



Laird Connection Manager

USER GUIDE

Version 1.3

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INTRODUCTION TO THE LAIRD CONNECTION MANAGER

Laird Technologies delivers a connection management and monitoring utility called the Laird Connection Manager (LCM), the successor to the Summit Client Utility (SCU). LCM allows you to view all radio and security settings, and status. It also enables you to troubleshoot connectivity issues.

The following is a detailed list of what you can view using the LCM:

- Individual Laird Wi-Fi radio configuration profile contents including radio and security settings.
- Global settings, which apply to every profile.
- A snapshot status of the current wireless network connection.
- Detailed status information on the radio, the access point to which it is connected, and the RF connection on link between the two.
- In-depth diagnostic information on the radio and its connection, so users can accurately report key data to an administrator when there is a connection or performance issue.
- Other radio information, such as software versions and regulatory domains.

Note: LCM management functions are only available to administrators. For more information on administrator functions, refer to the LCM Admin guide, available in the Software Downloads tab of your product's page at www.lairdtech.com.

This LCM User's Guide provides the following information:

- Instructions on how to access LCM.
- Detailed information regarding LCM windows including Status, Configuration, and Diagnostics.
- Brief information on Wi-Fi profiles and global settings.
- Brief information on Bluetooth devices and settings.
- Instructions on how to use the Laird System Tray Icon (only available for Windows CE and Windows Mobile).

ACCESSING THE LAIRD CONNECTION MANAGER

This version of the LCM is available for Windows Embedded CE and Windows Mobile. To access LCM from the Start menu, select **Programs > Laird > Laird Connection Manager**.

The Laird directory includes the LCM application and a directory for the storage of security certificates.

To run LCM, double click the LCM icon. The LCM has three tabbed windows:

- [Status Tab](#)
- [Configuration Tab](#)
- [Diagnostics Tab](#)

To view a window, tap the applicable tab.

STATUS TAB

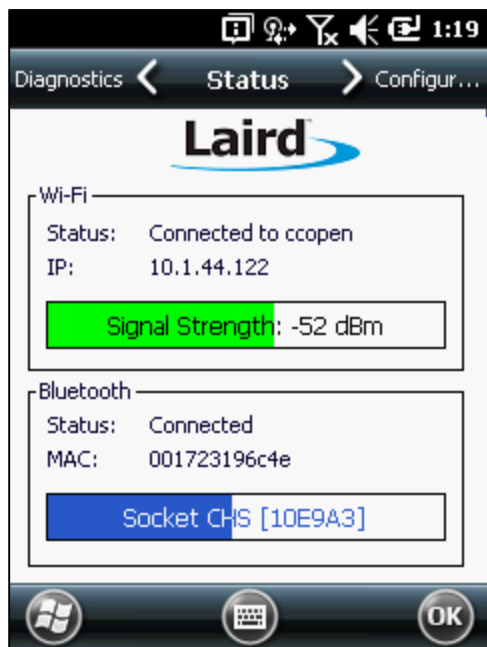


Figure 1: Status tab

The status tab is divided into Wi-Fi and Bluetooth sections. The Wi-Fi section provides status information on the radio's Wi-Fi connection between the client device and the access point to which it's associated. The Bluetooth section provides status information on the radio's Bluetooth connection between the client device and the destination device.

The Status tab displays the following sections:

- [Status - Wi-Fi](#)
- [Status - Bluetooth](#)

The two images at right (Figure 1) are the LCM Main windows for Windows CE/Windows Mobile and Windows XP operating systems.

Status - Wi-Fi

The Wi-Fi section of the Status tab provides the following information:

	Indicates the current status of the Laird Wi-Fi radio. Connection statuses include:	
Status	Down	The radio is not recognized by Laird software and therefore is not associated or authenticated.
	Disabled	The radio is disabled. To enable the radio, check the Wi-Fi check box located on the Configuration window. When the radio is disabled, it does not attempt to make a connection to an access point.
	Not Associated	The radio has not established a connection to an access point.
	Associated	The radio has established a connection to an access point but is not EAP authenticated. The radio cannot communicate unless it is associated and <u>EAP authenticated</u> .
	Note: If the <u>Encryption type</u> is set to WEP or Open (None), it can communicate (send data) while in the Associated state.	

	Connected to [SSID] The radio is connected to the named SSID.
IP Address	Displays the IP address of the Wi-Fi device.
Signal Strength	Displays the signal strength (or RSSI) in dBm.

Status - Bluetooth

The Bluetooth section of the Status tab provides the following information:

Status	Indicates the current status of the Laird Bluetooth radio. Connection statuses include: <ul style="list-style-type: none">▪ Down: The radio is not recognized by Laird software and therefore is not associated or authenticated.▪ Disabled: The radio is disabled. To enable the radio, check the Bluetooth check box located on the Configuration window. When the radio is disabled, it does not attempt to make a connection to an access point.▪ Not Connected: The radio is not connected to any Bluetooth devices.▪ Paired, Not Connected: The radio has found a Bluetooth device but is not paired with it.▪ Connected: The radio is connected to a Bluetooth device.
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MAC	The local device's MAC address.
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Signal Strength	Displays the signal strength.
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Note: Although you can view current settings, you cannot make any changes to LCM from the Status window.

CONFIGURATION TAB



Figure 2: Configuration tab

The Configuration tab allows Wi-Fi and Bluetooth to be enabled and disabled. It also allows users to manage Wi-Fi profiles, Bluetooth devices, and to scan for both.

Note: Non-administrators are not able to change or edit profiles.

The Configuration tab displays the following two sections:

- [Configuration - Wi-Fi](#)
- [Configuration - Bluetooth](#)

Configuration - Wi-Fi

Check on/off box	Check to enable or disable Wi-Fi
Active Profile	Displays the name of the active profile. Use the drop-down menu to select a different profile.
Manage Profiles	Allows user to change profiles and global configurations, and enables administrative abilities.
Scan	Opens the scan window to scan the area for available SSIDs. Also displays RSSI and security.

The Wi-Fi Manage Profiles page allows you to view profile properties and settings. Non-administrators may view but cannot edit any items on this tab.

There are three tabs listed under **Manage Profiles**:

- [Wi-Fi - Profile](#)
- [Wi-Fi - Globals](#)
- [Wi-Fi - Admin](#)

Wi-Fi - Profile

Profile settings are radio and security settings that are stored for each configuration profile. Other than viewing the settings for each profile, the functions and settings located on the Profile window are only available to administrators. Non-administrators may not edit any items on this tab.

The Profile tab displays the following properties and options:

Property and Value table	Displays the properties of each profile and its respective value.
Profile drop-down menu	Displays the current profile and a list of all profiles previously configured or used.
New	Allows a profile to be added to the list.
Delete	Deletes a profile from the list.
Value box	Displays the value of a prospective property.
Commit	Saves the changed value.

The following properties are covered in the Wi-Fi Profile Property and Value table:

- Authentication
- Bit Rate
- Client Name

- Encryption
- Fast Reauth
- Power Save
- Profile Name
- Radio Mode
- SSID
- Tx Power
- WPA/WPA2

Wi-Fi - Globals

The Globals tab displays the source device's Wi-Fi global values that apply to all profiles and settings that apply to LCM itself. The following subsections allow these values to be modified:

Property and Value table	Displays various properties and their respective values.
Value box	Displays the current and available alternative values for the selected property.
Commit	Saves the changed value. Note: When you tap Commit , a registry flush occurs for all settings.

Only administrators can edit and change global settings.

The following properties are covered in the Wi-Fi Globals Property and Value table:

- Roam Trigger
- Roam Delta
- Roam Period
- BG Channel Set
- DFS Channels
- DFS Scan Time
- Ad Hoc Channel
- Aggressive Scan
- CCX features
- WMM
- Auth Server
- TTLS Inner Method
- PMK Caching
- Tx Diversity
- Rx Diversity
- Frag Thresh
- RTS Thresh
- LED
- Tray Icon
- Hide Passwords
- Admin Passwords (*Admin Only*)
- Auth Timeout
- Certs Path
- Ping Payload
- Ping Timeout
- Ping Delay
- Logon Options

Wi-Fi - Admin

The admin tab allows administrative access to advanced Wi-Fi features. The following administrative functions are available:

- Administrator Login- apply administrator credentials.
- Administrator Password- apply administrator password.
- Scan- Tap to view a list of APs that are broadcasting SSIDs.

Configuration - Bluetooth

The Bluetooth panel of the Configuration tab displays the source device's Bluetooth settings. The following options are available:

Bluetooth checkbox	Check to enable or disable Bluetooth.
Discoverable checkbox	Check to enable or disable device from discoverability. The device is discoverable for 60 seconds before automatic turn-off.
Manage Devices	Allows users to add and remove devices, profiles, and local services (formerly Bluetooth Globals). It also enables administrative abilities.
Scan	Click Scan under "Bluetooth" to find a device. Remote devices in discoverable mode can then be discovered. After using Scan to find a device, an administrator can double-click an icon and begin the pairing process. Depending on the remote device, a user may be required to enter input to successfully pair with the remote device. Clicking Refresh refreshes the Bluetooth scan.

There are four tabs listed under **Manage Devices**:

- [Bluetooth Devices](#)
- [Bluetooth Settings](#)
- [Bluetooth Local Services](#)
- [Bluetooth Admin](#)

Bluetooth Devices

The Devices tab displays discoverable and previously-discovered devices. Additionally, this tab allows connection and disconnection with remote Bluetooth devices. The following options are available:

Devices name and services box	Displays Bluetooth devices in range and the connectivity of each device. Select the device or service and click Connect to enable it. The background of the service's icon changes from blue to green when it is enabled.
Pair/Unpair	Pair or unpair the selected radio or service with the selected device.
Connect/Remove	Connects or removes the selected device from the list; removing a device closes out any connections with the device and removes any pairing that occurred. Note: You must manually connect to services unless they are set to Auto Start.
Services/Settings	Displays service profiles for the selected device, or settings for the selected service.
Send File	Sends files to the selected device.

Bluetooth Settings

The Settings tab allows configuration of Bluetooth devices. The following settings are available:

Property and Value table	Lists properties for the selected Bluetooth device. Property values can be changed in the value dropdown and saved with the Commit button.
Device drop-down	Selects the Bluetooth device to be explored in the Property and Value table.
New	Adds a new Bluetooth device.
Commit	Saves the changed value.
Value	Changes a value for a property. Select a property in the Property and Value table, and then change the value in the Value box.

Bluetooth Settings Properties and Values

Device Name	Friendly name of the remote device.
Address	The remote device's unique MAC address.
Service	Services available.
Note: To manually insert a service, highlight " <i>Service</i> " and click Add . A list of services appears; these can be manually added to the device. Any services can be renamed in the Value box.	
Service Name	The name of the service currently selected.
Service Type	The type of service currently selected.

Bluetooth Local Services

The Local Services tab (formerly Bluetooth Globals) displays the source device's current Bluetooth devices. The following subsections allow these values to be modified:

Service table	Lists the services available on a device, the state of Auto-Start, and the COM port number associated with the service.
Add Serial Service button	Manually adds a service to the Service table.
Delete	Deletes a selected service.
Settings	Shows specific settings for a selected service.

The Service table displays the following information:

- HID
- PAN
- OBEX Object Push
- BT Serial Port

Bluetooth Admin

The Admin tab allows administrative access to advanced Bluetooth features. The following administrative functions are available:

- Administrator login- Apply administrator credentials.
- Administrator password- Apply administrator password.
- Scan- Tap to view a list of APs that are broadcasting SSIDs.

DIAGNOSTICS TAB



Figure 3: Diagnostics

The Diagnostics tab enables you to troubleshoot connection issues within LCM.

The Diagnostics tab displays the following:

Wi-Fi	Status enabled/disabled
Bluetooth	Status enabled/disabled
About	Tap to display LCM information including driver and the LCM version.
Advanced	Tap to display advanced settings for Wi-Fi, strength percentage, and quality percentage.

There is an icon for both Wi-Fi and Bluetooth connections, as described below:

Wi-Fi

- Wi-Fi Connected- Green radial pattern on white background.
- Wi-Fi Disconnected- White radial pattern on red background.

Bluetooth

- Bluetooth Connected- Blue Bluetooth icon.
- Bluetooth Paired, Not Connected- White Bluetooth icon.
- Bluetooth Disabled- Red Bluetooth icon.

To view advanced settings for Wi-Fi, click **Advanced**. There are three drop-down options in **Advanced**:

- [Advanced – Wi-Fi Status](#)
- [Advanced – Wi-Fi Ping Tools](#)
- [Advanced – Wi-Fi Debug](#)

Advanced – Wi-Fi Status

Profile	The name of the active profile.
Status	Indicates the current Wi-Fi association status of the Laird Wi-Fi radio (see Table 4)

Device information	Device name and other information including IP address, MAC address, and Tx power.
AP information	AP name and AP information (for the AP to which the Laird Wi-Fi radio is associated), IP address, MAC address, beacon period, channel, and bit rate.
Connection information	Information including the WLAN connection (between Laird Wi-Fi radio and AP) information including signal strength (RSSI), and signal quality percentage.

Advanced – Wi-Fi Ping Tools

Profile	The name of the active profile.
Destination	The destination of the ping in use.
Ping Payload	The amount of data (in bytes) that is transmitted on a ping. Use the drop down menu to choose 32, 64, 128, 256, 512, or 1024 bytes.
Ping Delay text box	The amount of time (in milliseconds or ms) between successive ping requests.
Timeout ms text box	How long to wait for a ping before timing out and sending the next ping.
Start Ping/Stop Ping	Start a continuous <u>ping</u> to to the address in the output area to the button. Once the button is tapped, its name and function changes to Stop Ping. Pings continue until you tap Stop Ping , move to a different LCM window, exit LCM, or remove the radio. Note: If your device has both a Laird Wi-Fi radio and another network adapter active, then pings may go out over the non-Laird network adapter. Note: The access point's IP address is the default for a ping although any valid IP address can be manually entered.
Release/Renew	Obtain a new IP address through <u>DHCP</u> release/renew. LCM logs all activity in the output area next to the button.
(Re)connect	Initiate a reconnect of the radio: Disable and enable the radio, apply(or reapply) the current profile, attempt to associate to the wireless LAN, and attempt to authenticate to the wireless LAN. LCM logs all activity in the output area next to the button.

Advanced – Wi-Fi Debug

Profile	The name of the active profile.
Driver Debug	Enable or disable Driver Debug mode.
Drop-down menu	Set the debug parameters. Debug may be of low, medium, or high detail and may be sent over serial connection or logged as a text file.
Regulatory Domain	Displays Wi-Fi rules according to country.

USING THE LAIRD SYSTEM TRAY ICON

On Windows CE or Windows Mobile, Laird software includes a service that displays an icon in the Windows System Tray. This icon provides a visual status for the Wi-Fi radio and provides access to the LCM application.

Note: Tap the icon to launch the LCM application.

The service is active and displays an icon in the System Tray only when all of the following conditions are met:

- A Laird Wi-Fi radio is installed in the device or inserted in an external slot in the device.
- The device is active.
- Windows Zero Config (WZC) is not active.
- The LCM Tray Icon global setting is On (the default setting).

When the service is active, it queries the radio every three seconds for connection status. Based on the radio's response to the query, the service displays one of the following icons:



The radio is not associated/authenticated to an AP.



The signal strength (RSSI) for the current AP (to which the radio is associated) is -90 dBm or weaker, which means that a Laird 802.11b/g radio will operate at 802.11b data rates only.



The RSSI for the current AP is stronger than -90 dBm but not stronger than -70 dBm, which means that a Laird radio will operate at 802.11g or 802.11a data rates that are less than 54 Mbps



The RSSI for the current AP is stronger than -70 dBm but not stronger than -50 dBm, which means that a Laird radio should operate consistently at 54 Mbps



The RSSI for the current AP is stronger than -50 dBm.

LCM Bluetooth Tray Icon

The Bluetooth tray icon displays connectivity and power status for the Bluetooth radio. It displays one of the following:



The Bluetooth radio is disabled, and therefore disconnected.



The Bluetooth radio is enabled, but is not connected.



The Bluetooth radio is connected to a device.

Tapping the icon launches the LCM. On most CE devices, the System Tray icon is not visible while LCM is running, although the service remains active.

Note: If LCM usually runs on the device, or if you want to maximize performance, then you should disable the System Tray icon service by setting the Tray Icon global setting to Off and power cycling the device.
