Marathon. Install the User certificate.

Installing a User Certificate

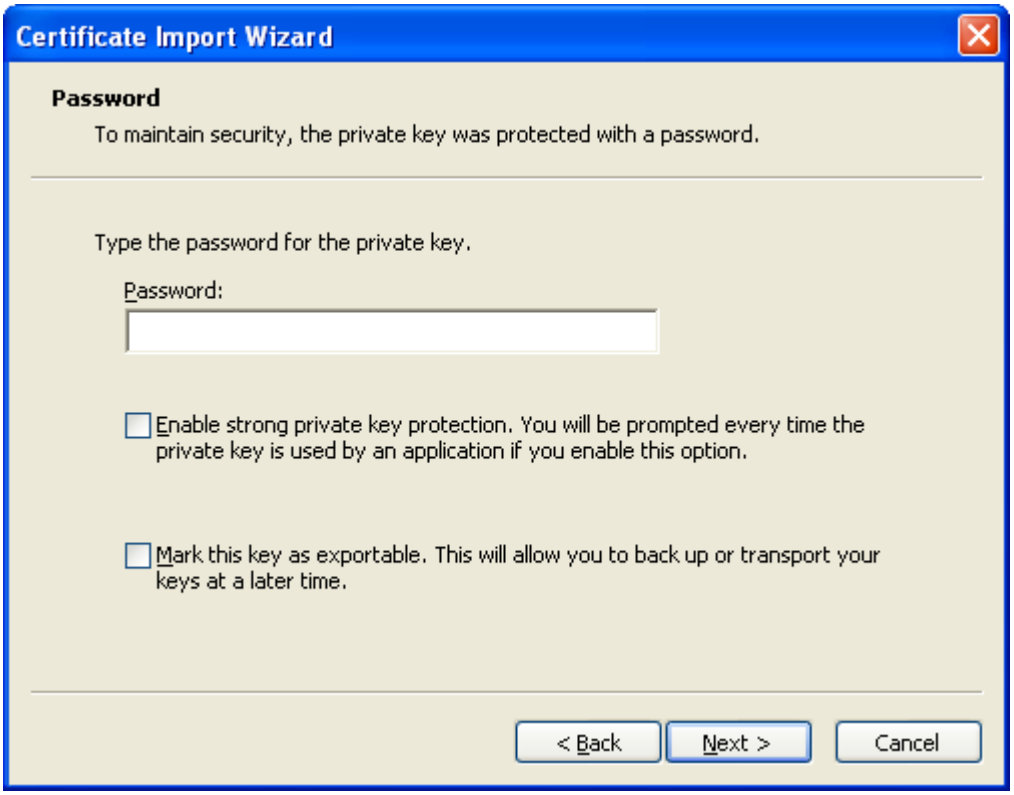
After generating and exporting the user certificate, copy it from the PC to the Marathon. Copy the certificate to a location on the Marathon.

Locate the certificate file (it has a .PFX extension) and double click on it.

The certificate import wizard starts.

Confirm the certificate file name and location.

You are prompted for the password that was assigned when the certificate was exported.



Certificate Password

It is not necessary to select either of the checkboxes.

On the next screen, allow Windows to automatically select the certificate store, then click **Next** and **Finish**. An import successful message is displayed.

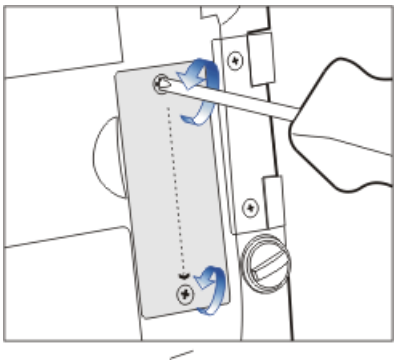
Using Peripherals / Accessories

Contact your LXE representative for the Marathon Accessory Catalog.

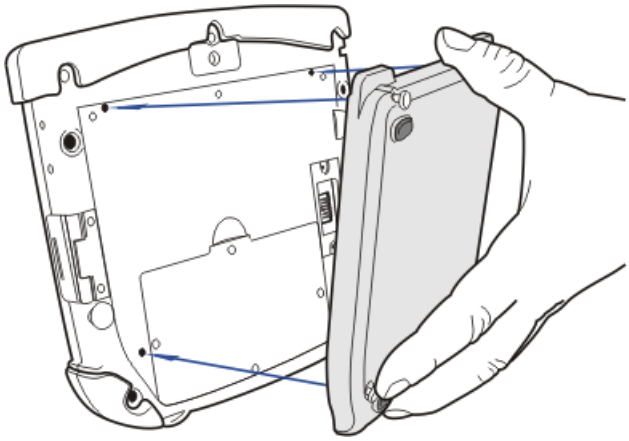
Attach an Auxiliary Battery

Note: LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. Protect the work surface, the Marathon, and components from electrostatic discharge. Contact Customer Support at LXE for assistance when attaching or removing an auxiliary battery.

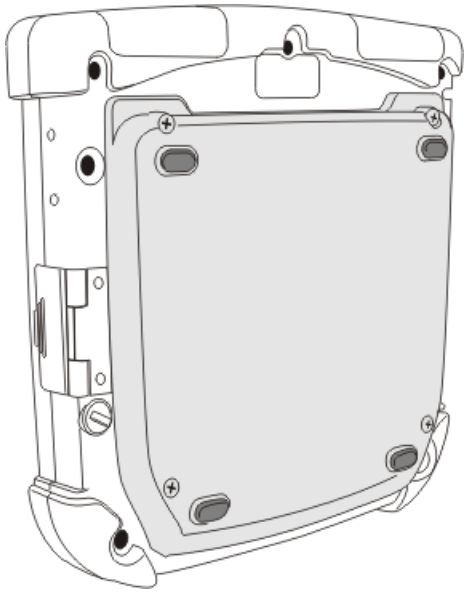
1. Turn the Marathon Off. Remove any cables, straps or accessories attached to the Marathon.
2. Place the Marathon face down on a stable surface.



3. Remove the 2 mounting screws securing the auxiliary battery connector cover to the Marathon and remove the cover. Put the screws and cover aside in a safe place.



4. Line up the charging pins on the auxiliary battery with the charging pins in the Marathon auxiliary battery connector bay.
5. Connect the auxiliary battery to the Marathon using the captive screws in the auxiliary battery.



6. Re-attach accessories, if any.
7. Turn the Marathon on.

The Marathon is ready for use.

Remove the auxiliary battery from the Marathon when preparing to recharge the auxiliary battery in a powered desktop dock or in a Marathon multi-charger. Up to four auxiliary batteries can be charged simultaneously in the battery multi-charger.

LXE recommends, when the Marathon will not have an auxiliary battery attached, that the auxiliary battery connector cover be in place, protecting the Marathon auxiliary battery connector opening.

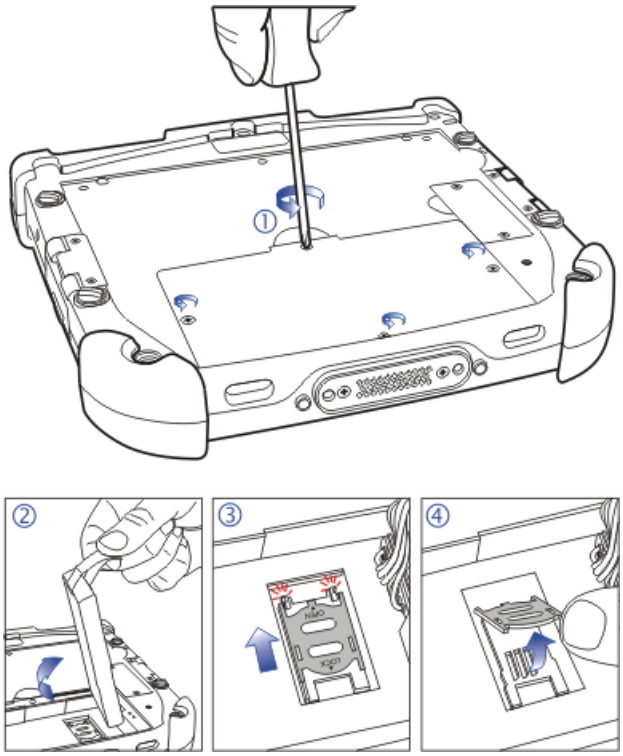
Install a SIM Card

Note: LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. Protect the work surface, the Marathon, and components from electrostatic discharge. Contact Customer Support at LXE for assistance when installing or removing a SIM card.

Turn the Marathon off.

Place the Marathon face down on a stable surface.

1. Remove the 4 mounting screws securing the battery cover to the Marathon and remove the battery cover. Put the screws aside in a safe place.

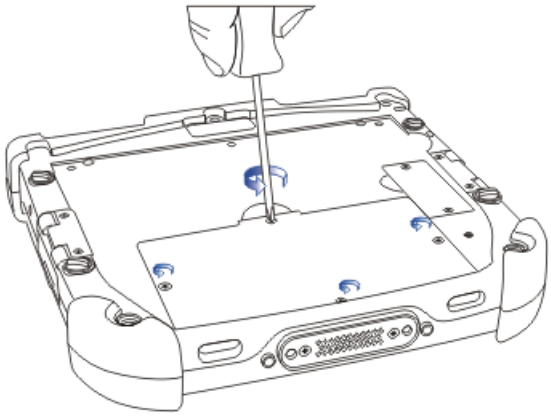


2. Lift the battery using the pull strap and move it aside. Do not disconnect the battery.
3. Push the SIM card holder up (in the direction of the word OPEN on the holder) to release the lock.
4. Carefully lift the SIM card holder up. Do not remove the SIM card holder.
5. Slide a SIM card into the slot using the guides on the inside of the slot. Do not remove the SIM card holder.
6. The angled corner of the SIM card ensures that the card fits the correct way in the slot.
7. Lower the holder, containing the SIM card, into the opening.
8. Slide the SIM card holder down (in the direction of the word LOCK on the holder) to lock the SIM card flat in the opening (LOCK).
9. Replace the battery in the battery well.
10. Replace the battery cover, securing it with the original 4 screws.

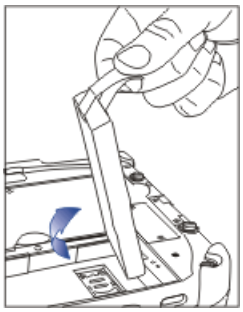
Replacing the Main Battery

Note: LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. Protect the work surface, the Marathon, and components from electrostatic discharge. Contact Customer Support at LXE for assistance when installing or removing a main battery.

1. Turn the Marathon Off. Remove any cables or accessories attached to the Marathon.
2. Place the Marathon face down on a stable surface.
3. Remove the 4 mounting screws securing the battery cover to the Marathon and remove the battery cover. Put the screws aside in a safe place, i.e. where they can't get knocked off the table and onto the carpet and lost forever in the grey and black pattern.



4. Lift the battery using the pull strap.



5. Hold the battery out of the way and carefully separate the Marathon plug (on the right) from the plug cabled to the main battery. Do not bend the pins.

6. Connect the new battery cabled plug to the plug on the Marathon.

7. Lower the connected battery into the battery well using the pull strap.
8. Replace the battery cover, securing it with the original 4 screws.

Connect the Marathon to an external power source. The main battery will be fully charged in 2 hours.

The Marathon is ready for use.

Li-Ion Battery

When disposing of the lithium-ion battery, the following precautions should be observed: The battery should be disposed of properly. The battery should not be disassembled or crushed. The battery should not be heated above 212°F (100°C) or incinerated.

CAUTION - RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

Barcode Readers

The Marathon can use the following external barcode readers:

An add-on barcode reader imager accessory is available for the Marathon. It can be configured by scanning the barcodes in the *Marathon Barcode Programming Guide*.

Tethered scanners (LXE 8500 series tethered to a serial port on the vehicle dock) are configured by scanning the engine-specific barcodes in the scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the barcode reader.

LXE wireless Bluetooth 8800 series are configured by scanning the engine-specific barcodes in the scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the barcode reader.

LXE Bluetooth 8900 tethered scanner (serial, USB, PS/2) is configured by scanning the engine-specific barcodes in the scanner manufacturer's programming guide. The manufacturer's guides are usually shipped with the barcode reader.

The body worn LXE Bluetooth Ring Scanner module may be using a Symbol 4400 Ring Imager or a Symbol 955 Ring Scanner.

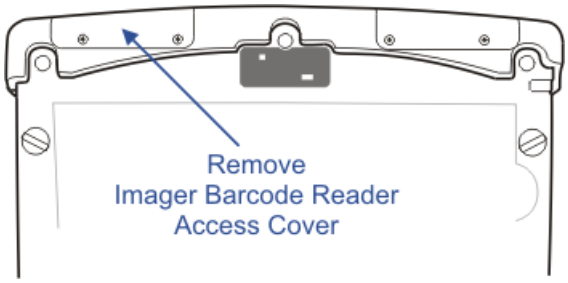
The BTRS module is configured by scanning the barcodes in the *Bluetooth Ring Scanner Module*.

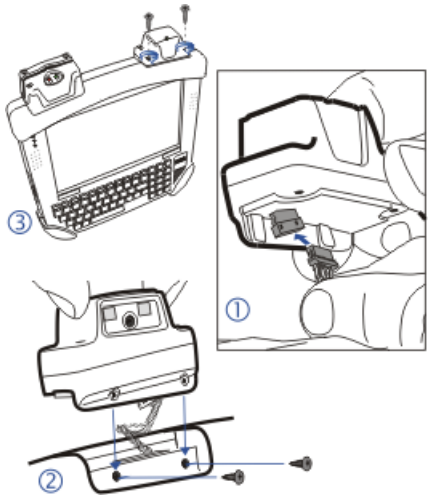
2D Imager

The optional 2D Imager (barcode decoder) is attached to the top right hand area of the Marathon (when the display is visible). When present, the 2D Imager uses COM2.

When Freefloat LinqOne is installed, and the user wishes to decode a barcode using the 2D imager, the NumLock key must be highlighted. Then to scan a barcode, aim the Imager scan aperture at the barcode and press the minus (-) key on the numeric keypad. The minus key is the default hotkey for the Imager / LinqOne combination.

Contact Customer Support at LXE for 2D Imager Add-In installation instruction.





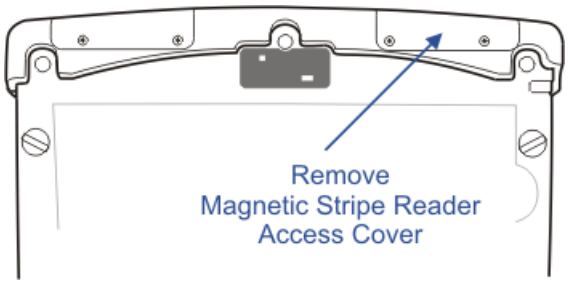
Note: LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. Protect the work surface, the Marathon and components from electrostatic discharge. Contact Customer Support at LXE for assistance when installing or removing the Imager Add-on Module.

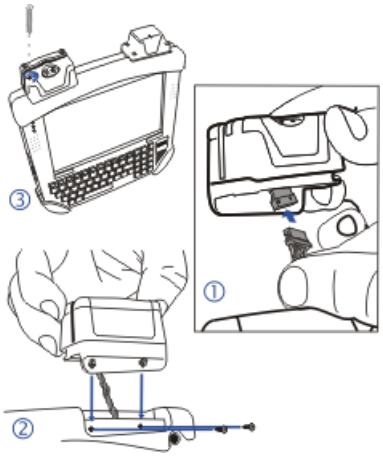
Magnetic Stripe Reader

The optional Magnetic Stripe Reader (MSR) is attached to the top left hand area of the Marathon (when the display is visible). When present, the Magnetic Stripe Reader uses COM3 and supports Microsoft OPOS/JPOS.

The user will need to create a company-specific magnetic stripe reader Point of Sale (POS) application.

Contact Customer Support at LXE for Magnetic Stripe Reader Add-In installation instruction.





Note: LXE recommends that installation or removal of accessories be performed on a clean, well-lit surface. Protect the work surface, the Marathon, and components from electrostatic discharge. Contact Customer Support at LXE for assistance when installing or removing the Magnetic Stripe Reader Add-on module.

Marathon Recovery DVD

Marathon Recovery Solution

Contact Customer Support at LXE to get the latest updates before performing the processes that follow.

The 'Recovery Solution 2', also known as RS2, is a method to restore the software on your Marathon to the same state it had when it was shipped from the factory. When RS2 is used on your Marathon, it destroys any information on your hard disk so please make sure that any information on the hard disk that needs to be preserved is backed up before using RS2.

In order to use RS2, the following components are needed:

1. A Marathon capable of booting from a USB mass storage device
2. A USB DVD player
3. A RS2 DVD suitable for your combination of OS, language and Marathon model

The RS2 works in the following way:

1. RS2 boots from the RS2 DVD via USB
2. RS2 executes the Recovery Wizard 2.0, also known as the Wizard, which guides you through the rest of the recovery process
3. RS2 partitions and formats the primary disk.
4. RS2 writes an OS image to the primary disk. By default the image from the RS2 media is used. In order to achieve better flexibility and performance, the RS2 image files can be put on a network share instead. To achieve this simply copy the .wim file found in the root on the RS2 media to a shared network folder. Please note that in order to access a shared network folder from RS2 you must use wired Ethernet and the RJ45 port of your Marathon and not WLAN.
5. When the Wizard completes, RS2 restarts the system which is now returned to its shipping state in terms of the installed OS.

Startup

1. Attach the USB DVD player to the Marathon. Use the standard USB connector instead of the 'Multi Purpose Connector' on the Marathon.
2. Insert the RS2 media into the USB DVD player
3. Start the Marathon. Please note that the BIOS must be configured to boot from the USB DVD player. If this is not the case please modify the boot order in the BIOS of your Marathon.
4. When the Marathon boots from the USB DVD player the BIOS asks you to press a key in order to continue to boot from the RS2 media. Please press a key when prompted to boot from the RS2.
5. RS2 is now booted and the Wizard will start.

Wizard walk-through

1. The first screen shown by the Wizard displays some generic and licensing information. By clicking **Next** you accept these licensing terms.
2. The second screen of the Wizard is used to gather information on how the RS2 process should be performed. Select the method to be used and the source location of the OS image. By default the OS image on the RS2 media is used. By pressing the button placed on the right side of the field labeled **Image File** you can browse to the preferred OS image if, for instance, it has been placed on a network share.
3. The third screen shown by the Wizard lets you confirm the information gathered thus far before the actual RS2 process is started. When you click on the **Next** button you will be asked to confirm that you want to start the RS2 process. This is the last chance to abort RS2.
4. The fourth screen is shown by the Wizard during the actual processing and it informs you of what is happening. This process could take 30 minutes or more depending on the actual OS image, USB standard, etc.
5. The last screen of the Wizard shows the result of the RS2 process. When prompted click **Finish** to close the Wizard. Next press any key to shutdown the Marathon. Please remove the RS2 media when the Marathon has been shutdown to avoid booting up the Marathon into RS2 again. Your Marathon has now gone through the whole RS2 process.

Loading an Operating System on the Marathon

If it becomes necessary to reload the Marathon operating system there are two options available.

1. A recovery DVD from LXE. The recovery DVD is customized for the type of hard drive and operating system installed in the Marathon.
2. A user provided operating system. The user must:

- Provide their own installation source of a supported operating system (such as Windows XP)
- Have a valid activation key for that operating system.

Contact your LXE representative for information on the Marathon Recovery DVD.

KeyMaps

ALT, CTL, FN, NUM LCK and SHIFT are sticky keys:

- Press once, illuminates **blue** and stays sticky for next keypress.
- Press and hold for 1.5 seconds, illuminates **blue** and stays sticky until the same key is pressed again.
- The Num Lck key illuminates **orange** when in sticky mode.

Only Function keys (F1 through F10) are programmable.

To get this key/function	Press these keys in this order...		
Power / Suspend	Power		
Display backlight up	Fn	9	
Display backlight down	Fn	3	
Fn mode	Fn		
Alt mode	Alt		
Control mode	Ctl		
Shift mode	Shift		
Escape	Esc		
Space	Space		
Enter	Ent		
Num Lock	Num Lck		
Capslock	Shift (and hold 1.5 seconds)		
Uppercase Alpha (toggle)	Shift		
Back space	Bk		
Tab	Tab		
Up arrow (cursor up)	Num Lck OFF	8	
Down arrow (cursor down)	Num Lck OFF	2	
Right arrow (cursor right)	Num Lck OFF	6	
Left arrow (cursor left)	Num Lck OFF	4	
Delete	Del		
F1	F1		
F2	F2		
F3	F3		
F4	F4		
F5	F5		
F6	F6		
F7	F7		

To get this key/function	Press these keys in this order...		
F8	F8		
F9	F9		
F10	F10		
a	A		
b	B		
c	C		
d	D		
e	E		
f	F		
g	G		
h	H		
i	I		
j	J		
k	K		
l	L		
m	M		
n	N		
o	O		
p	P		
q	Q		
r	R		
s	S		
t	T		
u	U		
v	V		
w	W		
x	X		
y	Y		
z	Z		
A	Shift	A	
B	Shift	B	
C	Shift	C	
D	Shift	D	
E	Shift	E	

To get this key/function	Press these keys in this order...		
F	Shift	F	
G	Shift	G	
H	Shift	H	
I	Shift	I	
J	Shift	J	
K	Shift	K	
L	Shift	L	
M	Shift	M	
N	Shift	N	
O	Shift	O	
P	Shift	P	
Q	Shift	Q	
R	Shift	R	
S	Shift	S	
T	Shift	T	
U	Shift	U	
V	Shift	V	
W	Shift	W	
X	Shift	X	
Y	Shift	Y	
Z	Shift	Z	
1	Num Lck ON	1	
2	Num Lck ON	2	
3	Num Lck ON	3	
4	Num Lck ON	4	
5	Num Lck ON	5	
6	Num Lck ON	6	
7	Num Lck ON	7	
8	Num Lck ON	8	
9	Num Lck ON	9	
0	Num Lck ON	0	
. (period)	Fn	M	
	Num Lock ON	. (period)	

To get this key/function	Press these keys in this order...		
- (dash or minus sign)	Fn	S	
	Num Lock ON	- (dash or minus sign)	
/		/	
\	Fn	G	
' (single quote/apostrophe)	Fn	L	
, (comma)	Fn	C	
; (semicolon)	Fn	J	
= (equal sign)	Fn	D	
!	Fn	Q	
@	Fn	I (letter i)	
#	Fn	E	
$	Fn	R	
%	Fn	T	
&	Fn	U	
* (asterisk)	Fn	W	
	Num Lck ON or OFF	*	
(	Fn	O	
)	Fn	P	
" (double quote)	Fn	K	
<	Fn	Z	
>	Fn	X	
: (colon)	Fn	H	
+ (plus sign)	Fn	F	
	Num Lck ON or OFF	(plus sign) +	
?	Fn	/	
_ (underscore)	Fn	A	

Technical Specifications

Physical Specifications

Features	Details
CPU	Intel® 1.6 GHz Atom™
BIOS	AMI BIOS
Memory RAM	1 or 2 GB SDRAM
Display Controller	WVGA/SVGA compatible controller
Storage	8, 16, 32 or 64 GB
External Connectors/ Interfaces	Two (2) Type A USB 2.0 Host Ports Audio Connector Power Connector Docking connector including external antenna connectors
Internal Interfaces	SIM Card Slot Auxiliary battery connector Add-on module connectors for Imager and Magnetic Stripe Card Reader
Power Connector	Requires specified power supply with 19V output Integrated battery, auxiliary battery optional
Power Switch	Sealed power switch
Dimensions	Width: 8.1 in (206 mm) Height: 7.8 in (197 mm) Depth: 1.3 in (33 mm) *Note: Dimensions are without add-on modules or auxiliary battery*
Main Battery	Rechargeable 2200mAh Lithium Ion Smart Battery Pack
CMOS Camera Module	Supports OpenGL 1.2 and DirectX. Manage using Microsoft APIs.

Environmental Specifications

The Marathon will withstand the following environmental characteristics and has been tested in accordance with applicable sections of MIL-STD-810E.

Feature	Specification
Operating Temperature	-20°C to +48°C (-4°F to +118°F) Note: Without auxiliary battery. Note: With auxiliary battery, the operating temperature is limited to -20°C to +45°C (-4°F to +113°F).
Storage Temperature	-30°C to +60°C (-22°F to +102°F)
Vibration	Pass 5G PTP@5-500 Hz vibration test per MIL-STD 810F, fig 514.5C-3 for composite wheeled vehicles
Dust and Water Resistance	Compliant to IEC 60529 IP65 design

Display Specifications

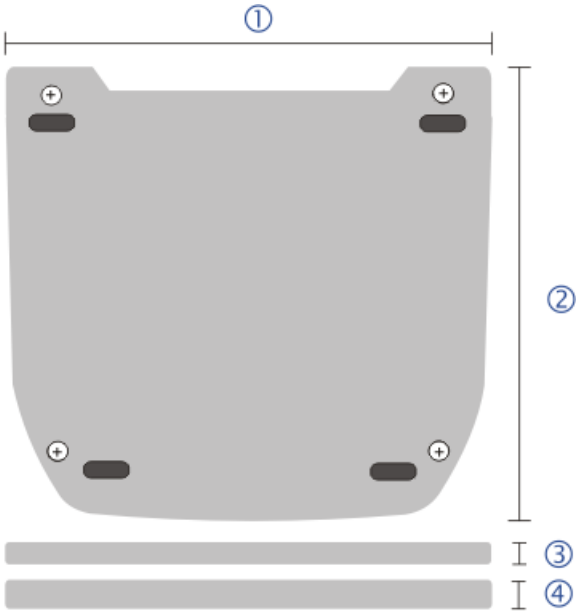
Characteristic	Specification
Display Type	7.1" LCD with backlight
Resolution	WVGA 800x480
Optimized for	Indoor or Outdoor use
Touch	Analog Resistive 4-wire Tethered stylus SW: PenMount 6000

AC/DC Adapter

1. Input cable (US only)
2. DC output cable

Input Voltage	100-240V
Input Frequency	50-60Hz
Input Connector	IEC 320
Output Voltage	19V
Output Current	3.42A

Auxiliary Batteries (Optional)



1	Width	6.75 in / 17.145 cm
2	Height	6.35 in / 16.129 cm
	Depth	
3	- 38Whr Battery	0.4 in / 1.016 cm
4	- 63Whr Battery	0.59 in / 1.49 cm

38Whr Auxiliary Battery

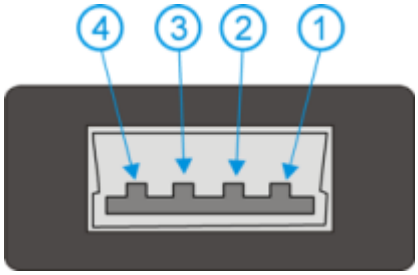
- User Replaceable. Hot swappable.
- Rechargeable 9 - Cell (3S3P) Lithium Ion Smart Battery Pack
- 3300 mAh @ 11.1V, 38WHr
- Over Charge Protection, Over Discharge Protection, Over Current and Output Short Protection, Over Temperature Protection. 500 charge/discharge life cycle.

63Whr Auxiliary Battery

- User Replaceable. Hot swappable.
- Rechargeable 9 - Cell (3S3P) Lithium Ion Smart Battery Pack
- 5640mAh @ 11.1V, 63WHr
- Over Charge Protection, Over Discharge Protection, Over Current and Output Short Protection, Over Temperature Protection. 500 charge/discharge life cycle.

Pinouts

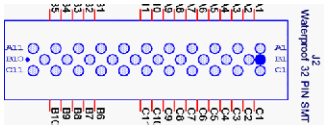
USB Connector



USB Port

Pin	Signal	Description
1	VCC	+5V USB Power
2	USB2N_A	USD D –
3	USB2P_A	USB D +
4	DGND	USB Power Return

Docking Connector



Pin	Definition	Pin	Definition	Pin	Definition
A1	GND	B1	GND	C1	GND
A2	NC	B2	DOCKING_LOCK	C2	DC_VSYNC_VGA
A3	DC_HSYNC_VGA	B3	DC_DATA_VGA	C3	DC_CLK_VGA
A4	DC_RED_VGA	B4	DC_BLUE_VGA	C4	DC_GREEN_VGA
A5	RXD	B5	DSR#	C5	TXD
A6	RTS#	B6	RI#	C6	DTR#
A7	CTS#	B7	USB_N	C7	DCD#
A8	DK_DOCKING_ LOCK_EN#	B8	DK_EC_GPIO2_ RESET#	C8	USB_P
A9	VA+IN	B9	VA+IN	C9	DK_DOCKING_3/5V_ POK
A10	VA+IN	B10	GND	C10	VA+IN
A11	VA-IN			C11	VA-IN

Revision History

Revision / Date	Location / Change
A / Apr 2011	Initial Release

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules/ Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device is restricted to indoor use when operated in the 5.15 to 5.25 GHz frequency range.

IMPORTANT NOTE:

Federal Communication Commission (FCC) Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

IMPORTANT NOTE:

IC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528.

This Class [B] digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe [B] est conforme à la norme NMB-003 du Canada.