

LAIRD WI-FI RADIOS ON WINDOWS CE AND MOBILE

Quick Start Guide

v1.0

Note: If you are using a miniature compact flash (MCF10G or MCF10AG) radio module, SDIO (MSD10G, MSD10AG, or MSD30AG) radio module, or PCI Express mini card (PE15N), [contact](#) Laird Technologies for hardware installation information and assistance.

INTRODUCTION

When you install and use your Summit brand radio module or card in a computing device, that device can communicate to a computing network using the IEEE 802.11 protocols that the Summit brand radio supports:

- **G radio:** 802.11b and 802.11g
- **AG radio:** 802.11a, 802.11b, and 802.11g
- **N radio:** 802.11a, 802.11b, 802.11g, and 802.11n
- **N + BT radio:** 802.11a, 802.11b, 802.11g, 802.11n and Bluetooth

For details on the capabilities of Laird Technologies' Summit brand Wi-Fi products, [click here](#).

Laird Technologies provides the following software for its radios that runs on the computing device that houses the radio:

- A device driver
- Integrated IEEE 802.1X supplicant (supports the highest level of standards-based WLAN security)
- The Summit Client Utility (SCU), a configuration, monitoring, and management application
- A service that displays a Windows System Tray icon

V3.03 of Summit brand software runs on the following operating systems:

- Windows Embedded CE 5.0, 6.0, or 6.0 R2
- Windows Mobile 2003, 5.0, 6, or 6.1
- Windows XP or Embedded XP SP2 (or higher)
- Windows 7 (Summit SDC-PE15N, SDC-EC15N, and SDC-EC25N radios only)

Your Summit brand radio module is Wi-Fi CERTIFIED® and certified for Cisco Compatible Extensions (CCX):

- Wi-Fi - For details, visit the Wi-Fi Alliance Web site at <http://www.wi-fi.com>, click the Wi-Fi CERTIFIED Products link, and search for Summit Data Communications.
- CCX - Summit brand radio modules are certified to Version 4 of the CCX specification for application-specific devices (ASDs).

For an overview of CCX: http://www.cisco.com/web/partners/pr46/pr147/partners_pgm_concept_home.html.

For details on the features in CCX V4 for

ASDs: http://www.cisco.com/warp/public/765/ccx/versions_and_features.shtml.

GETTING STARTED

Before you can use a Summit brand radio, you or your device manufacturer must install Summit brand software and the radio in your computing device. If you are performing the software and hardware installation, then you will need the following:

- Mobile computing device with a compact flash (CF) Type I or Type II slot or a PCMCIA (PC Card) Type II slot that runs one of the applicable operating systems
- Summit brand software - Available from the organization from which you purchased your Summit brand radio
- Summit brand radio module or radio card
- Antenna(s) with a cable fitted with a Hirose U.FL connector:
 - 10G Series radio module - One or two antennas
 - 10AG Series radio module - Two or four antennas

This process involves the following four steps:

1. [Install the Summit Brand Software](#)
2. [Install the Radio in the Host Device](#)
3. [Configure the Manner of Obtaining an IP Address](#)
4. [Configure the Radio for Your Wireless Network](#)

Note: Laird Technologies recommends that you install the software before you install the hardware. If you insert the card in your device before you install the software, the Found New Hardware Wizard screen appears and you must select Cancel to cancel the Hardware Wizard.

Install the Summit Brand Software

Summit brand software is in a .cab file (the software equivalent of a "file cabinet") which contains all software components including the device driver and the Summit Client Utility (SCU).

To install the Summit brand software, perform these tasks:

- Download the appropriate .cab file for the operating system and processor of your device. You can obtain your device's operating system and processor from the system information under Windows Control Panel (Click Start > Settings > System or Control Panel).
 - **Pocket PC or Windows Mobile:** Select a .cab file with a name that begins with *mobile*.
 - **Windows CE .NET:** Select a .cab file with a name that begins with *sdc_armv4i*.
- Copy the file to your device using a supported file transfer mechanism. Common methods of moving the file include:
 - Place the file on a supported Compact Flash or SD memory card and use that card for copying the file to the device.
 - Use a program such as FTP or Microsoft ActiveSync.
- On the device, use the resident File Explorer program to locate the .cab file.
- Run the .cab file by single-clicking the file or by right-clicking and selecting **Run**.
- If asked to replace any existing files on the device, select **Yes to all**.

Install the Radio in the Host Device

Once you have installed the Summit brand software, you must install the Summit brand radio module or card into a CF or PCMCIA slot.

Note: Instructions on installing a Summit brand radio module in an internal slot (within a device) are available only to device manufacturers.

To install a 20G, 22G, or 22AG Series radio card, insert the card in an external card slot.

To install a 10G Series or 10AG Series radio module in an external slot, you must complete two types of connections:

- Module to device - When you slide the radio module into a CF or PCMCIA external slot, a connector on the end of the module mates with a connector in the slot.
- Antenna(s) to module - To connect each antenna to the radio module, use an antenna cable that mates with the antenna on one end and with the radio module's U.FL connector on the other end.

Note: The standard approach is to install the module in the device first and then connect the antenna(s). If the antenna connectors on the radio are not visible when the radio is inserted, then you need to connect the antenna(s) before installing the radio in the external slot.

To connect the antennas, follow the instructions below for the applicable module:

10G module

There are two antenna connectors.

- Single antenna: Connect it to the main antenna connector, which is located to the right of the auxiliary connector. Set the Rx Diversity and Tx Diversity global settings to Main Only (see the user's guide).
- Two antennas for diversity: Connect the primary antenna to the main antenna connector and the secondary antenna to the auxiliary antenna connector, which is located to the left of the main connector.



Figure 1: 10G Module

10AG module

There are four antenna connectors: two for the 5 GHz (802.11a) band and two for the 2.4 GHz (802.11b and 802.11g) band, with the 2.4 GHz connectors located to the right of the 5 GHz connectors.

- Single antenna for each band: Connect it to the main antenna connector for each band, which is located to the right of the auxiliary connector. Set the Rx Diversity and Tx Diversity global settings to Main Only (see the user's guide).
- Two antennas for each band for diversity: In each band, connect the primary antenna to the main antenna connector and the secondary antenna to the auxiliary antenna connector.



Figure 2: 10AG Module

Configure the Manner of Obtaining an IP Address

To configure how your device will obtain an IP address on Windows CE or Windows Mobile, perform the following tasks:

- Select **Programs > Settings**, then the Connections tab at the bottom of the Settings screen.
- Select **Connections > Advanced**.
- On the Advanced Connections screen, select **Network Card** and then select **Summit WLAN Adapter** from the list of available network devices.
- Choose that a server will assign an IP address (using DHCP) or enter a specific IP address.
- If you select the Name Servers tab, you can statically configure DNS servers. If you use DHCP for IP address assignment, then DNS is typically supplied by the same server that hands out IP addresses.

Configure the Radio for Your Wireless Network

You can configure radio and security settings, monitor performance and activity, and troubleshoot issues with the radio module using any of the following:

- The Summit Client Utility (SCU)
- Another application, such as Wavelink Avalanche, that uses the SCU software developer's kit (SDK)
- Native facilities in the operating system, such as Windows Zero Config (WZC)

To run SCU:

- From the Start menu, select **Programs > Summit** directory.
- Locate and double-click the SCU icon.

To configure the radio for your wireless network:

- Tap **Admin Login** on the Main window to authenticate as an administrator (default password: *SUMMIT*).
- Create a profile on the Profile window, specifying all important parameters such as SSID, authentication method, and encryption type.
- Tap **Commit** to save the profile.

To connect to your wireless network, go to the Main window and select the created profile.

USING THE SUMMIT CLIENT UTILITY

SCU is an application designed for end users and administrators of mobile devices that use a Summit brand radio module. Using SCU, an end user can:

- Disable the radio (turn it off) and enable the radio (turn it on).
- View the contents of configuration profiles.
- Select the profile to be used to connect to a WLAN.
- View global settings.
- View status information on the radio, the access point (AP) or WLAN router to which it is connected, and the RF connection or link between the two.
- View in-depth diagnostic information and perform troubleshooting and diagnostic tests.

After completing an administrator login to the utility, a user can perform these additional tasks:

- Create, rename, edit, and delete profiles.
- Edit global settings.

SCU provides a graphical user interface for access to all of its functions. Access to these functions also is available through an SDK that an application programmer can use to enable another utility to manage the radio.

To initialize SCU:

- From the Start menu, select **Programs** or **All Programs** (depending on your operating system).
- Select the Summit directory (which includes a directory for stored security certificates and an SCU icon).

To run SCU, double-click the SCU icon.

SCU includes the following five windows: Main, Profile, Status, Diags (or Troubleshooting), and Global. Refer to the User's Guide for more complete information.

Main Window

- **Admin Login/Logout** - The default password is **SUMMIT** (case sensitive). The password can be changed through the Admin Password function on the Global window.
- **Enable/Disable Radio**
- **Active Profile** - You can view the name of the active profile and, using the selection list, select a different profile. If you select **ThirdPartyConfig** then, after the device goes through a power cycle, WZC is used for configuration of the radio.
- **Status** - Down, Disabled, Not Associated, Associated, Authenticated.
- **Radio Type** - A (802.11a), B (802.11b), G (802.11g), and/or N (802.11n).
- **Reg. Domain** - Indicates the regulatory domain for which the radio is configured. The domain cannot be configured by an administrator or user.
- **Auto Profile** - Enables the user to activate or deactivate an automatic profile selection facility.
Note: The profile list should not include any profiles with an Ad Hoc radio mode setting.
Note: Auto Profile is not available for the MSD30AG and SSD30AG modules.
- **Driver** - Indicates the version of the device driver that is running on the device.
- **SCU** - Indicates the version of SCU that is running on the device.
- **About SCU** - When tapped, supplies information on SCU that on a Windows application normally would appear under Help > About.



Figure 3: Main Window

Profile Window

Profile settings are radio and security settings that are stored in the registry as part of a configuration profile. When a profile is as the active profile on the Main window, the settings for that profile become active. An administrator can define up to 20 profiles, edit them, and delete them on the Profile window in SCU.

Note: Profile changes made on the window are saved to the profile only when you click **Commit**.

Unless it is modified, the Default profile does not specify an SSID, EAP type, or method of encryption. If the Default profile is the active profile, then the radio will associate only to an access point that broadcasts its SSID and requires no EAP type and no encryption.

- **Edit Profile** - This is used to select the profile to be viewed or, if you are an administrator, edited.
- **New** - Tap to create a new profile (Admin only).
- **Rename** - Tap to give the profile a new unique name (Admin only).
- **Delete** - Tap to delete a non-active profile (Admin only).
- **Scan** - Tap to view access points that are broadcasting SSIDs. SCU allows an administrator to create a profile from a listed SSID.
- **Radio** - When an attribute is selected, the current setting or an appropriate selection box with the current setting highlighted appears on the right.
- **Security** - EAP type and encryption type display with the current values highlighted. Administrators can define EAP type credentials as well as WEP keys or PSKs.
- **Commit** - Tap **Commit** to confirm changes made to the profile settings.

To cause a Summit brand radio to connect to a typical business WLAN, you must select a profile that specifies the SSID, EAP type, and encryption type supported by the WLAN:

- **SSID** - Name or identification of the WLAN.
- **EAP type** - Protocol used to authenticate the device and its user if the WLAN uses the Enterprise version of Wi-Fi Protected Access (WPA) and WPA2.
- **Encryption** - Type of key used to encrypt and decrypt transmitted data and how that key is specified or derived. Encryption options include:
 - WPA2 or WPA with dynamic keys
 - WPA2 or WPA with pre-shared keys

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- Static WEP keys

Note: Consult the [User's Guide](#) for details on all profile settings, including security settings.

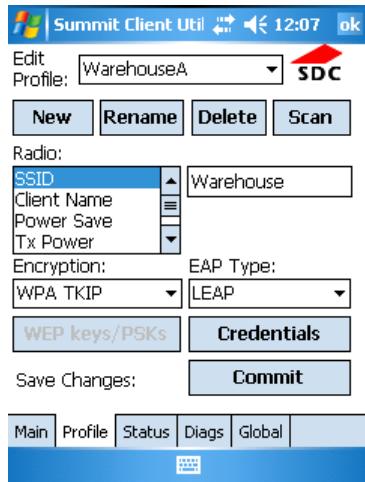


Figure 4: Profile Window

Status Window

The Status window provides status information on the radio.

- Active Profile
- Radio's status - Down (not recognized), Disabled, Not Associated, Associated, or [EAP type] Authenticated
- Client info - Name, IP address, and MAC address
- AP info - Name, IP address, MAC address, beacon period, and DTIM interval
- Connection info - Channel, data rate, transmit power, signal strength, and signal quality

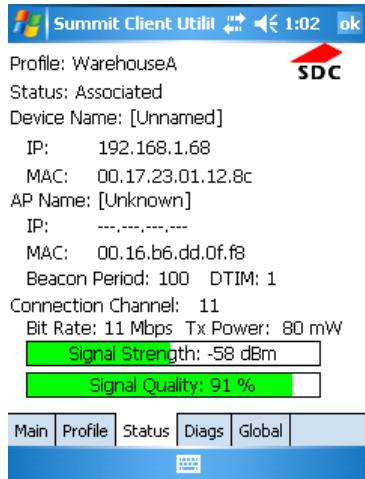


Figure 5: Status Window

Diags Window

The Diags window provides status information on the radio.

- **(Re)connect** - Disable and enable the radio, apply or reapply the current profile, and attempt to associate and authenticate to the wireless LAN, logging all activity in the output area at the bottom.
- **Release/Renew** - Obtain a new IP address through DHCP release/renew and log all activity in the output area at the bottom.
- **Start Ping** - Start a continuous ping to the address in the edit box next to it.
- **Diagnostics** - Attempt to (re)connect to an AP, and provide a more thorough dump of data than is obtained with (Re)connect. The dump includes radio state, profile settings, global settings, and a BSSID list of APs in the area.
- **Save To...** - Save the diagnostics output to a file.

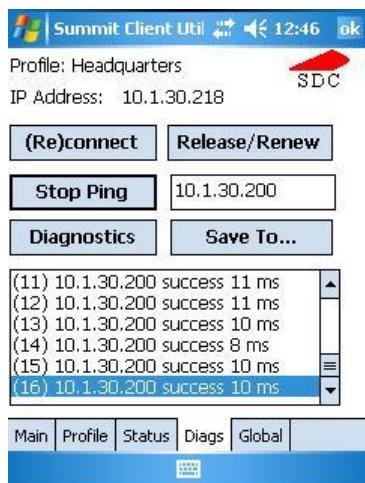


Figure 6: Diags Window

Global Window

Global settings include:

- Radio and security settings that apply to all profiles
- Settings that apply to SCU itself

An administrator can define and change most global settings on the Global window in SCU.

The default setting for each global setting ensures reliable operation in most environments. Consult the User's Guide for details on all global settings.

REVISION HISTORY

Revision	Date	Description	Initiated By
1.0	29 Jan 2015	Converted from HTML. Initial Release	Sue White