Updated 09 August 2011

Customer FAQs for the Trimble Nomad 900 Series Rugged Handheld Computer

In this document, "Trimble Nomad 900 series" refers to all six of the 900 models of the Trimble® Nomad® rugged outdoor computers. Where information refers to one or more specific models, this is clearly indicated.

What is the Trimble Nomad 900 series?

The Trimble Nomad 900 series is an ultra-rugged family of field computers for data collection and mobile field work. The Trimble Nomad series is offered in a range of configurations; optional features include an integrated GPS receiver that can provide 2- to 4-meter (HRMS) accuracy, an integrated 5-megapixel digital camera, an integrated bar code scanner, and an integrated cellular modem. The Trimble Nomad series offers superior processing power, a high resolution outdoor-viewable screen, and a long-life battery that can run the device all day on a single charge. Powered by Windows Mobile® 6.1 and with built-in Cisco Certified Wi-Fi and Bluetooth wireless technology, the Trimble Nomad series offers powerful performance and all-in-one feature integration for high productivity even in the harshest conditions.

What are the key features of the Trimble Nomad 900 series?

- An all-in-one device with powerful hardware, the Trimble Nomad 900 series is built for superior performance in harsh conditions. The Trimble Nomad series offers a range of hardware configurations to match your existing workflow and cost requirements.

- Optional integrated GSM network compatible WWAN cellular modem for connecting to the Internet without tethering to an external modem or mobile phone. Integrated Bluetooth wireless technology and optional Wi-Fi technology also provide options for connecting to the Internet and corporate networks to access data and maps, and to send and receive email and instant messages.

- Optional integrated 5-megapixel digital camera with flash makes it easy to collect photographs in the field without compromising on ruggedness or convenience.

- Optional integrated GPS receiver with 2 to 4 meter accuracy (WAAS corrected). The integrated GPS receiver is optimized for data collection in harsh GPS conditions, including under forest canopy and near tall buildings.

- Optional integrated barcode laser scanner.

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- The Trimble Nomad 900 series is an all-in-one, ultra-rugged solution—you don't have to compromise on ruggedness by carrying additional equipment, and there is only one battery to charge. Having one device also improves worker ergonomics and improves worker safety by reducing potentially risky distractions that can occur when handling a computing device and multiple additional sensors, instruments or other accessories.

- High-resolution VGA display makes maps exceptionally clear.

- The Windows Mobile 6.1 operating system provides maximum flexibility in software choice and a familiar, easy-to-use interface so that field crews can be quickly trained to be more productive.

- Ten operating system languages are supported, including English, Chinese (simplified), French, German, Italian, Japanese, Korean, Russian, Portuguese and Spanish. The language is selected during the initial configuration of the Nomad computer, and changing to a different language is accomplished by downloading the End-User Firmware Update software and using it to reinstall the operating system.

- Long-life field-replaceable lithium-ion (Li-ion) battery allows up to 15 hours of operation with active use of GPS and wireless radios.

  Note: For information on proper use and disposal of Li-ion batteries, refer to the Trimble Nomad Handheld Computer Getting Started Guide.

- Up to 2 GB onboard non-volatile Flash provides persistent storage memory so your data is protected from unexpected power loss.

- Secure Digital (SD) card slot (all models) and a CompactFlash (CF) slot (models 900B, 900L, 900X) for expandable data storage ensures that you always have ample space for data and raster background maps. A 4 GB SD card is provided with the 900LC, 900LE, 900X and 900XE models.

- The SD slot and CF slot provide compatibility with a variety of third-party accessory devices such as RFID reader cards.

What different configurations are available for the Trimble Nomad series?

The Trimble Nomad 900 series handheld is offered in six models with a variety of options, as illustrated in the chart below. (Note: each model is physically different; you cannot upgrade from one model to another.)

Model	RAM	Flash storage	Bluetooth	802.11g	Wi-Fi CCX	GPS	WWAN	Camera	Bar code scanner	SD Card
900B	128	512 MB	X							
900L	128	1 GB	X		X	X				
900LC	128	1 GB	X		X	X		X		4 GB
900LE	128	1 GB	X		X	X		X	X	4 GB

900X	128	2 GB	X		X	X	X			4 GB
900XE	128	2 GB	X		X	X	X	X	X	4 GB
800LC	128	1 GB	X	X		X		X		

What is the Windows Mobile 6.1 operating system?

The Windows Mobile 6.1 operating system is the current Microsoft® operating system for mobile devices. Windows Mobile 6.1 provides a wide range of standard software applications that enable files such as Word and Excel to be transferred to a desktop operating system and worked on seamlessly. Additional benefits of Windows Mobile 6.1 include threaded SMS, user interface redesign, Pocket One-Note and "Domain Enroll" with enterprise features including security and device management and security access.

The Trimble Nomad 900 series runs the Windows Mobile 6.1 operating system, allowing you to choose from the most comprehensive range of software available to meet your field requirements. In addition, this operating system features security enhancements, for more robust use when connected to a network.. (Note: Models 900B, 900L, 900LC, and 900LE run Windows Mobile 6 Classic, and models 900X and 900XE feature Windows Mobile 6.1 Professional).

How does the operating system language provisioning feature work?

When the Nomad is turned on for the first time, the operating system prompts the user to select one of ten available languages. This is a one-time action.

If the user selects a different language than intended, the user will need to download the End-User Firmware Updater from the Nomad Support Center at www.trimble.com/rugged. The Firmware Updater can be used to reinstall the operating system and enable the user to select a different language.

Will software applications developed for Windows Mobile-based software run on the Windows Mobile 6.1 operating system?

Applications developed for the Windows Mobile-based software should run on the Windows Mobile 6.1 operating system. However, some of the new functionality in the Windows Mobile 6.1 operating system may not be available or compatible with software developed for earlier versions of Microsoft Windows Mobile operating system.

Will software applications developed for QVGA screens run on the Trimble Nomad 900 series VGA screen?

In general, applications developed for a QVGA screen will scale correctly on a device with a VGA screen. For more information, contact your software vendor.

How do I configure the Nomad to work with GPS?

All Nomad computers with a built-in GPS receiver include the SatViewer software, which allows you to activate the receiver, view satellite location and assess the quality of the position data.

Is WAAS or EGNOS enhancement of GPS available on the Trimble Nomad 900 series?

All Nomad 900 series models that have an integrated GPS receiver will support SBAS (Satellite Based Augmentation Systems) satellites under normal conditions, including WAAS (Wide Area Augmentation System) in the United States, and EGNOS (European Geostationary Navigation Overlay Service) in Europe.

What does the WAAS signal mean?

WAAS is an error correction signal for your region within North America that is broadcast to satellites. The signal is bounced from the satellite to your WAAS-enabled GPS receiver. There are 35 WAAS stations around North America. In order for the WAAS signal to be effective, your receiver needs to be in continuous connection with the satellite.

What GPS output protocols are supported by the Trimble Nomad 900 series?

The Trimble Nomad 900 series can output the NMEA and SiRF binary protocols.

Can I use an external antenna with my Trimble Nomad 900 series?

The Trimble Nomad 900 series does not have an external antenna option. The device is designed to achieve 2 to 4 meter (HRMS) accuracy with the integrated antenna, with SBAS corrections. If higher accuracy is required, you can use the optional Nomad Serial Boot accessory to connect an external GPS receiver via 9-Pin RS-232 Serial data connection. Many newer high-accuracy GPS receivers also offer a Bluetooth connectivity option.

How do I use the Trimble Nomad 900 series to ensure best GPS performance?

When collecting point features or vertices, Trimble recommends that you log GPS data for at least 30 seconds, using a 1-second logging rate. Collecting multiple positions for a static feature helps to improve accuracy by averaging out the errors in individual GPS positions. In heavy canopy, or other difficult environments, logging for 1–2 minutes is recommended.

Pausing briefly (5–10 seconds) before logging a point feature or vertex also helps to get the best performance from the receiver. This allows you to ensure that the internal GPS receiver is horizontal and correctly located over the feature you are mapping, and allows the computed position to settle and not be influenced by the recent movement of the handheld. Turning off A-GPS will also increase GPS accuracy, but will increase time-to-fix (see the product user manual for details).

How does the Trimble Nomad 900 series perform in harsh GPS conditions?

- The Trimble Nomad 900 series can track all available GPS satellites. This allows you to get the best results when you work in many different environments, without having to adjust the GPS mask settings. The receiver performs well in harsh GPS environments, such as under heavy canopy and in urban areas.
- SiRFInstantFixII is embedded in the firmware of all Nomad 900 series units. This technology provides satellite orbit prediction info if Signal to Noise Ratio (SNR) is 28 or lower resulting in more satellites tracked, faster Time to First Fix, and improved performance in canyons and under canopy.

What is the time to fix for the Trimble Nomad 900 series?

The Trimble Nomad 900 series uses SiRFInstantFixII to "remember" where satellites are in orbit at any given time. This enables a typical time to first fix in less than 45 seconds to as little as 10 seconds.

It can take up to 30 seconds to get its first fix (GPS position) in an open sky when the GPS receiver has not been used for more than 72 hours. In a forested or urban environment where the entire sky is not visible to the unit, a first fix can take 70 seconds or more. When used within 72 hours of previous use, the time to first fix is typically less than 30 seconds even under tree canopy.

Can I use other GPS software with the Trimble Nomad 900 series?

The Trimble Nomad 900 series can provide GPS positioning data to applications that support NMEA protocol.

What connectivity options does the Trimble Nomad 900 series support?

All Trimble Nomad 900 series models have integrated Bluetooth wireless technology. All Nomad models except 900B feature integrated Wi-Fi support for connecting to a variety of peripheral devices, or to corporate networks for sending and receiving data, files and email. The 900X and 900XE models are equipped with a cellular modem for connecting to the Internet without the need for a separate device.

The standard USB boot has a mini-USB client port, a USB host port and a headset jack (mono audio and microphone). The mini-USB client port is for connecting and synchronizing your device with an office computer. The USB host port is for connecting USB human interface devices (for example, keyboards and some barcode scanners) and USB mass storage devices. The headset jack supports a mono speaker or a headset with microphone.

What can I use the Trimble Nomad 900 series' Wi-Fi capabilities for?

Trimble Nomad 900 series handheld computers that have an integrated Wi-Fi wireless Local Area Network (WLAN) radio can be used to receive data anywhere within the range of a Wi-Fi access point. Wi-Fi and 802.11g are sometimes referred to as wireless Ethernet. A Wi-Fi connection can be used to connect to the Internet (at broadband speeds) through an 802.11b or 802.11g access point. With Cisco Certified Wi-Fi, the security options in the following table are supported.

Authentication	Encryption Types	EAP Authentication	Inner Authentication
Open	None, WEP	None	
Shared	None, WEP	None	
WPA-PSK	TKIP, AES	None	
WPA2-PSK	TKIP, AES	None	
WPA	TKIP, AES	PEAP, EAP-TLS, LEAP, EAP-FAST	MS CHAPv2, GTC, MD5
WPA2	TKIP, AES	PEAP, EAP-TLS, LEAP, EAP-FAST	MS CHAPv2, GTC, MD5
Open EAP	None, Dynamic WEP	PEAP, EAP-TLS, LEAP, EAP-FAST	MS CHAPv2, GTC, MD5
CCKM	TKIP	PEAP, EAP-TLS, LEAP, EAP-FAST	MS CHAPv2, GTC, MD5

There are many publicly available Wi-Fi access points (also known as "Hotspots") available. To find publicly available access points, use locator Internet sites such as www.jiwire.com.

Using the Wi-Fi radio in a Trimble Nomad series has no impact on GPS performance. However, when there is an active connection to a Wi-Fi access point, power consumption increases and the battery will discharge more rapidly.

What can I use the Trimble Nomad 900X series cellular modem capabilities for?

The Trimble Nomad 900X and 900XE handhelds are equipped with an integrated cellular modem. Devices with a cellular modem are also described as having Wireless Wide Area Network (WWAN) capability as the modem can be used to transmit or receive data anywhere within the range of the GSM cellular network. You can use the cellular modem to:

- Perform database lookups in the field using the appropriate software
- Exchange or synchronize data with a remote server without returning to the office
- Access background maps from an Internet map server in the field
- Send or receive email in the field
- Send or receive SMS messages to other cell phone users

How do I configure the Nomad to work with my SIM card?

The Nomad 900X and 900XE come with the CellStart application that will configure the cellular modem for your cellular data provider.

Can the Nomad 900 series cellular modem be used for voice calls?

No. The modem is for data only and cellular voice calls are not supported. However, if connected to Wi-Fi, Voice over Internet Protocol (VoIP) is possible using an application such as Skype and a headset. Unfortunately, EDGE data transfer rate is not robust enough to support VoIP via a cellular modem connection.

Will the cellular modem work in my region?

The Trimble Nomad 900X and 900XE models are equipped with a quad band GSM module that operates in the frequency bands 850/900/1800/1900 MHz. The modem on these devices will work on any GSM network operating in these bands that does not require subscriber devices to have carrier certification. Check with your carrier to see if they require handsets to have carrier certification to operate on their network. The 900X and 900XE models are certified for use in the USA, Canada, and Europe, but will function properly in all countries with GSM.

What can I use a Trimble Nomad 900 series Bluetooth capabilities for?

The Trimble Nomad 900 series has an integrated Bluetooth radio that you can use to establish cable-free connections to other Bluetooth devices that are within 10 meters.

Using a Bluetooth connection, you can communicate with Bluetooth-enabled devices such as mobile phones, desktop computers and more. You can also communicate with Bluetooth-enabled peripheral devices instead of serial or USB connections. In particular, some newer high-accuracy GPS receivers offer a Bluetooth wireless connection.

Using the Bluetooth radio in a Trimble Nomad 900 series has no impact on GPS performance. However, when there is an active connection to another Bluetooth device, power consumption increases and the battery will discharge more rapidly.

What are the functions of the integrated digital camera?

The Trimble Nomad 900LC, 900LE and 900XE models include an integrated digital camera. The camera is accessed through an application that is pre-installed with the operating system. The camera features a variety of shooting modes to make it easier to capture images in different lighting conditions, and it can also record video with audio. The 5-megapixel sensor can capture images with low, medium, or high compression, and in a choice of resolution from 320x240 to 2592x1944 pixels. The camera uses the standard Windows Mobile API for camera control, and it is compatible with other field software applications with integrated camera functionality, including the GPS receiver for geotagging compatibility.

The Nomad 900 series also has a built in flash to enable low light and nighttime images. In flash mode, the LED emits approximately 150 lumens. With the use of a high quality LED and focused lighting, the flash enables excellent images in pitch blackness. The flash can also be used as a flashlight. In flashlight mode, the LED emits approximately 50 lumens.

What are the functions of the barcode scanner?

The Trimble 900LE and 900XE models include an integrated barcode scanner. You can use your own barcode scanner software or the pre-installed ScanAgent application pre-installed with the operating system. To access the scanner, either press the arrow button on the keypad, or open the scanner SIP (soft input panel). The scanner can collect up to four scans per second, and features a bright scan line and aim mode. The scanner has a programmable scan angle, and supports most barcode symbologies.

How are the Trimble Nomad 900 series handhelds powered?

The Trimble Nomad 900 series is supplied with a rechargeable, field-removable lithium-ion (Li-ion) battery that provides up to 15 hours of battery life in normal use (including wireless radios and GPS). The battery is internally rechargeable using the international power supply that comes with the system. Spare rechargeable batteries, an external battery charger, and a 12 V vehicle charger are also available as optional accessories. Charging a fully discharged battery takes approximately 4.5 hours.

What can I do to prolong battery life?

To maximize battery life, Trimble recommends the following:

- Turn off wireless radio services such as the cellular modem, Bluetooth and Wi-Fi, when not in use.
- Disconnect from the GPS receiver when positioning is not required.
- Turn off the screen backlight or reduce the backlight brightness.
- Try to avoid using the handheld in very cold conditions (–20 °C/–4 °F and below).
- If you must use the Nomad in very cold conditions, turning on the backlight and increasing the voltage load on the battery can help to warm the battery and actually increase battery life as compared to more conservative power usage.

What's in the box?

The Trimble Nomad 900 series is supplied as standard with the following components and accessories:

- Power supply with international adaptor kit
- Rechargeable lithium-ion battery
- Package of two (2) ultra clear screen protectors
- USB boot or serial boot (depending on model selected)
- Hand strap
- Stylus pen
- Stylus lanyard
- Getting Started Guide (on CD)
- USB data cable
- SDHC card (depending on model selected)

What optional accessories are available for the Trimble Nomad 900 series?

The following optional accessories are available for the Trimble Nomad 900 series. The items marked "(replacement)" are items included in the box with the Nomad computer.

- USB data cable (ACCAA-550) (replacement)
- AC Charger with international adapters (ACCAA-652) (replacement)
- 12 V vehicle charger (ACCAA-653)
- Lithium-ion rechargeable battery (ACCAA-101) (replacement)
- Spare battery charger (ACCAA-650)
- AA Battery module (ACCAA-100)
- Nomad Trigger (barcode scanner enhancement) (ACCAA-301)
- Standard nylon carry case (ACCAA-600)
- Extended nylon carry case (use with Extended Cap accessory) (ACCAA-601)
- Deluxe case with belt clip and shoulder strap (ACCAA-602)
- Black nylon carry case (MOLLE system compatible) (ACCAA-607)
- Stylus pen (ACCAA-900) (replacement)
- Stylus lanyard (ACCAA-807) (replacement)
- Hand strap (ACCAA-250) (replacement)
- Screen protectors, ultra-clear (package of two) (ACCAA-350) (replacement)
- Screen protectors, anti-glare (package of two) (ACCAA-358)
- Range pole bracket (ACCAA-751)
- Vehicle mount (ACCAA-752)
- USB boot (ACCAA-150) (replacement, depending on configuration purchased)
- Serial boot (ACCAA-151) (replacement, depending on configuration purchased)

- Serial interface cable (ACCAA-557)
- Standard Cap (ACCAA-201) (replacement for models with CF card slot)
- Extended Cap (ACCAA-216)

What expansion options are available on the Trimble Nomad 900 series?

The Trimble Nomad 900 series contains a fully sealed SD slot that you can use with an SD memory card with up to 2 GB standard capacity. Higher capacity SDHC cards up to 32GB manufactured by SanDisk and Kingston are also supported. You can use the integrated camera to log directly to an installed SD card. Some applications may also support storage of data directly to SD. To access the SD slot, simply remove the top cap with the supplied screwdriver/stylus tool, install the card and re-install the top cap. Non-scanner and/or non-camera models also have a CompactFlash slot.

What is the largest capacity and fastest speed of SD card supported?

The Nomad 900 series supports SDHC cards up to 32 GB in size. Class 10 cards are compatible, but Class 4 is the highest data transfer speed supported.

Are the digital camera or bar code scanner removable?

No. For models with an integrated barcode scanner and/or digital camera, these components are hardwired into the device.

Where can I get more information?

Visit www.trimble.com/rugged or contact your local Trimble reseller to learn more about Nomad, Yuma, Recon or Ranger rugged outdoor computers.