TI-Nspire™ Navigator™ System Technical FAQ

The purpose of this document is to answer technical questions about TI-Nspire™ Navigator™ systems to help the sales and Customer Service Center (CSC) teams engaging with IT departments.

For any additional questions or clarifications, please contact the TI-Nspire™ Navigator™ system hotline at 1-866-NAVIGATOR or by email at ti-cares@ti.com

Frequently Asked Questions

1. **What is the difference between the TI-Nspire™ Navigator™ system and TI-Nspire™ CX Navigator™ systems?**

   The TI-Nspire™ Navigator™ systems support the entire TI-Nspire™ family of handhelds (TI-Nspire™ CX, Touchpad and Clickpad models and CAS versions). The systems use one network client per handheld, either one TI-Nspire™ Navigator™ cradle or one TI-Nspire™ CX wireless network adapter per handheld. The TI-Nspire™ Navigator™ systems include the TI-Nspire™ Navigator™ cradles, which may be used with all TI-Nspire™ handhelds. The TI-Nspire™ CX Navigator™ systems include the TI-Nspire™ CX wireless network adapters and may only be used with the TI-Nspire™ CX and TI-Nspire™ CX CAS handhelds.

2. **What wireless technology is used in the TI-Nspire™ Navigator™ systems?**

   The TI-Nspire™ Navigator™ systems use the IEEE 802.11 (aka Wi-Fi) wireless networking technology.

3. **What is the difference between the different access points (AP) and wireless clients in the TI-Nspire™ Navigator™ system product line?**

   The TI-Nspire™ Navigator™ systems changed hardware components as wireless technology evolved and TI-Nspire™ technology progressed. TI supports all TI-Nspire™ Navigator™ system hardware, and the table below compares the different access points and their respective supporting products.

Category	TI Navigator™ Access Point	TI-Nspire™ Navigator™ Access Point	TI-Nspire™ CX Navigator™ Access Point
Form factor			
Power Source	DC Jack (TI Adapter AC9930)	USB connection to PC (same port also used for data transfer)	USB connection to PC (same port also used for data transfer)
Wireless technology	802.11 b/g (2.4 GHz frequency band)	802.11 b/g (2.4 GHz frequency band)	802.11 a/b/g/n (**2.4 GHz and 5 GHz** frequency band)
LEDs	4 LEDS – power, 'test', wired LAN, wireless LAN	2 LEDs – 1 power, 1 wireless network activity	2 LEDs – 1 power, 1 wireless network activity
Connection to Computer	Standard-B USB port	Micro-B USB port	Micro-B USB port
Antenna	One external antenna	Two internal antennas – one TX/RX and one RX-only	One internal antenna
Reset button behavior	Configuration settings revert to factory settings	No reset button	No reset button
Supported products	TI-Nspire™ handheld family TI-Nspire™ CX handheld family TI-Nspire™ Navigator Cradles, TI-Nspire™ CX Wireless Network Adapters v1	TI-Nspire™ handheld family TI-Nspire™ CX handheld family TI-Nspire™ Navigator Cradles (Model TINAVWC2 only), TI-Nspire™ CX Wireless Network Adapters v1	TI-Nspire™ CX handheld family TI-Nspire™ CX Wireless Network Adapters v1 TI-Nspire™ CX Wireless Network Adapters v2 NOTE: Only the "v2" SKU of the Wireless Network Adapters are dual-band enabled
Worldwide operation	Different products for US and worldwide operation	Single product – system defaults to US regulatory domain	Two product SKUs – based on 5 GHz regulatory domains

Table 1 Comparison between access points

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4. **Will these networks interfere with existing wireless networks? What about interference among different TI-Nspire™ Navigator™ system networks?**

   The TI-Nspire™ Navigator™ system networks share the frequency band with other Wi-Fi networks that use the 2.4 Ghz or 5 Ghz bands. The underlying wireless networking technology (IEEE 802.11) allows for multiple networks to share the same frequency band, which allows for the networks to coexist. The typical usage pattern of the TI-Nspire™ Navigator™ system in a classroom does not require high throughput from the wireless network. This results in limited impact to other networks in the area.

   Please note: *As the number of co-located TI-Nspire™ Navigator™ system networks increases, the school IT team may have to implement channel mapping to minimize interference between the TI-Nspire™ Navigator system networks and between the TI-Nspire™ Navigator™ system networks and the school network.*

5. **We are a 1:1 school, and all our students have laptops/tablet computers. Can our students connect to the TI-Nspire™ Navigator™ system network?**

   The student laptops and tablets will 'see' the TI-Nspire™ Navigator™ system networks because the access points broadcast their SSIDs to allow network discovery by TI wireless clients.

   However, the network created by the access point is a 'private' network designed to communicate solely with TI graphing calculators.

   The access point implements an 'access control list' (ACL) that allows only the wireless clients that have been configured with the access point to connect to the access point.

   As a result, other clients – laptops, tablet PCs, smartphones – will not be able to connect to or communicate with other devices on the TI-Nspire™ Navigator™ system network.

6. **Can the TI-Nspire™ Navigator™ systems use a school's existing wireless network? If the school already has a wireless network installed, do we still have to buy the access point?**

   The TI-Nspire™ Navigator™ systems are 'island' networks i.e. they are self-contained networks that do not use any infrastructure networks that may be available.

7. **How much configuration/customization is possible for the wireless network?**

   The user can configure the channel that will be used by the network. Part of the SSID (network name) is also user-configurable, however, the range (transmit power) of the access point is not adjustable.

8. **What is the range of the access point?**

   The TI-Nspire™ Navigator™ system uses a low-power access point with an operational range of approximately 70 ft.

9. **Can I configure the access point to use any available wireless channel?**

   In the 2.4 Ghz band, it is recommended that you configure the access point to **only use channels 1, 6 or 11**. Due to the way the channels are assigned, using other channels may result in reduced performance.

   In the 5 Ghz band, the channels do not overlap, and all listed channels are available for use. Please note that depending on your regulatory domain (country of operation), some channels in the 5 Ghz band may not be available in the TI-Nspire™ Navigator™ system 'Network Manager' application.

10. **Can the access points be remotely configured?**

    No, the access points are USB devices and do not allow remote access. They need to be configured from a computer that is connected to the access point by a USB cable. The 'Network Manager' application provides a GUI interface to configure the entire network, as well as the access point.

    However, the channel information and network name are stored on the access point itself, so it is possible to remotely configure the access points before deployment.

11. **What is the network name (aka SSID) of the TI-Nspire™ Navigator™ system networks?**

    The SSID will always start with 'TI-NAV- 'but the latter part of the network name can be customized.

    There are two variants of the SSID depending on the mode – During setup mode, the network name starts with "TI-NAV-I-" During normal operation, the network starts with "TI-NAV-N-". For example, a teacher can use her room number in her network name, and the resulting SSID will be 'TI-NAV-N-Room301A'.

12. If the school has an intrusion detection/prevention system, please add these network names (SSIDs) to the 'whitelist' for correct operation of the TI-Nspire™ Navigator™ system network. **What is the security protocol used by the wireless network? How are the encryption keys managed?**

    The TI-Nspire™ Navigator™ system network uses the WPA2-PEAP (aka WPA2-Enterprise) security protocol.

    The keys for encrypting the data are distinct for each user. They are randomly generated and assigned by the system.

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13. We are a 1:1 school district with laptops. Is there a similar TI product that would work with computers?

Yes, The TI-Nspire™ Navigator™ NC system facilitates interactive learning through a school's network, connecting student and teacher computers in the classroom or computer lab. To learn more, visit education.ti.com/nspirenavigator.

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