

Wireless Internet/Network Access Configuring & Using a Laptop Computer

INFORMATION TECHNOLOGY SERVICES
California State University, Los Angeles

Version 2.0

Fall 2006

Contents

System Requirements	2
Determining the Type of Wireless LAN Adapter	2
Configuration of the Wireless LAN Adapter	5
Configuring a B/G Wireless LAN Adapter	5
Configuring a B Wireless LAN Adapter	8
Connecting Using a CSLA Wireless Connection	9
Connecting Using the CSLA-ENCRYPTED Connection	9
Connecting Using the CSLA-UNENCRYPTED Connection	12
Logging onto the System	14
Access Points on Campus	14

For additional written instructional guides, visit us @ <http://www.calstatela.edu/handouts>

Introduction

Wireless technology allows laptop computer users to access networks and the Internet without having to “plug-in” to a data jack with a cable or wire. Most new laptop computers have a device known as a wireless LAN adapter that transmits and receives data to and from a network or the Internet. The ability to connect to a network or the Internet using wireless technology also requires additional equipment known as an access point. Access points are installed at specific locations on the CSULA campus. These access points provide service areas of a specific size where users possessing a laptop computer equipped with a wireless LAN adapter can access the campus network and the Internet.

There are two types of wireless connections available on the CSULA campus – an encrypted connection and an unencrypted connection. The encrypted connection transmits and receives coded data between the access point and the computer in a manner that makes it very difficult, if not impossible, for third parties to intercept and interpret the data. The unencrypted connection does not use coded data, and any information that is transmitted and received could be subject to interception and interpretation by third parties. This handout provides detailed guidance on configuring a laptop computer to use the wireless access points on campus, and what the user will experience when connecting to the network or Internet using wireless technology.

System Requirements

There are two types of wireless LAN adapters that can be configured for use on the CSLA campus. The wireless LAN adapter can be either a “**b**” type or a “**b/g**” type. Each of the types has different capabilities in terms of the speed of the connection, and the type of connection available.

If a user has a “**b**” type wireless LAN adapter, the typical maximum connection speed will be limited to 11 megabytes of data per second. Additionally, a user with a “**b**” adapter will only be able to connect to the Internet using the “*CSLA-UNENCRYPTED*” wireless connection.


If a user has a “**b/g**” type wireless LAN adapter, the typical maximum connection speed will be 54 megabytes of data per second. Users with a “**b/g**” adapter will be able to connect to the Internet using either the “*CSLA-ENCRYPTED*” or the “*CSLA-UNENCRYPTED*” wireless connection.

Generally, if the user computer operating system is anything older than Windows XP, then the wireless LAN adapter is probably a “**b**” type. Having a computer with the Windows XP operating systems does not guarantee a “**b/g**” type adapter. Newer computers acquired after 2004 are likely equipped with a “**b/g**” type adapter, but this is not necessarily always true. Given the multitude of wireless LAN adapter manufacturers, it is likely that there will be exceptions to these generalizations.

Determining the Type of Wireless LAN Adapter

Before configuring the computer for wireless access, the user should determine if the computer is equipped with a “**b**” or a “**b/g**” type adapter.

To determine the type of adapter on the computer:

1. Click the **Start** button  on the lower left corner of the desktop. The **Start** menu opens.
2. Click the **Control Panel** menu item. The **Control Panel** window opens.

!NOTE:

If the **Control Panel** window appears in “**Category**” view as in Figure 1, click the **Switch to Classic view** button (see Figure 1). Otherwise, proceed to step (3).

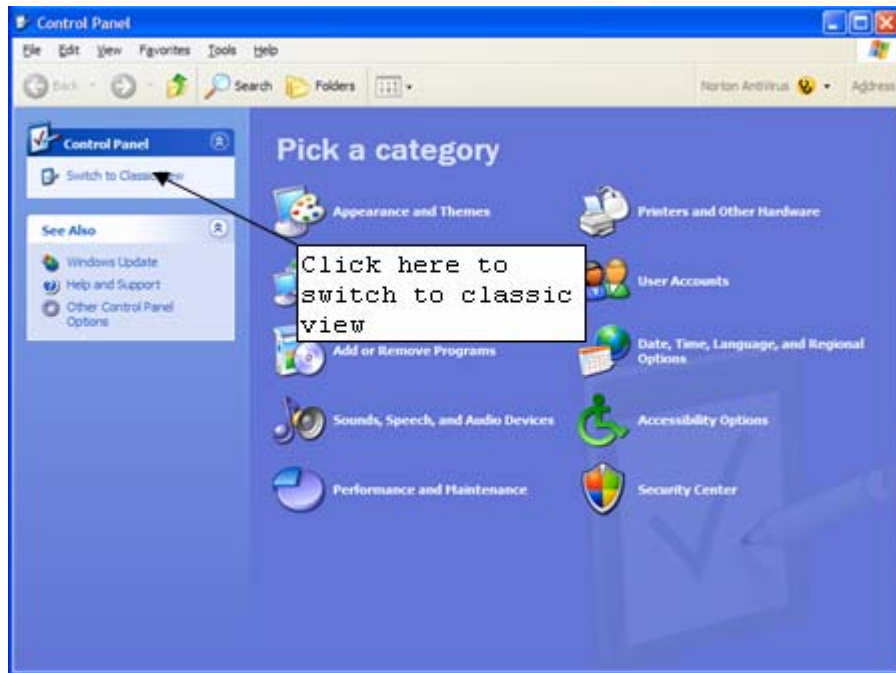

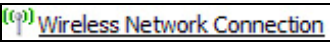


Figure 1 - Control Panel Window in Category View

3. Click the **Network Connections**  button. The **Network Connections** window opens.
4. Right-click the **Wireless Network Connection**  button and select **Properties** from the pop-up menu. The *Wireless Network Connection Properties* dialog box opens.

!NOTE:

The buttons in steps (3) and (4) above may appear slightly different depending on the folder view option settings in effect. The names of the buttons, however, should be the same.

!NOTE:

The **Connect using:** text box of the *Wireless Network Connection Properties* dialog box may or may not contain an indication of the adapter type. Figure 2 is an example where the adapter type is indicated; Figure 3 is an example where the adapter type cannot be determined from the adapter name.

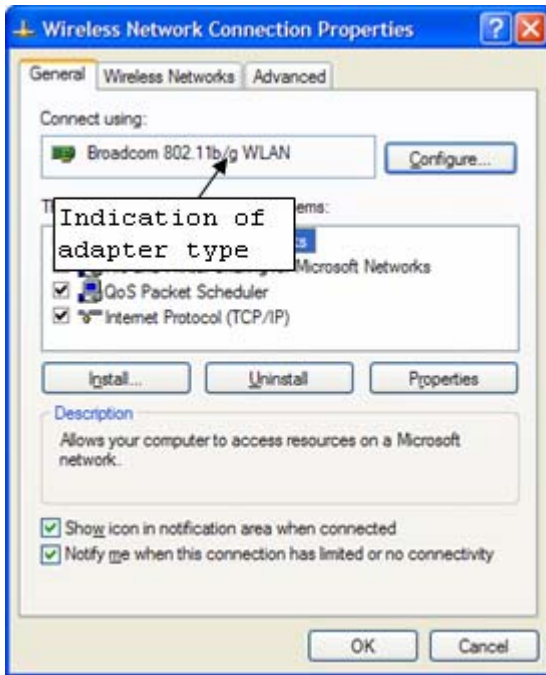


Figure 2 - Indication of Adapter Type in Connect Using: Text Box

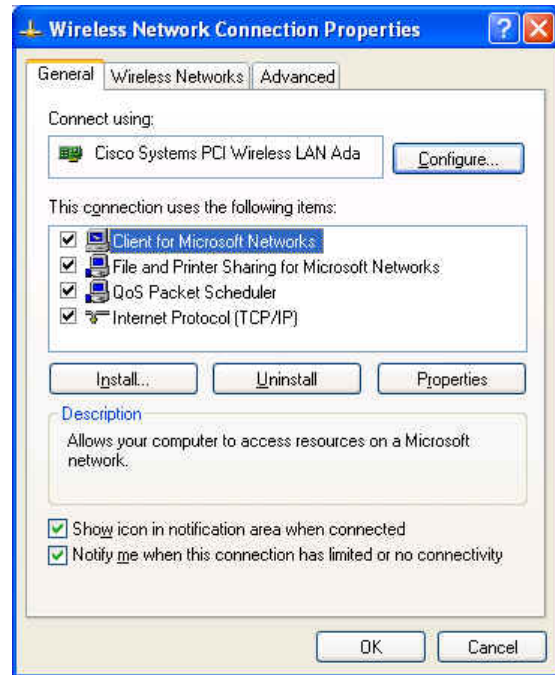


Figure 3 - No Indication of Adapter Type in Connect Using: Text Box

- If the adapter type cannot be determined from the information in the *Connect using:* text box, then click the **Configure...** button. The adapter *Properties* dialog box will open (see Figure 4).

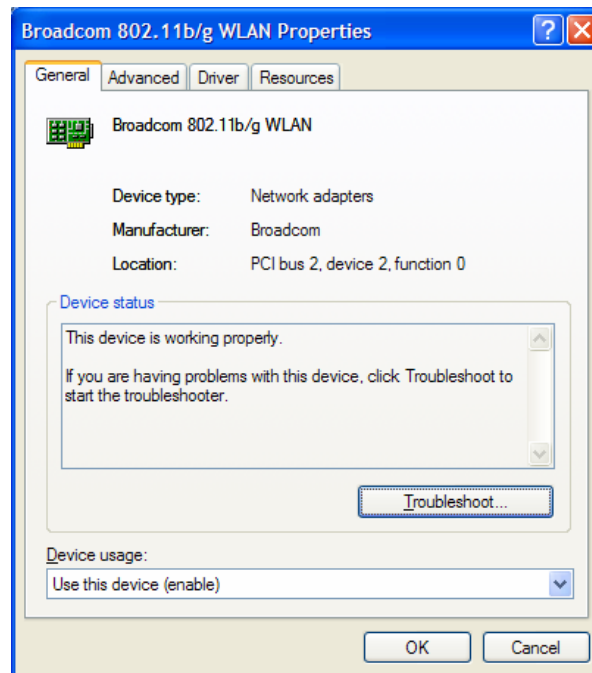


Figure 4 - Adapter Properties Dialog Box

- Click the *Advanced* tab.
- In the *Property:* list box, select the property name that best corresponds to rate of data transfer.

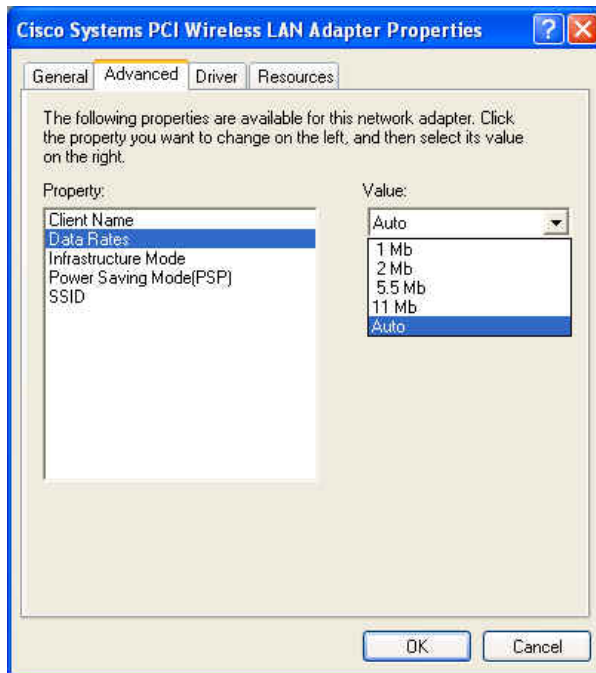


Figure 5 - Type "b" Wireless LAN Adapter

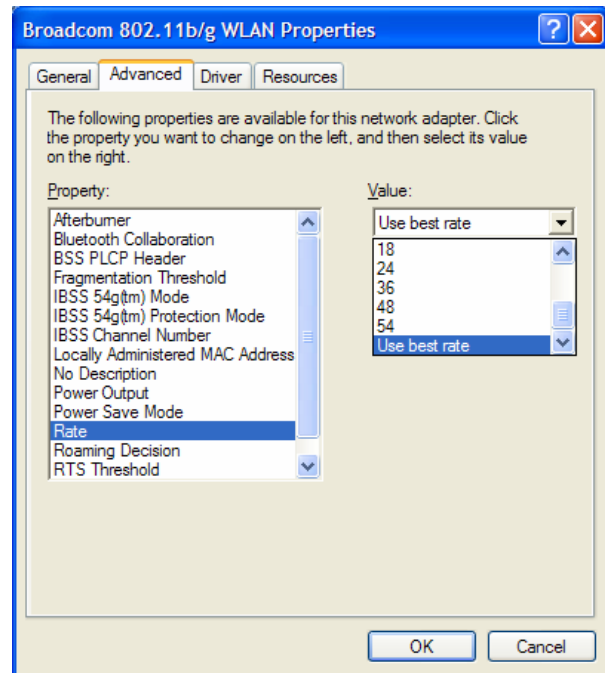


Figure 6 - Type "b/g" Wireless LAN Adapter

!NOTE:

Each adapter manufacturer may select a different name for each property of the adapter. Figure 5 and Figure 6 are typical examples of the different naming conventions used by manufacturers.

8. Click the **Value:** drop-down arrow and scroll to the bottom of the list, if necessary, and observe the maximum data transfer rate listed.

!NOTE:

A maximum data transfer rate of 11 megabytes per second indicates that the adapter is a “**b**” type and can only be used to connect using the “**CSLA-UNENCRYPTED**” connection (see Figure 5). A maximum data transfer rate of 54 megabytes per second indicates that the adapter is a “**b/g**” type and can be used to connect using either connection (see Figure 6).


Configuration of the Wireless LAN Adapter


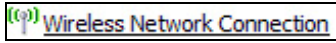
Each of the two types of wireless LAN adapters that can be used on the CSULA campus must be configured to connect to the Internet and campus networks. Each type will be configured with different settings as described in the following sections.

Configuring a B/G Wireless LAN Adapter

If the laptop wireless LAN adapter is a “**b/g**” type, it must be specifically configured to access the campus network or the Internet. There are a large number of “**b/g**” wireless LAN adapter brands available, and most can be configured using the steps outlined in this section.

To configure a “**b/g**” wireless LAN adapter:

1. Click the **Start** button  on the lower left corner of the desktop. The **Start** menu opens.
2. Click the **Control Panel** menu item. The **Control Panel** window opens.

- Click the **Network Connections**  button. The **Network Connections** window opens.
- Right-click the **Wireless Network Connection**  button and select **Properties** from the pop-up menu. The *Wireless Network Connection Properties* dialog box opens (see Figure 7).

!NOTE:

The buttons in steps (3) and (4) above may appear slightly different depending on the folder view option settings in effect. The names of the buttons, however, should be the same.

- Click the *Wireless Networks* tab.
- Check the *Use Windows to configure my wireless network settings* check box (see Figure 8).

!NOTE:

Depending on the manufacturer of the wireless LAN adapter, the user may not be able to check the *Use Windows to configure my wireless network settings* check box. If that occurs, the settings on the wireless LAN adapter must be adjusted. Consult the **Help** menu structure, documentation provided with the adapter, or contact the manufacturer to determine how to adjust the configuration settings of the adapter.

- Click the **Add...** button in the *Preferred networks:* section. The *Wireless Network Properties* dialog box opens (see Figure 9).

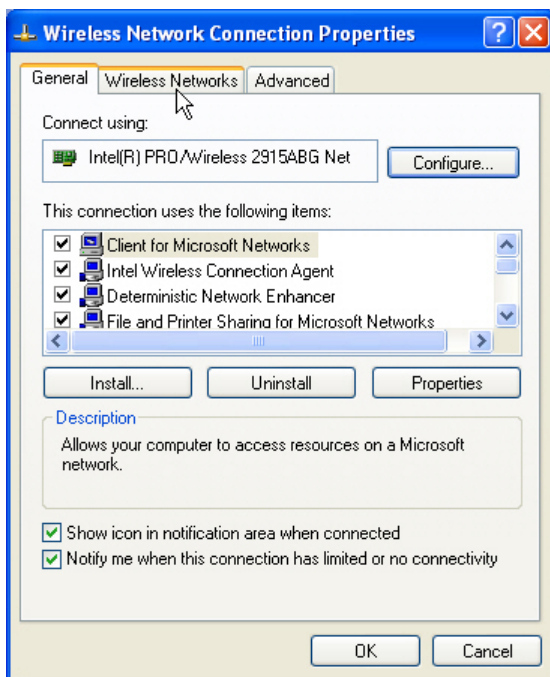


Figure 7 - Wireless Network Connection Properties Dialog Box

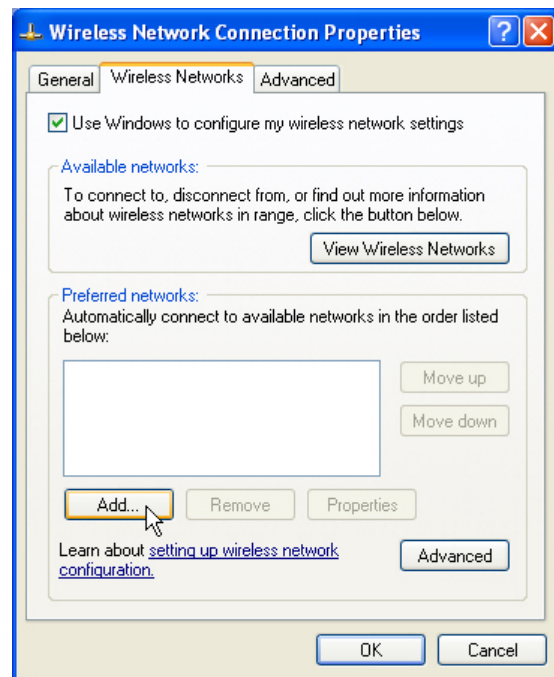


Figure 8 - Use Windows to Configure My Wireless Network Settings Check Box

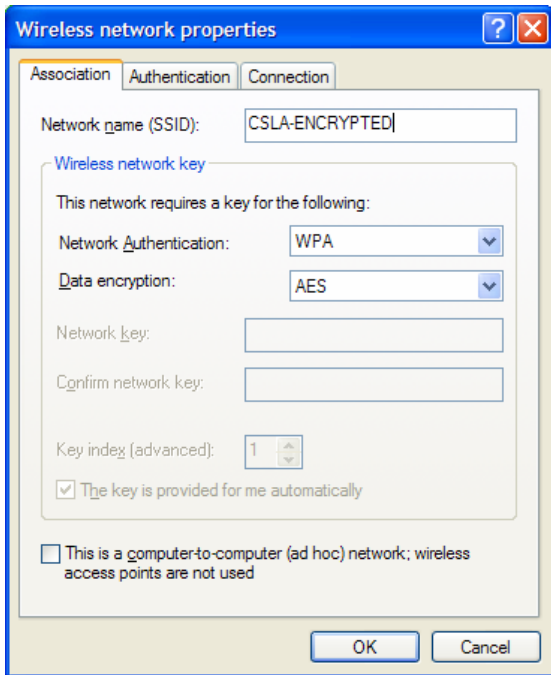


Figure 9 - Wireless Network Properties Dialog Box

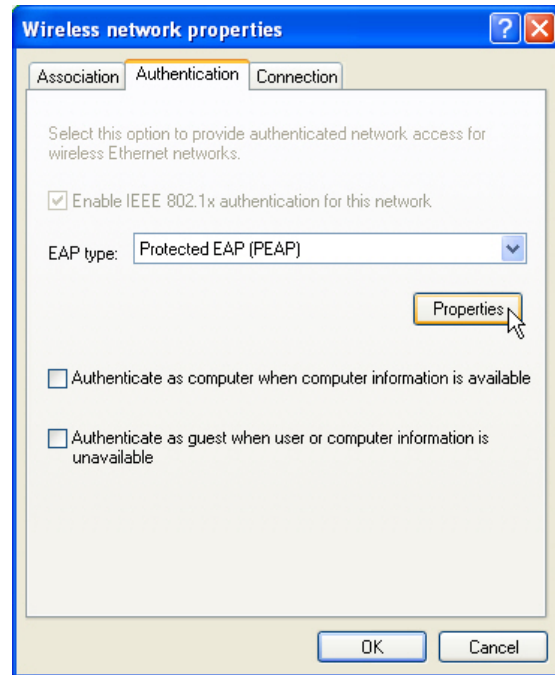


Figure 10 - Wireless Network Properties Authentication Tab

8. Enter “*CSLA-ENCRYPTED*” in the *Network name (SSID)*: text box.
9. Select “*WPA*” or “*WPA2*” from the *Network Authentication*: drop-down list.
10. Select either “*AES*” or “*TKIP*” in the *Data encryption*: drop-down list.
11. Click the *Authentication* tab (see Figure 10).
12. Select “*Protected EAP (PEAP)*” in the *EAP type*: drop-down list.
13. If applicable, uncheck any check boxes below the **Properties** button on the *Authentication* tab.
14. Click the **Properties** button. The *Protected EAP Properties* dialog box opens (see Figure 11).

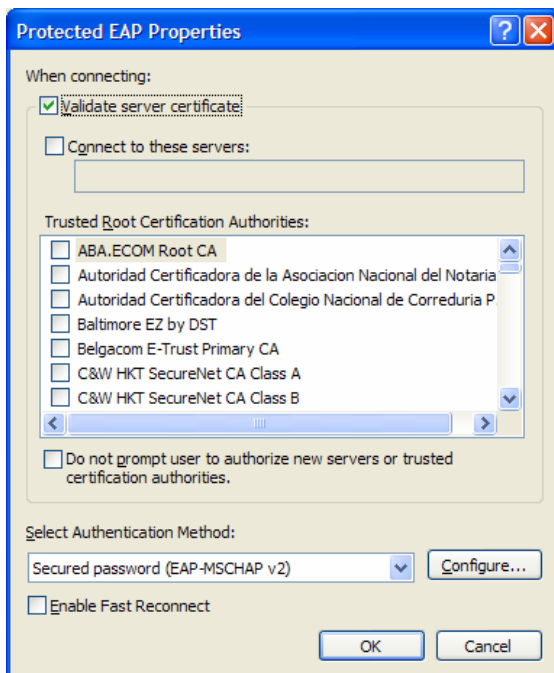


Figure 11 - Protected EAP Properties Dialog Box

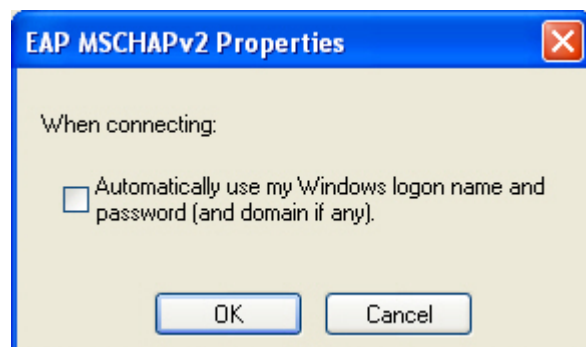




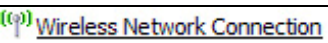
Figure 12 - EAP MSCHAP v2 Properties Dialog Box

15. Check the *Validate server certificate* check box.
16. Select “*Secured password (EAP-MSCHAP v2)*” in the *Select Authentication Method:* drop-down list.
17. Click the **C**onfigure... button. The *EAP MSCHAP v2 Properties* dialog box opens (see Figure 12).
18. Uncheck the *Automatically use my Windows logon name and password (and domain if any)* check box.
19. Click the **OK** button on each open dialog box to close it.
20. Close the **Network Connections** window.

Configuring a B Wireless LAN Adapter

If the laptop wireless LAN adapter is a “*b*” type, it must be specifically configured to access the campus network or the Internet. There are a large number of “*b*” wireless LAN adapter brands available, and most can be configured using the steps outlined in this section.

To configure a “*b*” wireless LAN adapter:

1. Click the **Start** button  on the lower left corner of the desktop. The **Start** menu opens.
2. Click the **Control Panel** menu item. The **Control Panel** window opens.
3. Click the **Network Connections**  button. The **Network Connections** window opens.
4. Right-click the **Wireless Network Connection**  button and select **Properties** from the pop-up menu. The *Wireless Network Connection Properties* dialog box opens (see Figure 7).

!NOTE:

The buttons in steps (3) and (4) above may appear slightly different depending on the folder view option settings in effect. The names of the buttons, however, should be the same.

5. Click the *Wireless Networks* tab.
6. Check the *Use Windows to configure my wireless network settings* check box (see Figure 8).

!NOTE:

Depending on the manufacturer of the wireless LAN adapter, the user may not be able to check the *Use Windows to configure my wireless network settings* check box. If that occurs, the settings on the wireless LAN adapter must be adjusted. Consult the **Help** menu structure, the documentation provided with the adapter, or contact the manufacturer to determine how to adjust the configuration settings of the adapter.

7. Click the **Add...** button in the *Preferred networks:* section. The *Wireless Network Properties* dialog box opens (see Figure 13).

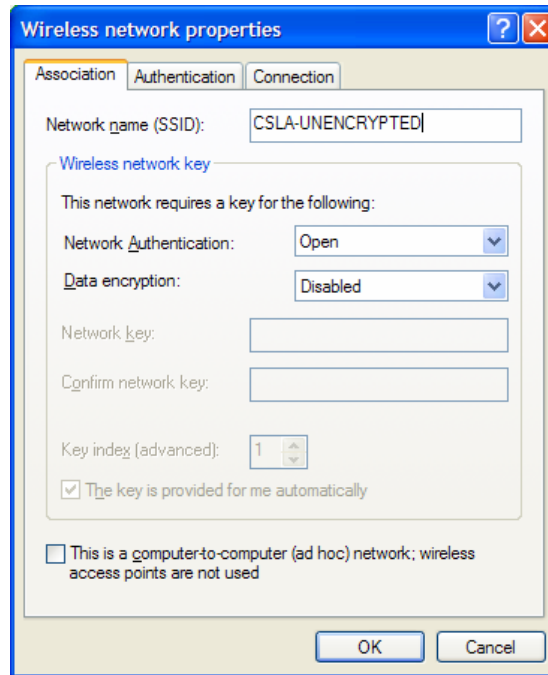


Figure 13 - Wireless Network Properties Dialog Box

8. Enter “*CSLA-UNENCRYPTED*” in the *Network name (SSID):* text box.
9. Select “*Open*” from the *Network Authentication:* drop-down list.
10. Select “*Disabled*” in the *Data encryption:* drop-down list.
11. Click the **OK** button on each open dialog box to close it.
12. Close the **Network Connections** window.



Connecting Using a CSLA Wireless Connection

After the wireless LAN adapter has been configured, a connection must be established with the appropriate wireless connection (“*CSLA-ENCRYPTED*” or “*CSLA-UNENCRYPTED*”). The step-by-step processes detailed in these sections are only performed once. After the first successful connection is established, Windows automatically re-connects for future connection attempts.

Connecting Using the *CSLA-ENCRYPTED* Connection


The “*CSLA-ENCRYPTED*” wireless connection is the more secure of the two connections available on campus. Additionally, only users with a properly configured “*b/g*” type wireless LAN adapter can connect to the “*CSLA-ENCRYPTED*” network.

To connect to the “*CSLA-ENCRYPTED*” wireless connection:

1. Click the **Start** button  on the lower left corner of the desktop. The **Start** menu opens.
2. Click the **Control Panel** menu item. The **Control Panel** window opens.
3. Click the **Network Connections**  button. The **Network Connections** window opens.

!NOTE:

Steps (1), (2), and (3) do not have to be performed if the **Network Connections** window is already open.

4. Click the **Wireless Network Connection**  button. The *Wireless Network Connection* dialog box opens (see Figure 14).

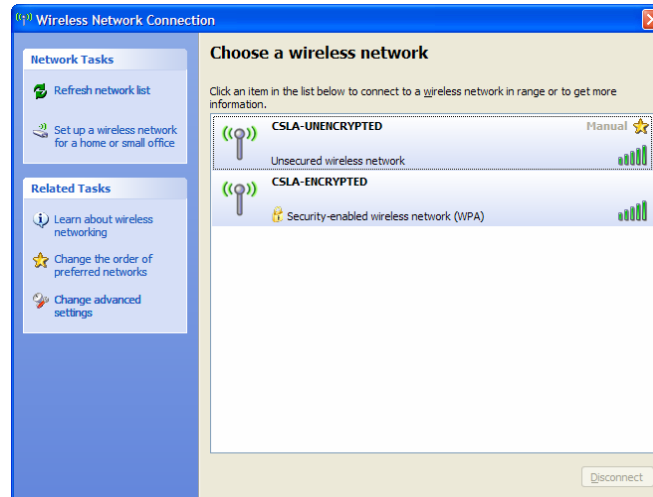


Figure 14 - Wireless Network Connection Dialog Box

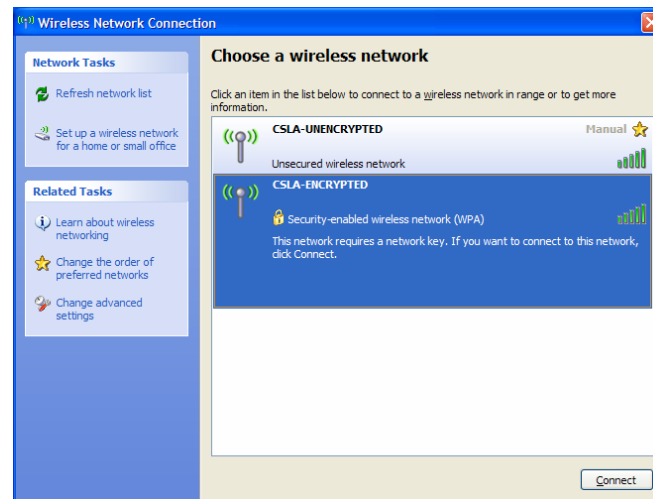


Figure 15 - CSLA-ENCRYPTED Network Connection Selected

5. Click anywhere inside the “*CSLA-ENCRYPTED*” area of the dialog box. The area expands and the background color changes to indicate that it is selected (see Figure 15).
6. Click the **C**onnect button. The *Wireless Network Connection* progress dialog box opens (see Figure 16).
7. After a delay of several seconds, the *Wireless Network Connection* balloon will appear on the right side of the **T**ask Bar (see Figure 17).

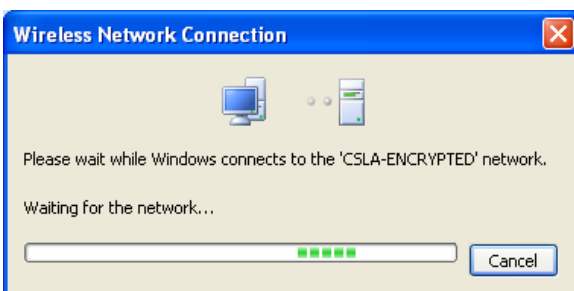


Figure 16 - Wireless Network Connection Progress Dialog Box

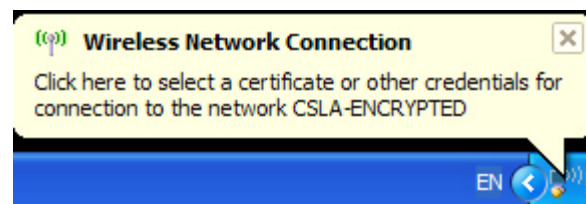


Figure 17 - Wireless Network Connection Credential Balloon

8. Click inside the balloon. The *Enter Credentials* dialog box opens (see Figure 18).

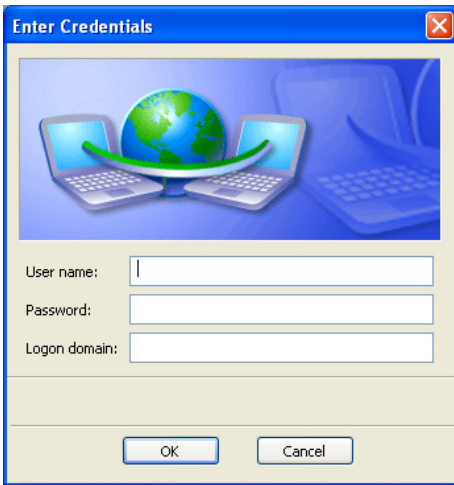


Figure 18 - Enter Credentials Dialog Box

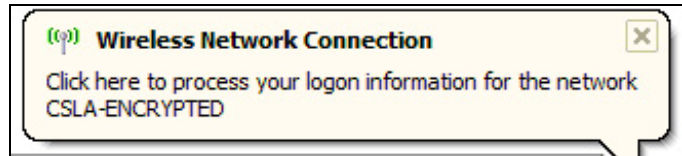


Figure 19 - Wireless Network Connection Logon Information Balloon

9. Enter the necessary information and click the **OK** button. After the user information has been authenticated, a *Wireless Network Connection* balloon will appear (see Figure 19).

!NOTE:

Faculty and staff must enter *User name:*, *Password:*, and *Logon Domain:* in the *Enter Credentials* dialog box. Students enter only *User name:* and *Password:* and leave the *Logon Domain:* text box blank.

10. Click inside the *Wireless Network Connection Logon Information* balloon. The balloon will close and the *Validate Server Certificate* dialog box will open (see Figure 20).
11. Click the **OK** button. The *Wireless Network Connection is now connected* balloon opens (see Figure 21) and the *Wireless Network Connection* dialog box indicates that the user is connected to the “*CSLA-ENCRYPTED*” network (see Figure 22).
12. Close all open dialog boxes and windows.



Figure 20 - Validate Server Certificate Dialog Box

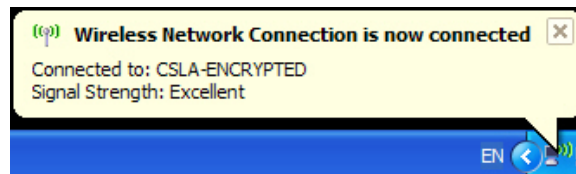


Figure 21 - Wireless Network Connection is Now Connected Balloon

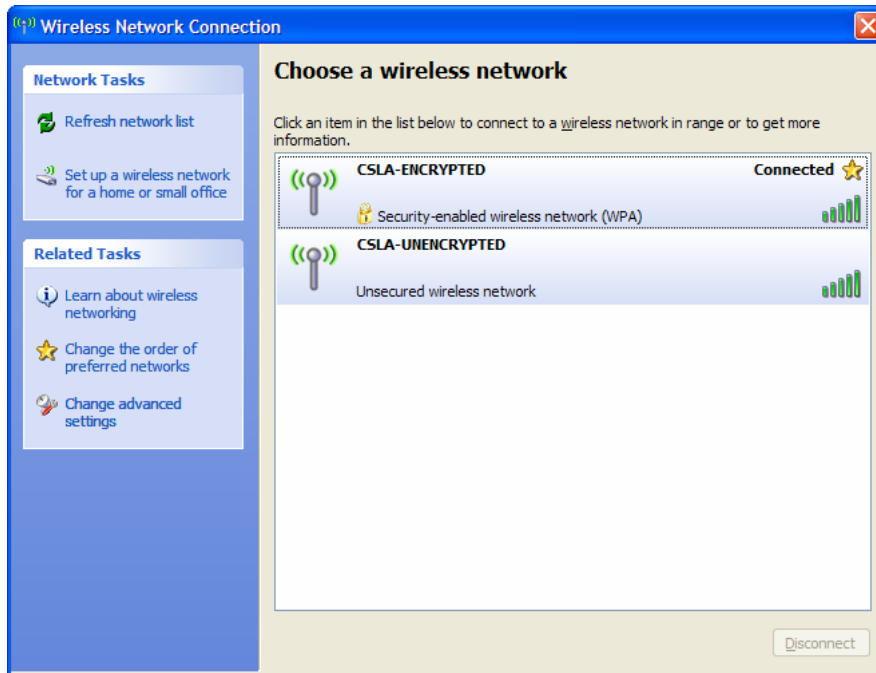




Figure 22 - Wireless Network Connection Dialog Box

Connecting Using the *CSLA-UNENCRYPTED* Connection

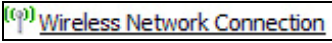
The “*CSLA-UNENCRYPTED*” wireless connection is not as secure as the “*CSLA-ENCRYPTED*” connection available on campus. Additionally, users with either a properly configured “*b*” or “*b/g*” type wireless LAN adapter can connect to the “*CSLA-UNENCRYPTED*” network.

To connect to the “*CSLA-UNENCRYPTED*” wireless connection:

1. Click the **Start** button  on the lower left corner of the desktop. The **Start** menu opens.
2. Click the **Control Panel** menu item. The **Control Panel** window opens.
3. Click the **Network Connections**  button. The **Network Connections** window opens.

!NOTE:

Steps (1), (2), and (3) do not have to be performed if the **Network Connections** window is already open.

4. Click the **Wireless Network Connection**  button. The *Wireless Network Connection* dialog box opens (see Figure 14).
5. Click anywhere inside the “*CSLA-UNENCRYPTED*” area of the dialog box. The area expands and the background color changes to indicate that it is selected (see Figure 23).
6. Click the **C**onnect button. The *Wireless Network Connection* message box opens warning the user that the connection is unsecured (see Figure 24).
7. Click the **C**onnect **A**nysway button. The message box closes and after a delay of several seconds, the *Wireless Network Connection* dialog box will indicate that the computer is connected (see Figure 25).

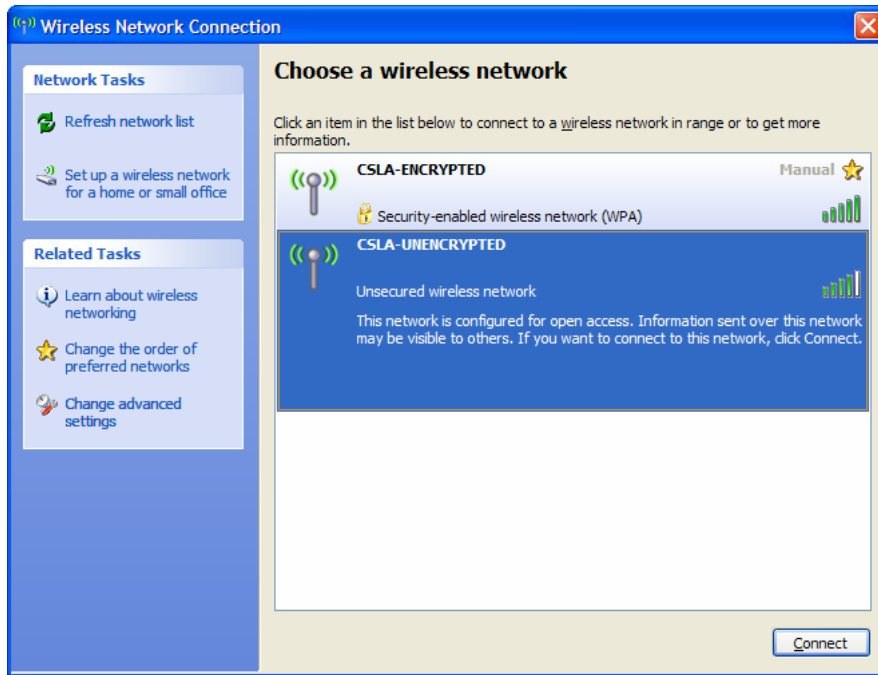


Figure 23 - Wireless Network Connection Dialog Box



Figure 24 - Wireless Network Connection Message Box

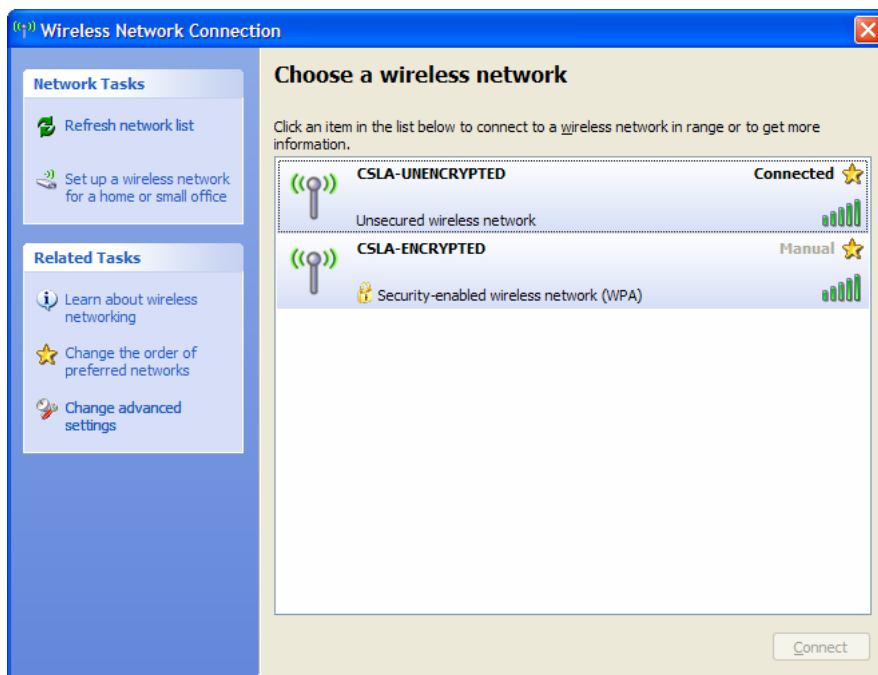


Figure 25 - Wireless Network Connection Dialog Box With Connection Established

Logging onto the System

After a user has configured the wireless LAN adapter and established a working connection, the Internet browser can be launched and the user will have Internet access the same as if the computer were connected using a wire and a data jack.. A log in page (see Figure 26) will open in the browser. Follow the instructions on the log in page to obtain full access to the Internet.

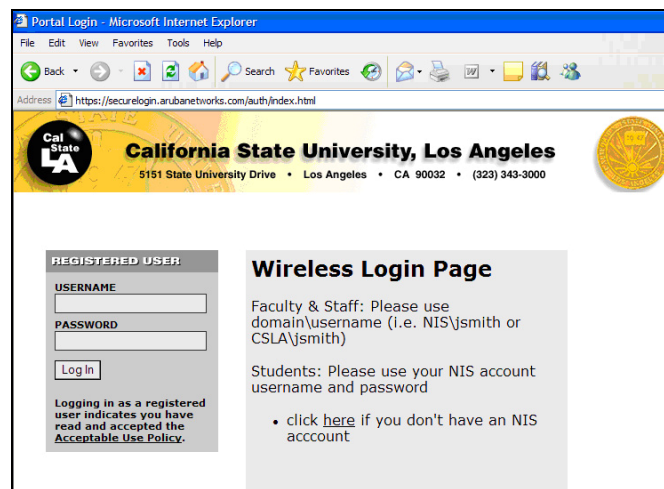


Figure 26 – Log In Screen After Successful Host Integrity Check

Access Points on Campus

There are currently ten access points installed on campus that provide students, faculty, and staff with wireless connection availability. Figure 27 is a map of the current coverage area. The ten access points are:

- Administration building quad
- Golden Eagle Food Court (both inside and outside dining areas)
- Library North second floor
- Library North A level
- Library Palmer Wing lobby
- King Hall (Dolcini's)
- King Hall quad
- Salazar Hall quad
- Student Affairs building
- Student Housing Game Room

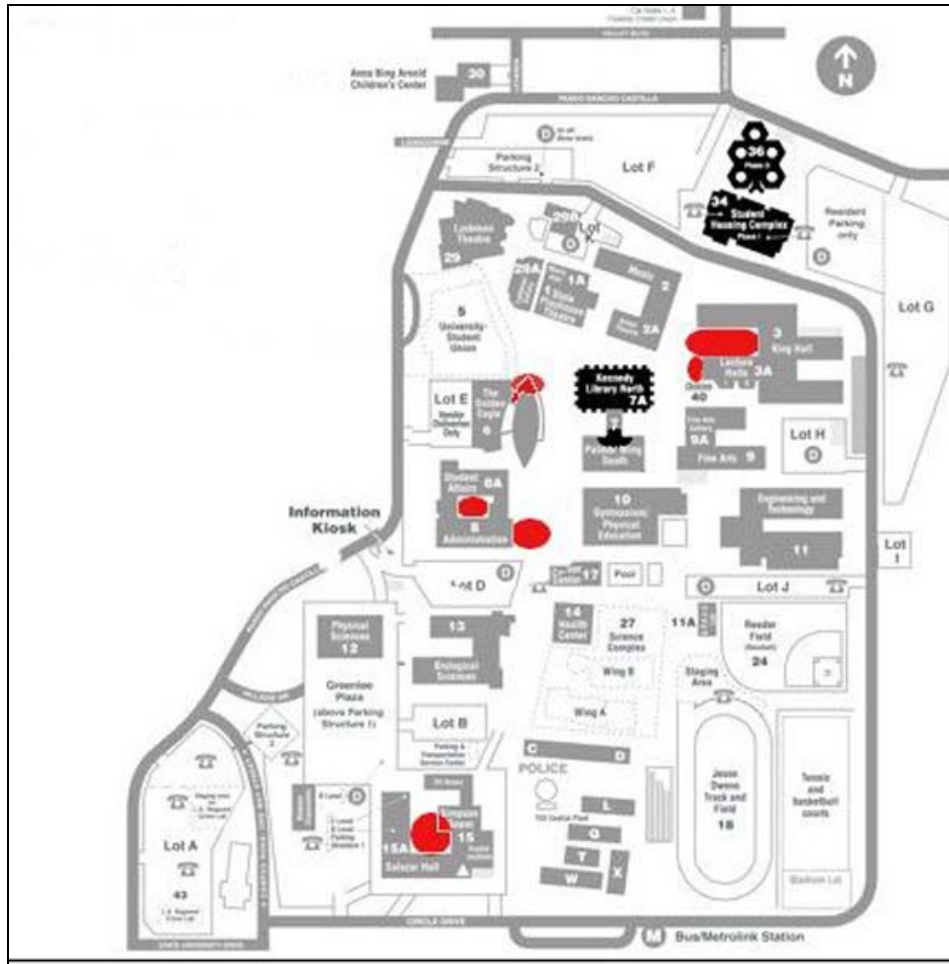


Figure 27 - Available Access Points

More access points will likely be added on the campus in the future. To view the most recent list of access points, please visit <http://www.calstatela.edu/its/wireless/coverage.html>.