Summit Data Communications, Inc.

Quick Start Guide

for a Summit radio card or module
with software version 1.03

21 September 2007

Overview

Thank you for choosing one of the following products from Summit Data Communications, Inc.:

- SDC-CF10G compact flash radio module with antenna connectors
- SDC-CF20G compact flash radio card with integrated antennas
- SDC-PC10G PCMCIA radio module with antenna connectors
- SDC-PC20G PCMCIA radio card with integrated antennas

SDC-CF10G SDC-CF20G

(If you are using the SDC-MCF10G miniature compact flash radio module with antenna connectors, contact Summit for hardware installation information and assistance. The software is the same as for other Summit products.)

When you install and use your Summit radio module or card in a computing device, that device can communicate to a computing network using the IEEE 802.11g and IEEE 802.11b protocols. For details on the capabilities of Summit products, go to: http://www.summitdatacom.com/products.htm.

SDC-PC10G SDC-PC20G

The software that Summit provides for its radio modules runs on the computing device that houses a radio module. That software includes:

- A device driver
- An integrated IEEE 802.1X supplicant, which supports the highest level of standards-based WLAN security with a broad range of options
- The Summit Client Utility (SCU), a configuration, monitoring, and management application designed for Summit radio modules
- On Windows CE/Mobile, a service that displays a Windows System Tray icon that provides a visual status for the Summit radio and enables the user to launch SCU by tapping the icon

This software runs on the following operating systems:

- Windows CE .NET 4.2 and Windows Mobile (or Pocket PC) 2003
- Windows CE .NET 5.0 and Windows Mobile 5.0 and 6.0
- Windows XP and Windows XP Embedded (XPe)

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

- **Wi-Fi:** The Wi-Fi Alliance certifies that Summit radio modules support 802.11b and 802.11g with WPA and WPA2, both Personal and Enterprise. The tested EAP type was PEAP-MSCHAPv2. For details, visit the Wi-Fi Alliance Web site at http://www.wi-fi.com, click on the "Wi-Fi CERTIFIED® Products" link, and search for Summit Data Communications.
- **CCX:** Summit radio modules are certified to Version 3 of the CCX specification for application-specific devices (ASDs). For an overview of CCX, go to http://www.cisco.com/web/partners/pr46/pr147/partners_pgm_concept_home.html. For details on

the features in CCX V3 for ASDs, go to http://www.cisco.com/warp/public/765/ccx/versions_and_features.shtml.

Getting Started

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

- A 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 operating systems listed on page 1
- Summit software, which is available from the organization from which you purchased your Summit radio
- A Summit radio module or radio card
- For a 10G Series radio module, one or two antennas, each with a cable that is fitted with a Hirose U.FL connector that can be attached to an antenna connector on the radio module

You will perform the following four steps:

1. Install the Summit software on your mobile computing device
2. Install the radio module in your device
3. Configure the manner of obtaining an IP address
4. Configure the radio to connect to your wireless network

It is recommended that you install the software before you install the hardware. If you insert the card in your device before you install the software, then the "Found New Hardware Wizard" screen will appear, and you must select "Cancel" to cancel the Hardware Wizard.

Step 1: Install the Summit Software

Windows CE or Mobile

Summit software is in a *.cab* file, which is the software equivalent of a “file cabinet”. A Summit *.cab* file contains all software components, including the device driver and the Summit Client Utility (SCU). To install the Summit software, perform these tasks:

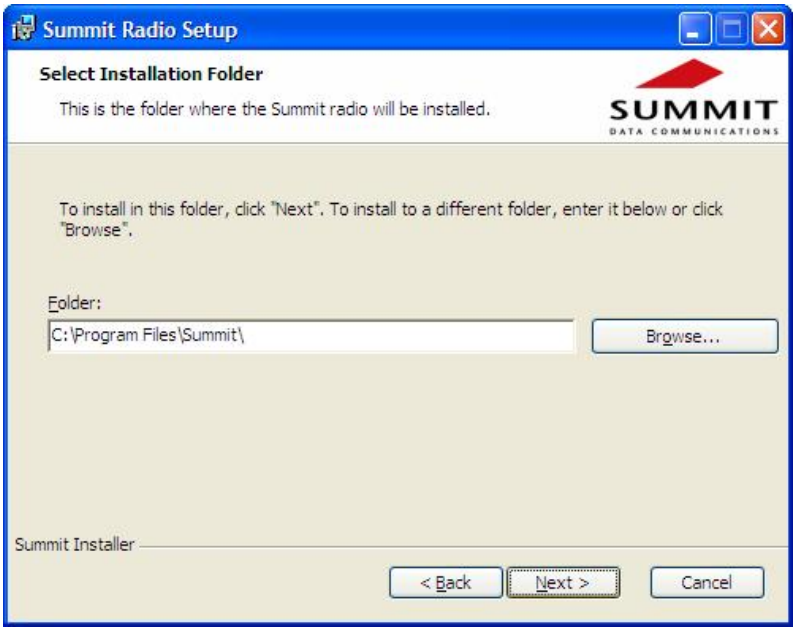
- Download the appropriate *.cab* file for the operating system and processor of your device. You can obtain your device’s operating system and processor from the system information under Windows Control Panel (Tap Start, then Settings, and then System or Control Panel)
  - ***Pocket PC or Mobile:*** Select a *.cab* file with a name that begins with “mobile”.
  - ***CE .NET:*** Do a search on your device’s processor to determine if it is an ARM v4i processor or an ARM v4 processor. If it is an ARM v4i processor, select a *.cab* file with a name that begins with “sdc_armv4i”. If it is an ARM v4 processor, select a *.cab* file with a name that begins with “sdc_armv4”.
- 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, answer “Yes to all”.

Windows XP

On Windows XP, the process for installing Summit software is managed by a setup wizard named *SummitInstall.msi*. When you run this program, a sequence of screens guides you through the installation process.

After you click the Next button on the initial welcome screen, you advance to a screen, shown at the right, on which you specify the folder in which Summit software will be installed. Once you click the Next button on this screen, you advance to a third screen where you click the Install button to complete the installation process.

You can use the same setup wizard to uninstall or upgrade Summit software.



Step 2: Install the Radio in the Host Device

Once you have installed the Summit software, you must install the Summit radio module or card into a CF or PCMCIA slot. Instructions on installing a Summit radio module in an **internal** slot (within a device) are available only to device manufacturers.

To install a 20G Series radio card, simply insert the card in an external card slot. To install a 10G 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 one or two antennas to the radio module, you 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.

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, however, then you will need to connect the antenna(s) before installing the radio in the external slot.

On Windows XP, when you insert the radio module or card into a CF or PCMCIA external slot on the device for the first time, the operating system will recognize that a new hardware device is being installed and display a series of screens so that you can associate a device driver to that device.

On the initial screen, select "No, not this time" for the question on whether or not Windows should connect to Windows Update to search for the driver. On the next screen, you can choose to install the software automatically. Windows will locate the driver and begin to install it.

Because the Summit driver has not been signed as a part of Windows Logo (also known as WHQL) testing, Windows displays a warning message, shown on the next page, when it starts to install the driver. Tap or click the "Continue Anyway" button so that Windows continues with driver installation.

To connect the antennas, take each antenna and its cable, which is fitted with a Hirose U.FL connector, and attach the antenna cable to the radio module by mating the U.FL connector on the antenna cable with a U.FL connector on the radio module. If you have a single antenna, connect it to the main antenna connector, which is located to the right of the auxiliary connector, and use the Summit Client Utility to set the Rx Diversity and Tx Diversity global settings to Main Only. If you have 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.

Step 3: Configure the Manner of Obtaining an IP Address

Windows CE or Mobile

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

- Select Programs, then Settings, then the Connections tab at the bottom of the Settings screen
- Select Connections and then Advanced
- On the Advanced Connections screen, select the Network Card button and then select the Summit WLAN Adapter from the list of available network devices
- On the screen that appears, 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, but if you use DHCP for IP address assignment then DNS usually is supplied by the same server that hands out IP addresses

Windows XP

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

- From the Start Menu, select Control Panel, then Network Connections
- From the list of network adapters, select the Wireless Network Connection with the Summit device name
- Select File, then Properties
- Scroll down to select Internet Protocol (TCP/IP), then Properties
- On the screen that appears, choose that a server will assign an IP address (using DHCP) or enter a specific IP address

You can configure DNS servers statically, but if you use DHCP for IP address assignment then DNS usually is supplied by the same server that assigns IP addresses.

Step 4: 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, or SCU
- Another application, such as Wavelink Avalanche, that uses the application programming interface (API) for SCU
- Native facilities in the operating system, such as Windows Zero Config, or WZC

To run SCU on Windows CE or Mobile, do the following:

- From the Start menu, select Programs, then select the directory called Summit
- Locate the SCU icon and double-click it

To run SCU on Windows XP, go to the Start menu, locate the SCU icon, and click it.

To configure the radio for your wireless network, you:

- Use the Admin Login button 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
- Save the profile using the Commit button

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

For details on how to create and use SCU profiles and perform other tasks with SCU, consult the next section.

Using the Summit Client Utility

The Summit Client Utility (SCU) is an application designed for end users and administrators of mobile devices that use a Summit 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, or profiles, each of which houses the RF, security, and other settings for the radio

- Select the profile to be used to connect to a WLAN
- View global settings, which apply to every profile
- 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
- To troubleshoot a connection or performance issue, view in-depth diagnostic information on the connection and the radio, and perform various 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
- Alter global settings, which apply to every profile

SCU provides a graphical user interface (GUI) for access to all of its functions. Access to these functions also is available through an application programming interface (API), which an application programmer can use to enable another utility to manage the radio.

To initialize SCU:

- From the Start menu, select Programs
- Select the directory called Summit
- Inside the Summit directory are two items: a directory for the storage of security certificates and an SCU icon. To run SCU, double-click the SCU icon

SCU has five windows: Main, Profile, Status, and Diags (or Troubleshooting), and Global. Tabs, which are shown as item 8 in Figure 1 below, enable easy navigation between windows. Each window is described in more detail in this section.

Main Window

Figure 1 below is an example of a Main window:

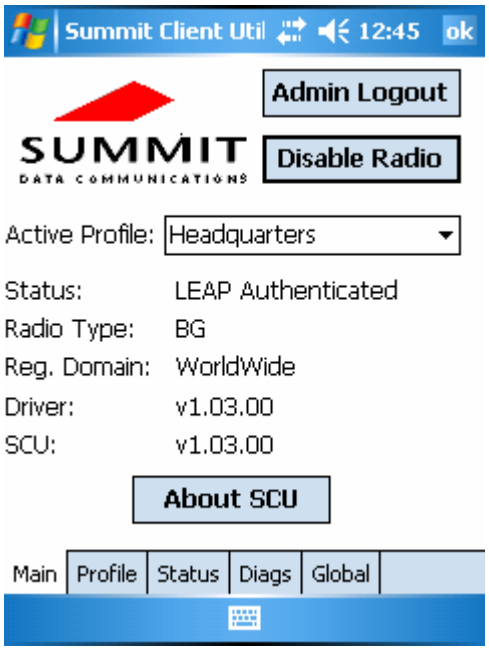


Figure1: Main window

Here are the highlights:

- **Admin Login/Logout:** To login to SCU as an administrator, you select this button when "Admin Login" is displayed and supply the correct admin password on the dialog box. The default password is "SUMMIT" in all capital letters. (The password can be changed through the Admin Password function on the Global Settings window.) Once you are logged in as an administrator, clicking the button again logs you out as an administrator, leaving you with access only to end-user functions.
- **Enable/Disable Radio:** When the radio is enabled, selecting this button disables it; when the radio is disabled, selecting this button enables it.
- **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:** Indicates the radio's status.
- **Radio Type:** Indicates the type of radio in the device. "BG" means a Summit radio that supports 802.11b and 802.11g.
- **Regulatory Domain:** Indicates the regulatory domain or domains for which the radio is configured. "Worldwide" means that the radio can be used in any domain. The domain cannot be configured by an administrator or user.
- **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.

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 selected 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. ***Profile changes made on the window are saved to the profile only when the Commit button is pressed.***

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.

Figure 2 below is an example of a Profile window:

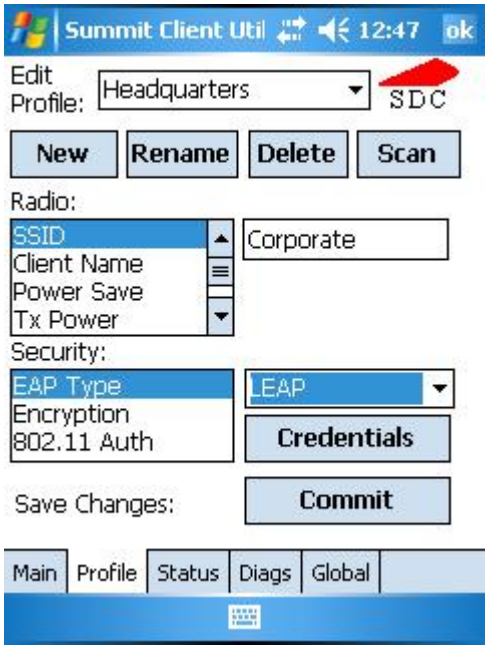


Figure 2: Profile window

Here are the highlights:

- **Edit Profile:** This is used to select the profile to be viewed or, if you are an administrator, edited.
- **Actions:** Four actions are available, with the first three available only to an administrator:
  - ***New:*** Create a new profile with default settings and give it a unique name (and then change settings using other selections on the window).
  - ***Rename:*** Give the profile a new name, one that is not assigned to another profile.
  - ***Delete:*** Delete the profile, provided that it is not the active profile.
  - ***Scan:*** Open a window that lists access points that are broadcasting their SSIDs. Each time you tap the Refresh button, you view an updated list of APs, with each row showing an AP's SSID, its received signal strength indication (RSSI), and whether or not data encryption is in use (true or false). You can sort the list by clicking on the column headers. If you are authorized as an administrator, select an SSID in the list, and tap Commit, you return to the Profile window to create a profile for that SSID.
- **Radio:** Radio attributes in the list box can be selected individually. When an attribute is selected, the current setting or an appropriate selection box with the current setting highlighted appears on the right.
- **Security:** Values for the two primary security attributes, EAP type and encryption type, are displayed in separate dropdown lists, with the current values highlighted. When you as an administrator select an EAP type, the Credentials button appears; when you tap it, a dialog box appears that enables you to define authentication credentials for that EAP type. When you as an administrator select an encryption type that requires the definition of WEP keys or a pre-shared key, the PSKs/WEP Keys button appears; when you tap it, a dialog box appears that enables you to define WEP keys or a PSK.
- **Commit:** To ensure that changes to profile settings made on the window are saved in the profile, you must tap the Commit button.

To cause a Summit 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: This is the name or identification of the WLAN.

- EAP type: This is the protocol used to authenticate the device and its user if the WLAN uses the Enterprise version of Wi-Fi Protected Access (WPA) and WPA2. SCU supports five EAP types: PEAP with EAP-MSCHAP (PEAP-MSCHAP), PEAP with EAP-GTC (PEAP-GTC), EAP-TLS, LEAP, and EAP-FAST
- Encryption: This specifies the 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 (derived from the EAP authentication process)
  - WPA2 or WPA with pre-shared keys
  - Static WEP keys

Consult the user's guide for details on all profile settings, including security settings.

Status Window

The Status window provides status information on the radio. A sample Status window is shown in Figure 3 on the next page. Here are the highlights:

- 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

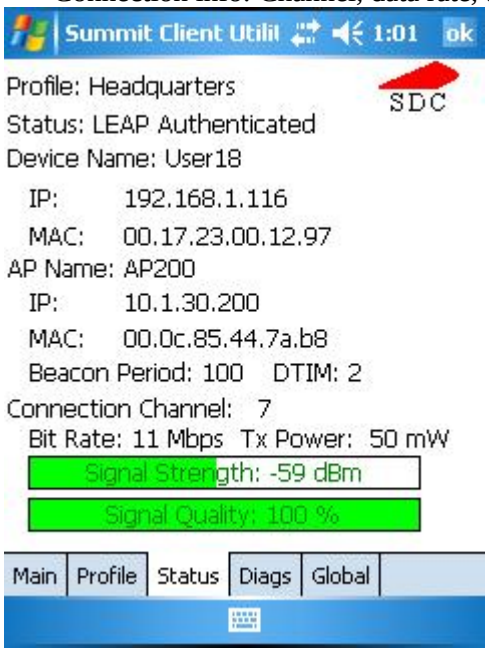


Figure 3: Status window

Diags Window

A sample Diags, or troubleshooting, window is shown in Figure 4 below:

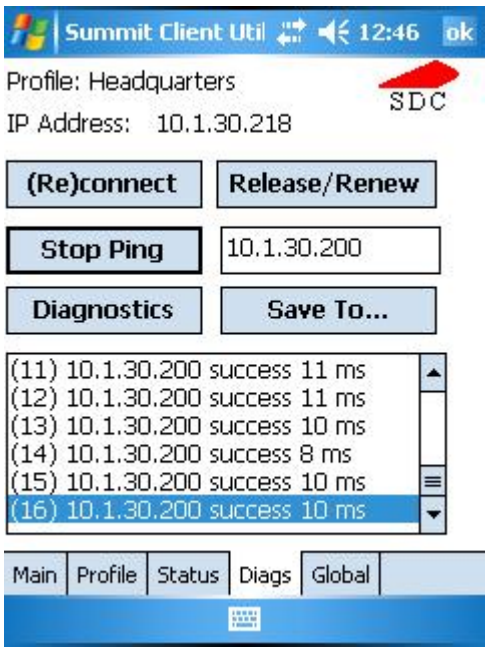


Figure 4: Diags window, with ping active

Here are the functions available on the Diags window:

- (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. Once the button is clicked, its name and function will change to Stop Ping. Moving to an SCU window other than Status or Diags also will stop the ping, as will Pings will continue until you tap the Stop Ping button, move to an SCU window other than Diags or Status, exit SCU, or remove the radio.
- Diagnostics: Attempt to (re)connect to an AP, and provide a more thorough dump of data than is obtained with (Re)connect. The dump will include radio state, profile settings, global settings, and a BSSID list of APs in the area.
- Save To...: Save the diagnostics output to a file.

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 Settings window in SCU. A sample Global Settings window is shown in Figure 5 below:

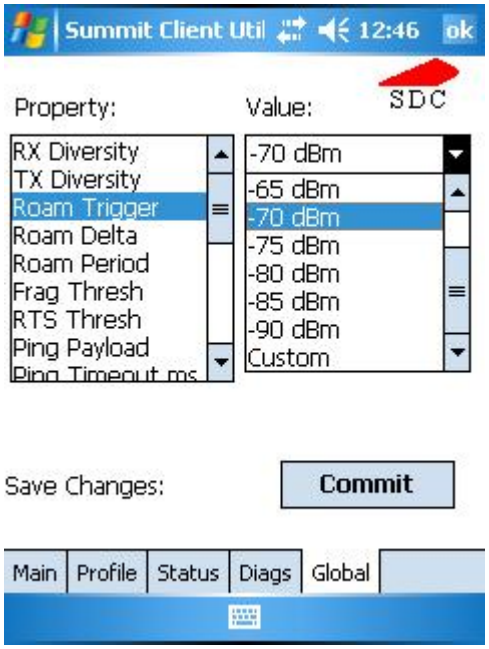


Figure 5: Global window

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