# Wirelessly Connecting with Citywide Wi-Fi via PePLink Surf

# Connection Troubleshooting Guide

## Overview


This troubleshooting guide aims to present a practical systematic approach to identifying the appropriate solution through classifying symptoms and isolating the root cause.

The following are the main categories of identified causes for the failure to connect with Citywide Wi-Fi:

- Configuration error
- Hardware issue
- Weak signal

Also presented in this troubleshooting guide are directions for obtaining a debug dump from a PePLink Surf device. The debug dump captures and provides vital information about the state of the device, and is a key element of communication with PePLink Technical Support.

## Symptom: Unable to Connect

Upon encountering an inability to connect with Citywide Wi-Fi via PePLink Surf, the first step is to determine whether the symptom is due to issues with the client computer, or the PePLink Surf unit.


If all of the LEDs on the PePLink Surf unit are lit and green, then the issues likely involve the client computer.

If the Status LED on the PePLink Surf unit is amber, then further troubleshooting should be performed with PePLink Surf to uncover potential issues.


 

## Configuration Error

The first area to troubleshoot, and where issues are the most commonly found, is configuration. The SSID, security protocol, and network key, etc. have to be manually configured; and common problematic situations are as follows:

- The configuration procedure was inadvertently skipped.
- Erroneous values were entered during the configuration procedure.

### Configuration Procedure Inadvertently Skipped

In the case where the configuration procedure was skipped, please refer to existing PePLink Surf connection documentation. This will provide a step by step guide through the configuration process.

**Wi-Fi Connection Setup Guide – PePLink Surf How-to Document**
http://download.peplink.com/pub/How-to/PePLink_Surf_howto_connection_setup_guide.pdf

### Erroneous Configuration Values

If configuration is complete for the PePLink Surf unit, but attempts to connect with Citywide Wi-Fi remain unsuccessful, the configuration of the PePLink Surf unit should be verified, or corrected as necessary, to match those of the Citywide Wi-Fi network. Items that might need to be corrected may include:

- SSID
- Authentication
- Encryption Key

Please note that text values are case-sensitive.

In order to check the configuration of the aforementioned settings, navigate to the CPE Setup page as follows:

1. Connect to the URL `http://192.168.20.1` with the Web-based Configuration Interface of PePLink Surf.

   Upon successfully connecting, the Welcome Screen is displayed.


*Figure 1 – PePLink Surf Web-based Configuration Interface Welcome Screen*

 

2. Click on ***Advanced Config***. This loads the CPE Setup page, where the Wi-Fi settings are configured.

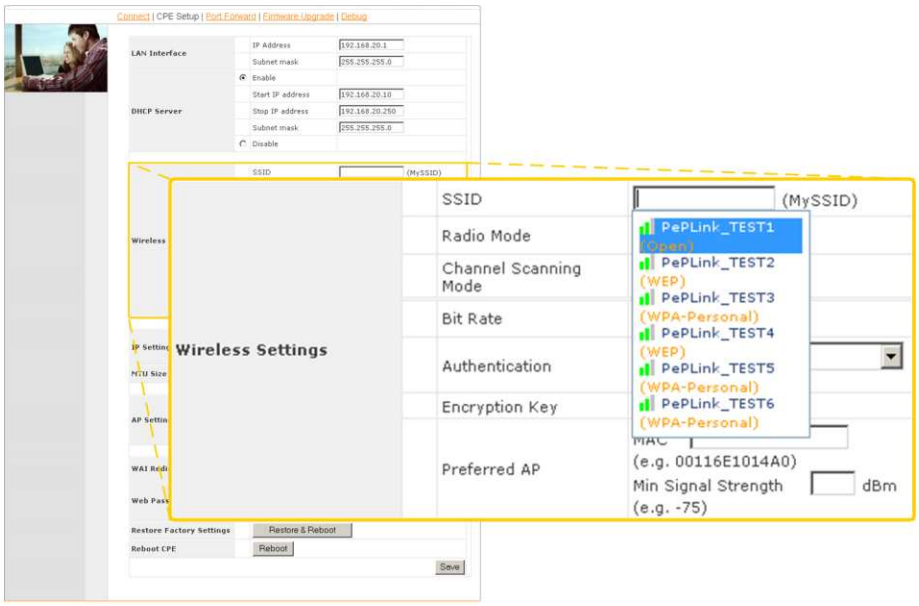


*Figure 2 – A blank value in the **SSID** field prompts the display of the available Wi-Fi networks. Click on an item in the list to select the corresponding network.*

Because SSIDs are case-sensitive, re-selecting the appropriate SSID is less error-prone than manually verifying the existing SSID or re-entering an SSID.

## Hardware Issue

If the configuration parameters are verified to be correct, but the PePLink Surf unit still fails to connect with Citywide Wi-Fi, the next step is to check for potential hardware issues.

### Faulty Radio Unit

To check for a faulty radio unit, navigate to the CPE Setup page, and check the ***Radio Mode*** dropdown menu under the section ***Wireless Settings*** (i.e. the same section as the one illustrated in Figure 2).

If the radio unit is faulty, the ***Radio Mode*** dropdown menu will contain no options.

### Faulty Internal Connections

In the event that the radio unit is operational but connection with Citywide Wi-Fi fails, the failures may be due to faulty internal connections. The method to check for this scenario is to scan for the available Wi-Fi networks through the Debug page.

 

Navigate to the Debug page as follows:

1. Connect to the URL `http://192.168.20.1` with the Web-based Configuration Interface of PePLink Surf.

   Upon successfully connecting, the Welcome Screen is displayed.

2. Click on ***Advanced Config***. This loads the CPE Setup page.

3. From the CPE Setup page, click on the link ***Debug*** (at the top of the page on the right-hand side). This loads the Debug page, which displays the list of available Wi-Fi networks.

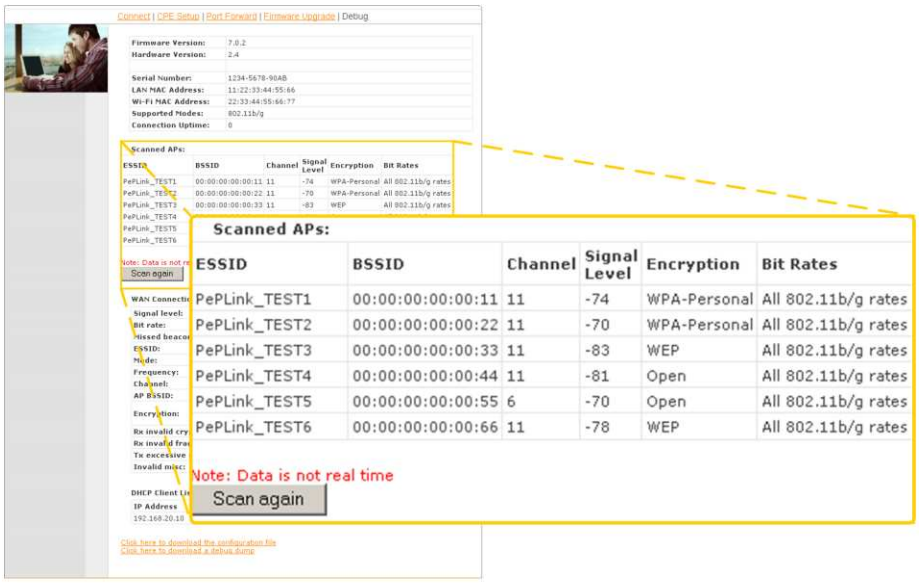


*Figure 3 – The list of available Wi-Fi networks is displayed on the Debug page of Web-based Configuration Interface of PePLink Surf.*

If there are faulty internal connections within the PePLink Surf unit, either all of the scanned access points will have weak signals, or the scan will result in no available Wi-Fi networks.

## Important Note

If a hardware issue is suspected, please contact PePLink Technical Support.

### Weak Signal

If, after successfully completing the aforementioned troubleshooting steps, the PePLink Surf unit is found to be functional and correctly configured, then the most likely reason for failing to connect originally is a weak signal. If this is the case, ensuring a vertical orientation of the antenna and/or re-locating the PePLink Surf unit may remedy the situation.

 

## Orientation of the Antenna

Radio waves travel perpendicularly outwards from the length of the antenna, as depicted in Figure 4. Be sure to orient the antenna vertically to allow the radio waves to travel outwards and reach a Citywide Wi-Fi access point for a successful wireless connection.

*Figure 4 – Orienting the antenna vertically allows signals to span out.*

## Re-locating the PePLink Surf Unit

In order to find a location with a good signal, some trial-and-error that involves re-locating the PePLink Surf unit while refreshing the Debug page (i.e. the same page as illustrated in Figure 3) is required.

The general trial-and-error process is as follows:

1. Navigate to the Debug page.
2. On the Debug page, locate in the list of available Wi-Fi networks an entry that matches the Wi-Fi network with which to connect.
    - The Signal column shows the signal strength in dBm.
    - For a reliable connection, signal strength of at least -84 dBm is needed. (Signal strength of -75 dBm is very good.)
3. To find the location with the best signal reception, physically point the PePLink Surf unit in different directions and/or move the PePLink Surf unit among various locations.
    - At each location, click "Scan again" on the Debug page to determine the signal level at that orientation/location. This process can determine the best orientation/location for the PePLink Surf unit in terms of signal strength.

 

## PePLink Surf Device Debug Dump

The debug dump captures and provides vital information about the state of the device, and is a key element of communication with PePLink Technical Support in a support escalation scenario. Carry out the following steps to obtain a debug dump from a PePLink Surf unit:

1. Connect through a web-browser with the Web-based Configuration Interface of PePLink Surf, via the URL `http://192.168.20.1`
   Upon successfully connecting, the Welcome Screen is displayed.
2. Click on ***Advanced Config***. This loads the CPE Setup page.
3. From the CPE Setup page, click on the link ***Debug*** (at the top of the page on the right-hand side). This loads the Debug page.
4. At the bottom of the page, click ***Click here to download a debug dump***.
5. A prompt will then appear for saving the `debug.dump` file to your computer.

## PePLink Technical Support

In the event that, after carrying out the troubleshooting steps, connecting with Citywide Wi-Fi via the PePLink Surf unit continues to be unsuccessful and/or the root cause(s) still cannot be isolated, please contact PePLink Technical Support at support@peplink.com along with the debug dump from the PePLink Surf unit.

 