

Windows Troubleshooting

You may experience connectivity issues or performance issues when you connect a mobile PC that is running Windows to a wireless access point

Symptoms

You may experience random connectivity issues when you connect a Windows-based mobile PC to certain Wi-Fi "hot spots." These connectivity issues include the following:

- The wireless network connection is dropped.
- You experience poor performance.

You experience these issues if the computer is running on battery power.

Cause

This issue occurs because of the power saving features that are included in Windows. The default power plan that Windows uses for a mobile PC is the **Balanced** power plan. The following is true for mobile PCs that are configured to use the **Balanced** power plan:

- When the mobile PC is plugged into a power source, the wireless network adapter is configured to use **Maximum Performance** mode. This turns off 802.11 power save mode.
- When the mobile PC is running on battery power, the wireless network adapter is configured to use **Medium Power Saving** mode. This uses the 802.11 power save mode.

When an 802.11 wireless network adapter that is set to use power save mode wants to enter a sleep state, the adapter indicates this intention to the wireless AP. The adapter does this by setting the power save option in its packets or in the 802.11 frames that it sends to the wireless AP. In this scenario, the following behavior should occur:

1. When the wireless AP receives the frames that have the power save option set, the wireless AP determines that the client network adapter that sent the frames wants to enter a power saving state.
2. The wireless AP then buffers packets that are destined for the client network adapter.
3. When the radio of the client network adapter turns on, the client network adapter then communicates with the AP to retrieve the buffered packets.

This behavior enables the wireless network adapter to use less power and to wake up periodically at the correct time to receive network traffic from the AP.

In a dense environment this can cause much lower throughput and loss of packets are lost.

Workaround

To work around this issue, use one of the following methods, as appropriate for your situation.

Method 1: Connect the mobile PC to a power source

When you plug the mobile PC into a power source, Windows switches the wireless network adapter power setting in the default power plan from the **Medium Power Saving** setting to the **Maximum Performance** setting. This turns off the 802.11 power save mode.

Method 2: Modify the default power saving power plan

Modify the default on-battery power setting for the wireless network adapter. Configure the wireless network adapter to use the **Maximum Performance** setting when Windows is configured to use the **Balanced** power plan or the **Power saver** power plan.

Method 3: Use the "High performance" power plan

If the computer is running on a power plan other than the **High performance** power plan when you connect to a wireless network, manually change the power plan to **High performance**.