Contents

Carlson Knowledge Base located at: http://update.carlsonsw.com/kbase_main.php

Hot List

1. The Base radio must be on, when charging. If it is turned off, it will not charge.

2. Be cautious of turning off the base radio in the case. The power button can be bumped on when placing the unit into the case.

3. The base and rover radios are already programmed and tested to work with each other and only each other.   The user needs to confirm the baud rates.

4. The radios are set to LOW power setting, which is appropriate for line-of-site usage. Use the SS900 Configuration Utility to increase the power if needed.

5. Think about baud rates.

   a. There is a baud rate from the Base Radio to the instrument. A null modem cable must be connected from the data collector to the Base Radio to change the baud rate of the Base Radio.
   b. There is a baud rate from the radio (Com2) to SurvCE. Make sure the baud setting in the SS900 configuration utility matches the SurvCE Comm Setup baud rate.

Introduction to SS900 Radio System

SS900 System Overview

The Carlson SS900 radio system works with almost any surveying instrument, regardless of the manufacturer. The most common use is with a robotic instrument or RTK GPS. The radio inside the Explorer 600+ will connect to the base radio at the robotic instrument. Our SS900 configuration utility assigns all these intricate settings automatically. We assign several parameters such as destination address, mask address, authentication codes, and hopping sequences. The base and rover radios are matched to each other based on the serial number of the base radio.   The user simply has to choose the baud rate that matches the instrument. The system can be used with surveying equipment such as robotic total stations, GPS RTK systems, GPS DGPS systems, machine control, site data relay systems.

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The Carlson SS900 radio system is a 900 Mhz spread spectrum system that consists of four major parts:

1. SS900 Baser/Repeater Radio – Has a 9-pin male RS-232 port, contains two 2500mAh NiMh batteries, SMA antenna connector, external power jack and charging jack, 7 LEDS, and a power switch.
2. SS900 Rover Radio Pack – This installs into the tray on the back of an Explorer 600+. The tray functions as Com 2.
3. SS900 Rover Radio Tray (on the back of 600+) – This is attached at Carlson Service centers.
4. Carlson Explorer 600+ - 624Mhz, CeNet 5.0, handheld computer.

SS900 Functions

1. Enter the base radio serial number to assure clear and protected broadcasts.
2. Re-enter the serial number of a new base radio.
3. Change the power output from .1%, 1%, 10%, 50%, 100%, to conserve battery power.
4. Configure the baud rate of the base radio com port to match the robotic instrument.
5. Create a bridge between Com 2 and Com1. This can be used to route RTK base data from the SS900 radio broadcast up to the local GPS Rover.

SS900 Configuration Utility – This utility will configure the Carlson SS900 radios. The base radio serial number (Radio Match Code) is all the user needs to know to assure clear and uninterrupted radio broadcasts. Use this utility to adjust communication parameters and power output levels. **(The Base and Rover Radio were matched and programmed with the Match Code before shipping)**
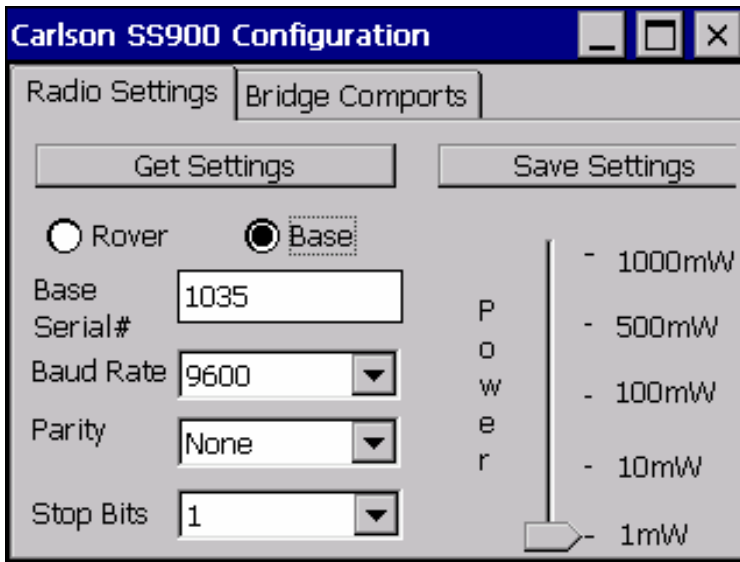
Configuring the Base
1. Connect the 600+ to the base using a null modem serial cable.

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2. Select the Base toggle as seen below. Then press "Get Settings" button. The current settings will be displayed. Change any of the values you need and then press "Save Settings" button.
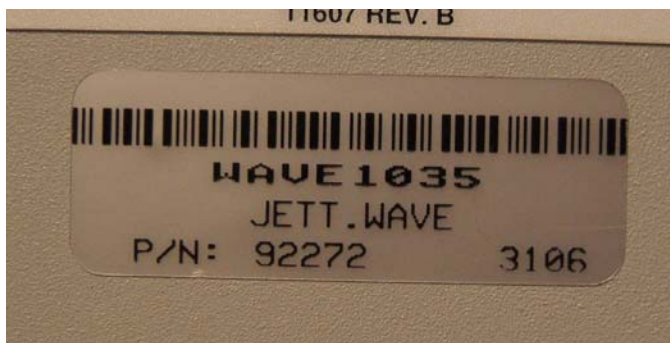

Base Serial # - Enter the serial number from the back of the base radio. Example below is #1035.
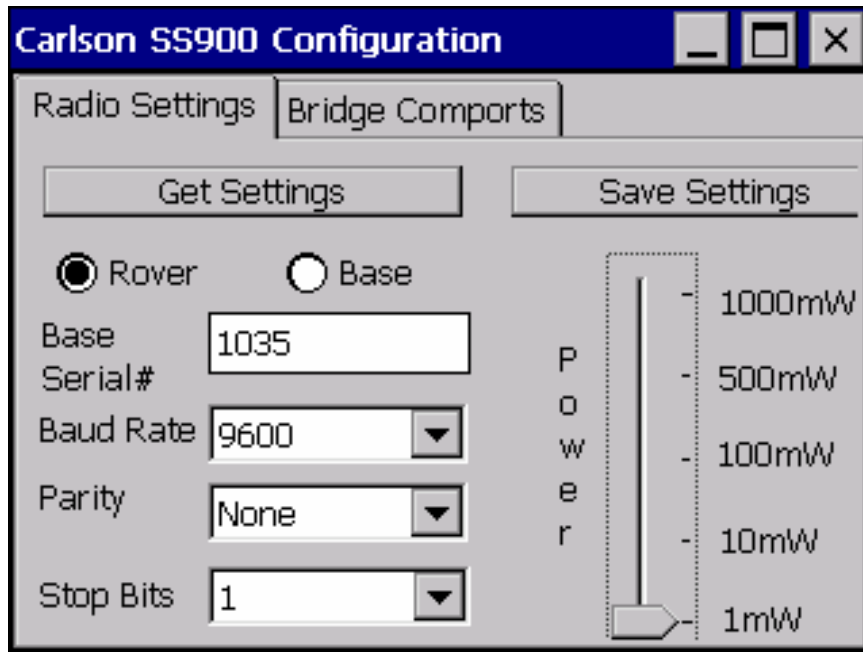
Baud Rate – Match this rate to the rate of you surveying instrument.

Parity - Match this rate to the rate of you surveying instrument.

Stop Bits - Match this rate to the rate of you surveying instrument.

Configuring the Rover radio module:

1.   Select the Rover Toggle and press the "Get Settings" button.
2.   Match the settings with the Com Setup inside SurvCE Com2.
3.   Have the serial number of the base radio Match Code, entered into the Base Serial number field and press the "Save Settings" button.

If communication fails, verify that "Aux Switch" is in the ON position under Control Panel. The ON setting will take effect after a Warm Boot.

Creating a Bridge between Com 1 and Com 2.

Bridge Comports if you want to route incoming data from the radio pack (Com 2), out the Com1 serial port of the Explorer 600+. Press the "Bridge Ports" tab and then press the button, "Bridge Ports".

Also, Bridge Com 2 (Radio Pack) to Com 1 (9-pin) in the Explorer 600+.   A 600+ with radio pack could function as a base. This bridge also routes base GPS data broadcasts over the radio in Com 2 of the 600+, out com1 to the rover GPS unit to do the RTK calculations, then the RTK solution comes back down to the data collector via BT or a second com port.
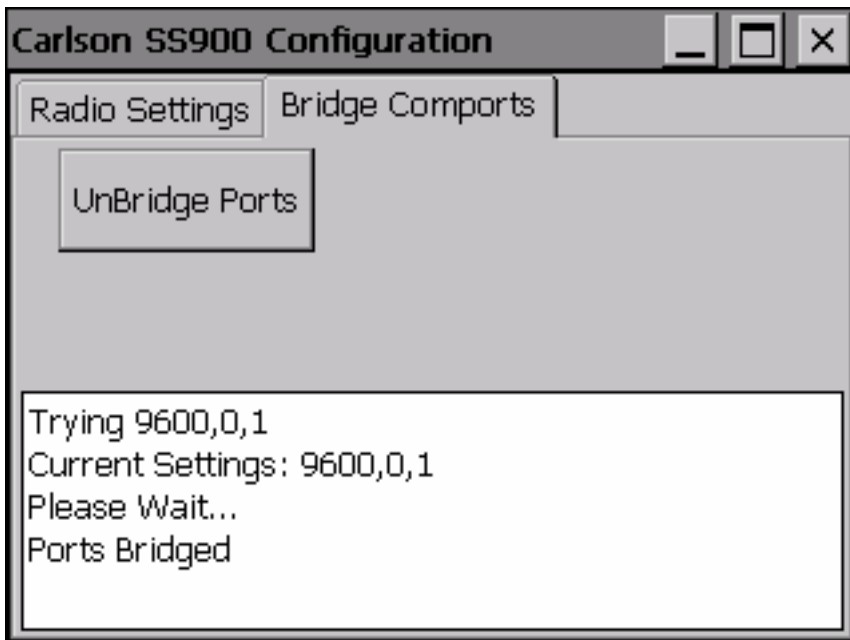
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The figure below shows the utility ready to initiate:
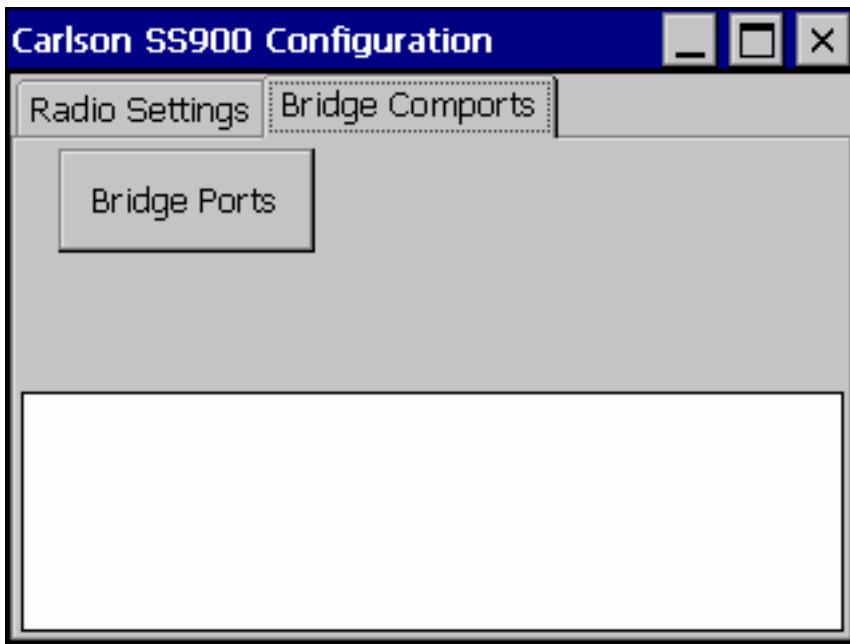
The figure below shows the utility successfully bridged.

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Installation instructions:

Explorer -
1. Copy netcf2.0.cab onto System CF and double tap it there.
2. Then Save Reg
3. Then copy CarlsonUtilities.cab onto SystemCF and double tap.
4. Then Save Reg
5. You may want to make a folder under SystemCF, called "Copy To SystemCF". Put copies of these two cab files into the folder.
6. In order for the cab file to install correctly, it must be directly in SystemCF before double tapping.

AllegroCX –
1. Copy netcf4.2.cab onto C_Drive and double tap it there.
2. Then Save System.
3. Then copy CarlsonUtil_allegroCX.cab onto C_Drive and double tap.
4. Then Save System
5. You may want to make a folder under C_Drive, called "Copy To C_Drive". Put copies of these two cab files into the folder.
6. In order for the cab file to install correctly, it must be directly in C_Drive before double tapping.

SS900 Radio Configuration Utility screen captures:

This screen shows the "Get Settings"