

Knowledge Base

Using SMART Response CE Assessment Software on a Wireless LAN

SMART Software	SMART Response CE assessment software 2.2
Operating Systems	Windows® operating systems

Overview

This document provides guidelines for using SMART Response CE assessment software on a wireless local area network (WLAN).

Details

Recommended Hardware/Software

Use commercial-grade access points. Don't use consumer-grade access points, because they aren't designed to handle the number of clients typically used with SMART Response CE.

Use a commercial-grade wireless network card, such as those from Cisco® or 3Com®. Although your choice of access point is more important than your choice of wireless network card, a commercial-grade wireless network card is more reliable than a consumer-grade product.

Wirelessly Connect up to 30 Students with 802.11b, 802.11g, or 802.11n

SMART Response CE supports up to 30 SMART Notebook SE (Student Edition) student connections per access point on an 802.11b wireless network. Connecting more than 30 students to an access point can negatively affect performance.

802.11g and 802.11n wireless networks provide more bandwidth but are more susceptible to interference.

Position Access Points in the Same Room as Student Computers

Although radio signals can pass through walls and other solid objects, these barriers can degrade signal quality and decrease the availability of network bandwidth. For best performance, ensure that student computers have a line of sight to the access point.

Ensure that wireless connection quality is excellent for all student computers and that a wireless network connection of at least 10 Mbps is available.

SMART Response CE multicasts assessments to students on the same subnet. If several teachers are broadcasting at the same time, interference can cause poor performance, particularly on wireless networks. If possible, avoid including too many SMART Response CE classrooms on the same wireless network's subnet.

Segmenting your network into separate subnets isolates SMART Response CE's broadcast network traffic to a particular segment of your local area network. Your network runs more efficiently when configured this way, and SMART Response CE activity doesn't slow down the network.

Use a Wired Teacher Station

Use a wired network connection for the teacher's computer to significantly reduce the amount of traffic that SMART Response CE uses on the wireless network. A wired network connection also makes SMART Response CE less susceptible to radio interference and less competitive for bandwidth with other network applications.

Minimize Interference Between Adjacent Access Points

If you use more than one access point in the same vicinity, ensure that they're set to different channels to minimize interference between them. Although you can use channels 1 through 11, adjacent channels will overlap. Use channels as far apart as possible. For example, if you use two access points, set them to channels 1 and 11.

Disable Power Saving Mode for All Wireless Client Adapters

Power Saving mode significantly impacts the performance of your wireless network, particularly when broadcasting.

For best results, disable Power Saving mode on all of the devices connected to the access point. Even if one client has Power Saving mode enabled, the wireless access point reduces performance for this single client.

To disable Power Saving mode

1. Select **Start > Control Panel > Network Connections**.



NOTE

This procedure may vary depending on your version of Windows operating system and your system preferences.

2. Select your wireless network connection, and then choose **Properties**.
 3. Select **Configure**.
A list of advanced settings appears.
 4. Clear the selection of **Power Management** or **Power Saving mode**, or select the maximum performance option.
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Don't Mix 802.11b and 802.11g Wireless Protocols

For best performance, use only 802.11b or 802.11g as your wireless protocol because other protocols interfere with each other. Avoid mixing wireless protocols as much as possible.

Disable IGMP or Multicast Snooping on Your Wireless Access Point

For more information on how to check these settings for Cisco access points, see [document 92560](#). That document relates to SMART Sync software, but the information regarding access points is still relevant.

For more information on how to check these settings for other access points, see the information you received with the access point.

Survey the Site

Survey the site to determine how much radio interference is in the area. Minimize or eliminate additional radio interference sources, including other wireless networks, microwave ovens, cordless phones and Bluetooth® technology.

Use a spectrum analyzer to detect radio interference. You can either contract a consultant to perform a thorough site survey for you or you can eliminate most sources of radio interference yourself:

- Use a tool like NetStumbler (www.netstumbler.com) to detect other wireless access points in the area. Set your access point to different channels.
- Avoid using 2.4 GHz cordless phones in the vicinity of your wireless network. If you must use a cordless phone, use a 900 MHz model or a 5.8 GHz model.



NOTE

Some cordless phones advertised as 5.8 GHz actually transmit from the base to the phone on 5.8 GHz but transmit from the phone to the base on 2.4 GHz or 900 MHz to conserve battery life inside the phone. This type of phone can cause radio interference.

- Avoid using Bluetooth technology in the same room as your wireless network. Devices that use Bluetooth technology include cell phones with file transfer or remote headphone capabilities, laptop computers equipped with Bluetooth technology and wireless devices such as keyboards or mouse devices (including the wireless USB storage device for SMART Board™ interactive whiteboards). Bandwidth-intensive applications such as FTP or HTTP file downloads can also disrupt the operation of SMART Response CE. Furthermore, SMART Response CE can also disrupt video or radio streaming operations.
- Avoid positioning microwave ovens near your wireless network. Microwave ovens can generate a great deal of radio interference, even when placed in a different room. To minimize interference, determine the channel where interference is the greatest and then set your access point channel as far from it as possible.

To determine the channel where interference is the greatest

1. Place a water-filled microwave-safe container in a microwave oven for five minutes at high power.
2. Set the access point to channel 1 while the microwave is running, and then transfer a large file from a local host (FTP, HTTP or Windows file transfer) to your computer.
3. Record the file transfer time or the transfer speed (in Kbps).
4. Repeat steps 2 and 3 with channels 2 to 11.

The channel with the slowest file transfer rate has the greatest interference.

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