

# Rexroth-WDTS Manual Installation and Operations

The Drive & Control Company



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# 1 Overview

The CS-WDTS enhances the functionality of our CS-230 or CS-440 Spreader controllers by integrating WiFi and GPS technologies into a single system.

This allows for cost effective wireless data logging with GPS tracking. The system has the capability of seamlessly merging logged spreading and GPS data into one single database. With the CS-Mapper mapping software, customers have the ability to generate activity reports and map routes for fleets that have CS-440s, CS-230s, or both simultaneously.

## 1.1 CS-WDTS Specifications

- Tolerance : 5 meters
- WiFi – 802.11b/g
- Supply voltage: 9V- 32V
- Current consumption: 700mA
- 4 digital inputs
- 2 optional inputs with 10k pull-down resistor
- Frequency: 2.4-2.4835 GHz
- Security: WEP standard encryption 64/128 Bit, key mapped WEP and access control
- Protocols: TCP/IP, ARP, ICMP, DHCP, DNS, HTTP, UDAP
- Status Indicator: Power, Link, Comm.
- Operating temperature: 0°C to +75°C
- Storage temperature: -40°C to +85°C
- Dimensions: 7.7" x 3.6" x 1.74"
- Weight 700g



## 1.2 Minimum PC requirements

- Standard off-shelf WiFi 802.11b/g router with Range Booster
- Windows 2000/NT/XP
- Pentium 4 1.5GHz or faster processor
- 1GB or more Memory
- Sufficient hard drive space for map and data





## 2 Installation recommendations

### **FAILURE TO FOLLOW THE RECOMMENDATIONS BELOW WILL VOID YOUR WARRANTY**

- Unpack all the supplied parts and check the packing list for completeness.

#### **CS-WDTS 440 package includes:**

- 1 x CS-440 CS-WDTS device
- 1 x PLT – PLT interconnect cable
- 1 x PLT – Terminal strip cable
- 1 x GPS receiver
- 1 x Software & Manual CD

#### **CS-WDTS 230 package includes:**

- 1 x CS-230 CS-WDTS device
- 1 x PLT – DB9 cable
- 1 x PLT – Terminal strip cable
- 1 x GPS receiver
- 1 x Software & Manual CD

- Untie and lay out all the cables supplied, to ensure proper lengths.
- Connect the 12V power supply and the ground wire using a dedicated circuit only. This circuit must be ignition switched and fused at 2A.
- Ensure wiring for transmission devices such as radios, etc. are not attached to the device or bundled with the device wiring as this may adversely affect performance.
- Disconnect the battery terminals before welding on a vehicle with electronic equipment.
- Disconnect the negative battery terminal when wiring electronic devices.
- Route cables so that they will not be damaged. When routing cables through a metal opening, always use grommets to prevent cable damage.
- When running wires around a dump box pivot point, ensure no connectors can be separated when the hoist is activated.
- Tie-wrap cables clear of all moving parts like drive-axles or conveyor chains.
- Observe the cable labeling for the proper termination of inputs and outputs.
- DO NOT drill holes in any of the enclosures.
- DO NOT re-wire any of the consoles or cable harnesses.



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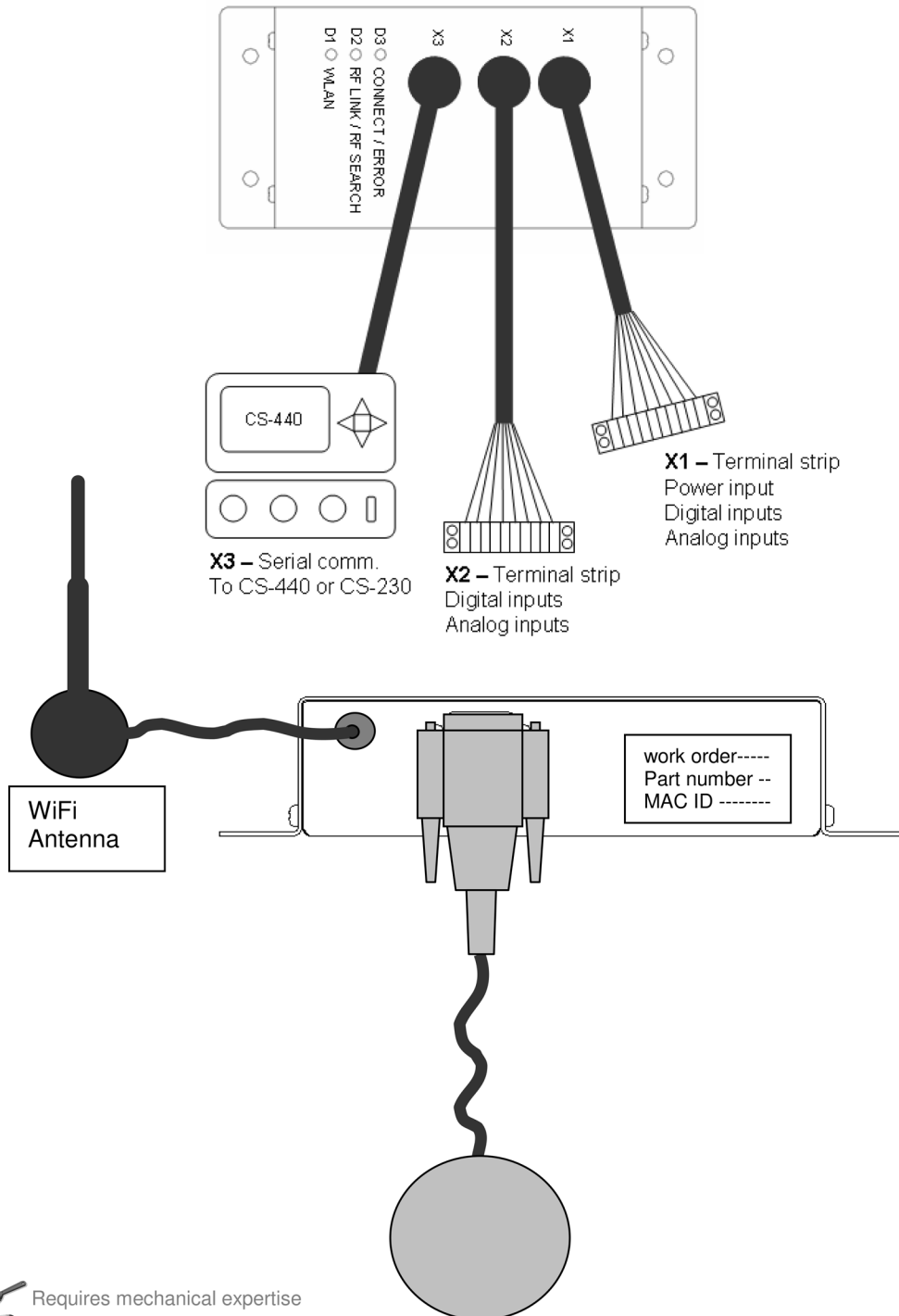


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### 3 Mounting Instructions

**Note: Record the MAC address of each CS-WDTS device (white stick) and truck ID.**  
The recommended mounting location is to have a clear view of the antenna of the CS-WDTS device. If the antenna does not have adequate exposure then the transmission range will be diminished. Ensure that the unit is not on the floor or under direct sunlight, and connectors are properly covered and not exposed to water.

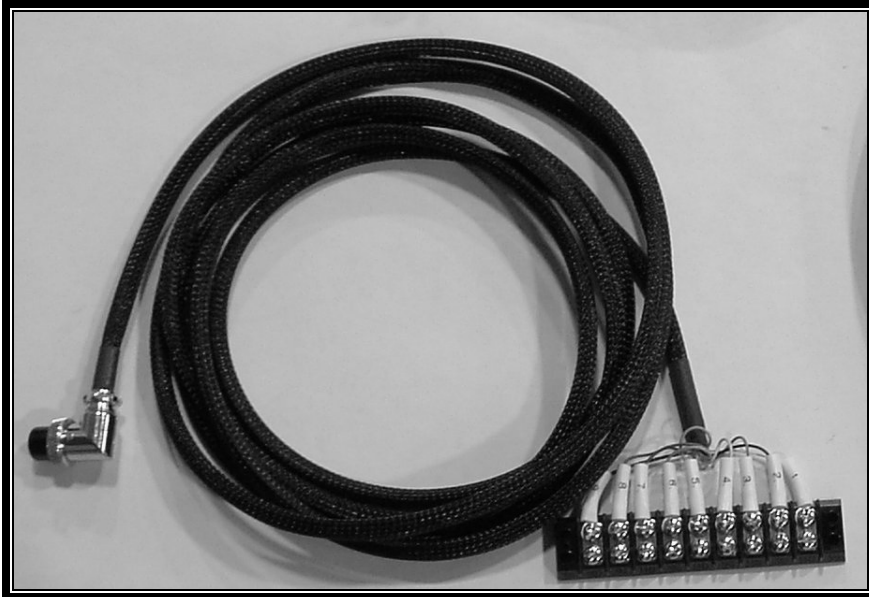
### 4 System layout



## 5 Cables

### 5.1 PLT connector to Terminal strip

Connects X1 to digital inputs and 12V power source  
Connects X2 to digital inputs and auxiliary functions



Pin #	X1	
1	Digital input – 1	
2	Digital input – 2	
3	Digital input – 3	
4	Digital input – 4	
5	Digital input – 5, optional. It requires a 10k resistor between pin 5 and 8.	
6	Digital input – 6, optional. It requires a 10k resistor between pin 6 and 8.	
7	+12V Power	
8	Ground	

## 5.2 PLT connector to PLT connector (440 Installation)

Connects X3 to CS-440 GPS port



## 5.3 PLT connector to DB9 connector (230 Installation)

Connects X3 to CS-230 GPS port



## 6 LED indication

For diagnostic purposes, led indication is provided on the CS-WDTS.

The LED signal assignments are as follows:

	Status	Description
D1 – WLAN	SOLID GREEN or SOLID AMBER	Transmitting data to base station
	OFF/SOLID RED	Transmission complete or no connection present
D2 – RF LINK / RF SEARCH	BLINKING RED	Searching for wireless network
	SOLID GREEN	Connected to wireless network
D3 – CONNECT / ERROR	SOLID RED or SOLID AMBER	All devices connected
	ONE BLINK	Both Spreader and GPS not connected
	TWO BLINKS	Spreader not connected
	THREE BLINKS	GPS Receiver not connected

If D3 flashes constantly at fast speed it indicates that the data is full.



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## 7 WiFi Module and Router setup

To set up a wireless router here are the steps to follow:

### Basic Set up

Set the IP address of the router to 192.168.0.1

Keep the subnet mask 255.255.255.0

Keep the DHCP server enabled

Start IP address at 192.168.0.100

### Wireless

Enable the wireless connection

Enable the SSID broadcast

Set the network name (SSID) to CS-WDTS or a preferred name

### Security

It is recommended that you use the wireless MAC filter if it is available on your router.

This will prevent unknown devices from connecting to your wireless network.

Enter the MAC address of every device connected to your network. All CS-WDTS devices have their MAC address printed on the label.

**Do not forget to include the MAC address of the PC used for configuration!**

### Tip:

To find out the MAC address of the PC being used, follow the instructions below for your operating system. A MAC address is a 12-digit hexadecimal number consisting of numbers from 0-9 and/or letters from A-F.

Examples of possible MAC addresses include:

080007A92BFC, 09:00:07:A9:B2:EB, or 09-10-4A-B9-E2-A4

### Windows:

Click on the start menu → Run → type 'cmd' → in the command prompt type 'ipconfig/all'

The physical address is the MAC address of your Ethernet card or your wireless adapter.



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## 8 PC Software installation

The software provided should be installed in the following order:

### 8.1 Microsoft Mappoint.

Please refer to the Microsoft Mappoint installation manual.

### 8.2 CS-440 Controller and Desktop Software Installation

Check to make sure that firmware version in 440 controller is 15G or higher.

Make sure that 440 Desktop Software Version 15G or above installed on your PC.

If you have an older installation on your PC, you should save your existing database, uninstall the 440 Desktop Software and then install the latest version.

Please refer to the 440 Desktop Software manual for detailed installation instructions.

### 8.3 CS-Mapper Software Installation

CS-Mapper.

### 8.4 ACC Diagnostic Utility

Airborne Configuration Center (ACC) is a diagnostic tool designed to help you set up CS-WDTS devices and resolve any communication issues with the device. To install, double click on SETUP.EXE from \DPAC\ACC\_NEW folder on the CS-Mapper CD.



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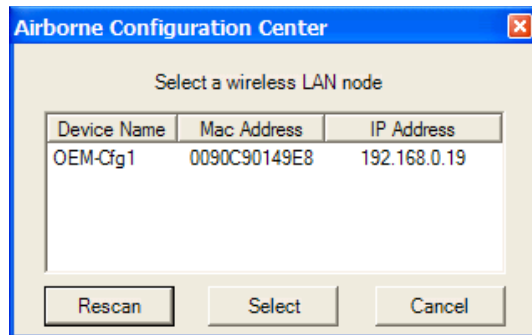


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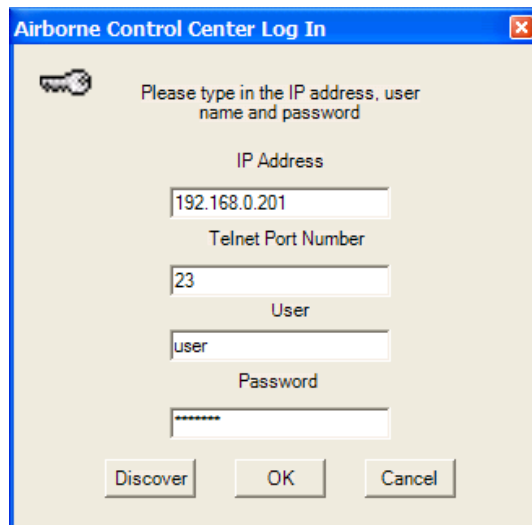
## 9 WLAN configuration using ACC

### 9.1 Connecting to device

From the startup screen discover devices in WiFi router range by clicking '**Rescan**'.



Double click on the discovered device.



Enter the username and password. By default the username is set to "dpac" and the password is set to "dpac" (lowercase).



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The screenshot shows the 'Airborne Control Center' web interface. The top navigation bar includes links for 'Log in', 'Status', 'Serial', 'Services', 'Misc', 'Network', 'Security', 'Update', 'Reset', and 'About'. The main content area is divided into several sections:

- Status**
  - Version Information**
    - Module Firmware Version: 4.3.0.18 (indicated by an arrow as 'Firmware version')
    - Radio Firmware Version: 1.1.1.111.8.4.0.145
  - 802.11 Status**
    - Link Status: Connected: Link Up
    - Port Status: Connected to ESS
    - SSID: CS-WDTS
    - MAC Address: 0090C90149E8
    - BSSID: 0014BF7BF322 (indicated by an arrow as 'MAC address')
    - Transmit Rate (Mb/s): 2
    - Communications Quality (dB): 25
    - Signal Level (dBm): -68
    - Noise Level (dBm): -94
  - Network Settings**
    - IP Address: 192.168.0.201 (indicated by an arrow as 'IP address')
    - dhcp status: Has leased an address
    - Subnet Mask: 255.255.255.0
    - Default Gateway: 192.168.0.1
    - Primary DNS: 10.107.129.14
    - Secondary DNS: 0.0.0.0
  - Resources**
    - NM Heap Free: 973
    - VM Heap Free: 7295
    - Netpages Free: 121
    - Up Time (Sec): 11

To avoid duplicate work, it is best to keep track of the devices by noting the MAC and the IP address of the device being configured. You should also confirm that the version of the firmware is 4.3 or higher.

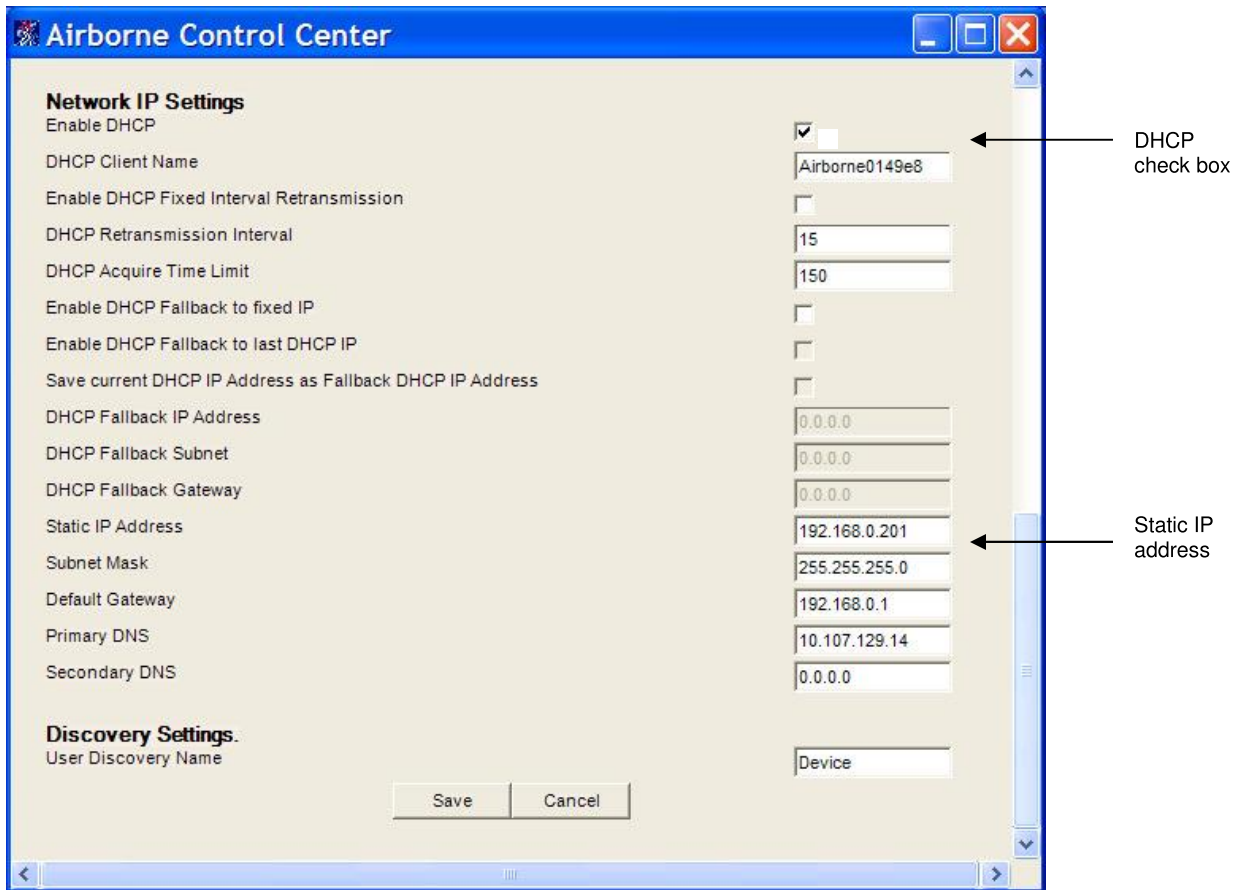
*Note: For firmware version 5 or higher. If the CS-WDTS vehicle unit needs to be defaulted to the factory default. It can be done by holding both digital inputs 3 & 4 high for 2 seconds as they are being powered up, and then release them.*

## 9.2 Network setup

Check the SSID of the router  
Click on the **'Network'** tab, and make sure the SSID matches the SSID of the router.

Disable the DHCP by un-checking the DHCP check box. Choose a unique IP address and make sure the IP address does not conflict with the PC connected to this network or with any of the other devices on the wireless network.

NOTE: Record the IP address and name of the truck, and put them on the blank sticker on the CS-WDTS box.



After making any changes click on **SAVE** for the changes to take effect. Exit the configuration program and restart the device by cycling power.

## 9.3 Device configuration with Internet Explore

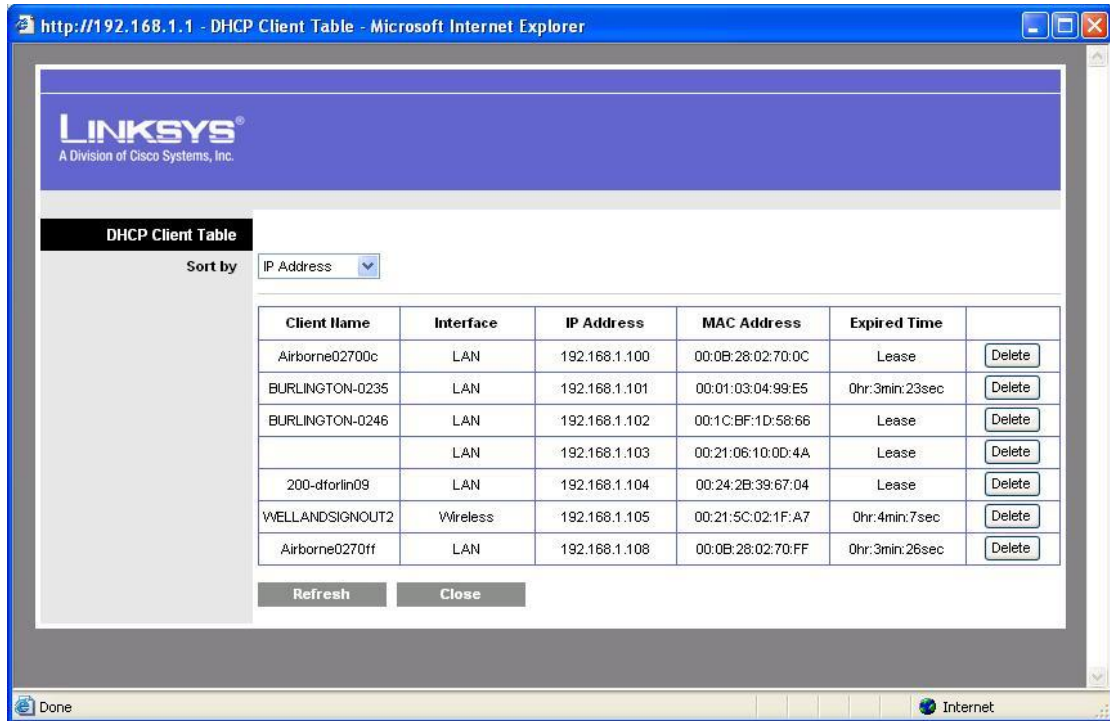
The CS-WDTS vehicle unit (black box) defaults with DHCP enabled, and it would connect to a wireless router or access point in the vicinity. The IP address of the CS-WDTS vehicle unit can be located on the router or access point DHCP client table.



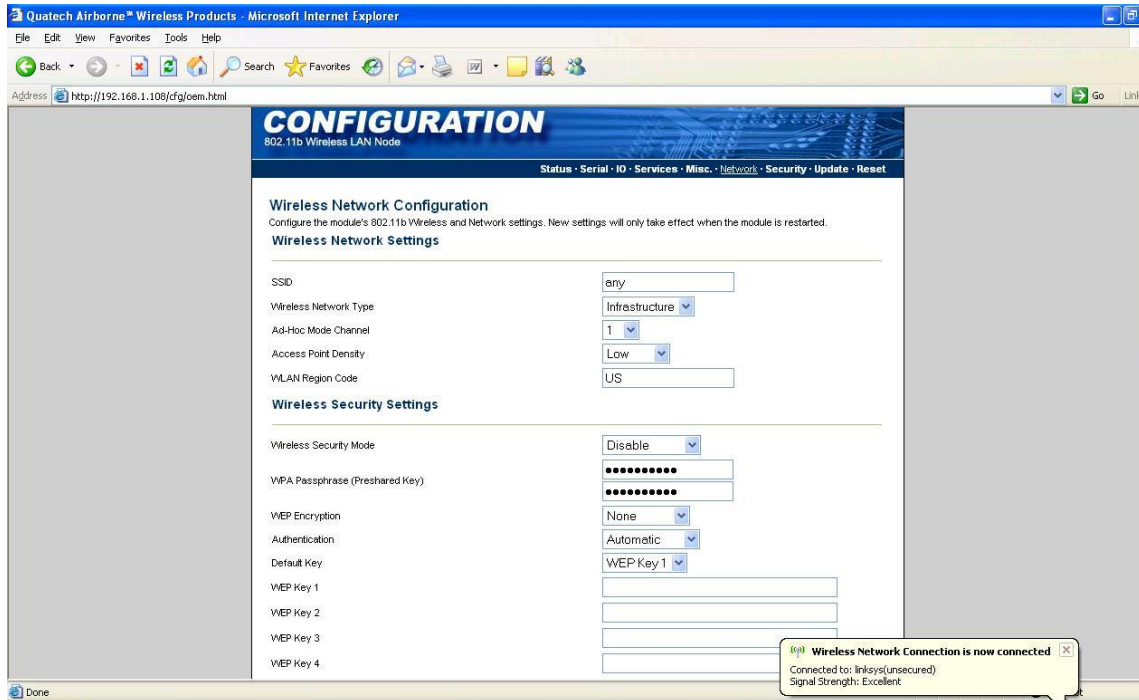
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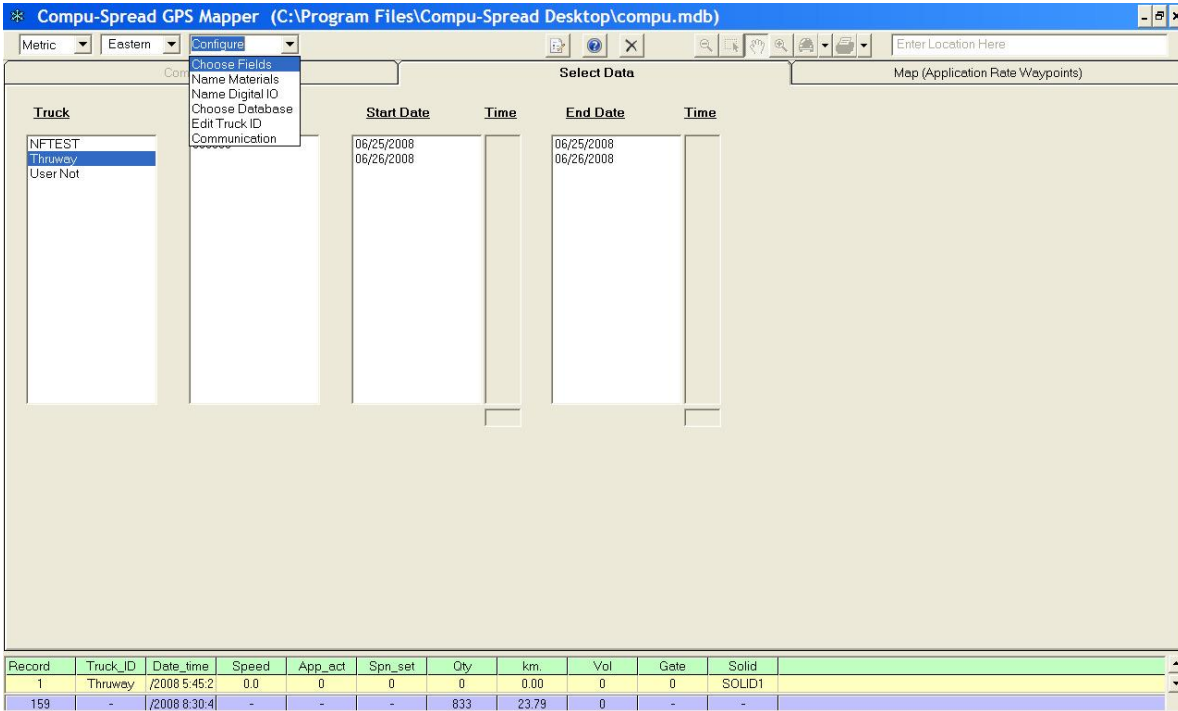
With the IP address the device can be accessed by using the Internet Explorer. Similar to the ACC (Airborne Control Centre) the default user name and password is 'dpac'. SSID, Security and static IP address can also be configured on the same screen.



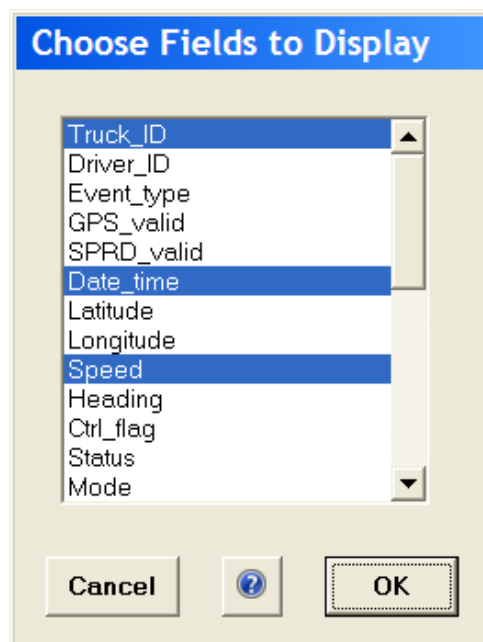
## 10 CS-Mapper – Installation and Configuring truck units

### 10.1 Choose Fields


Once the CSMapper is started up all the view fields are shown at the bottom of the screen (see the following screen for reference).



All the view fields are selectable depending on the information that you would like to view. To change them click on the Choose Fields from the Configure pull down menu. A popup windows would list all the selectable fields:



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By press and hold the Ctrl key and click to select desirable fields to view.

## 10.2 Name Materials

By default the names of the solid and liquid materials are left blank. It uses 'SOLID1', 'SOLID2', ... 'LIQUID1', 'LIQUID2' ... in all the reports. To change them simply click Configure->Name Materials to key in user defined material names.

Material Type	Material Name
Solid 1	SALT
Solid 2	SAND
Solid 3	MIX
Solid 4	
Liquid 1	CALC
Liquid 2	BRINE
Liquid 3	
Liquid 4	

## 10.3 Name Digital IO

Reference to 9.2.

## 10.4 Choose Database

You can easily check or change where the database is stored by clicking Configure->Choose Database. This is especially useful should you have a need to put a database into a specific location on a local or network drive.

## 10.5 Edit Truck ID

Double-click on the SETUP icon in the \CSMapper folder on the CD to install the CS-Mapper software.

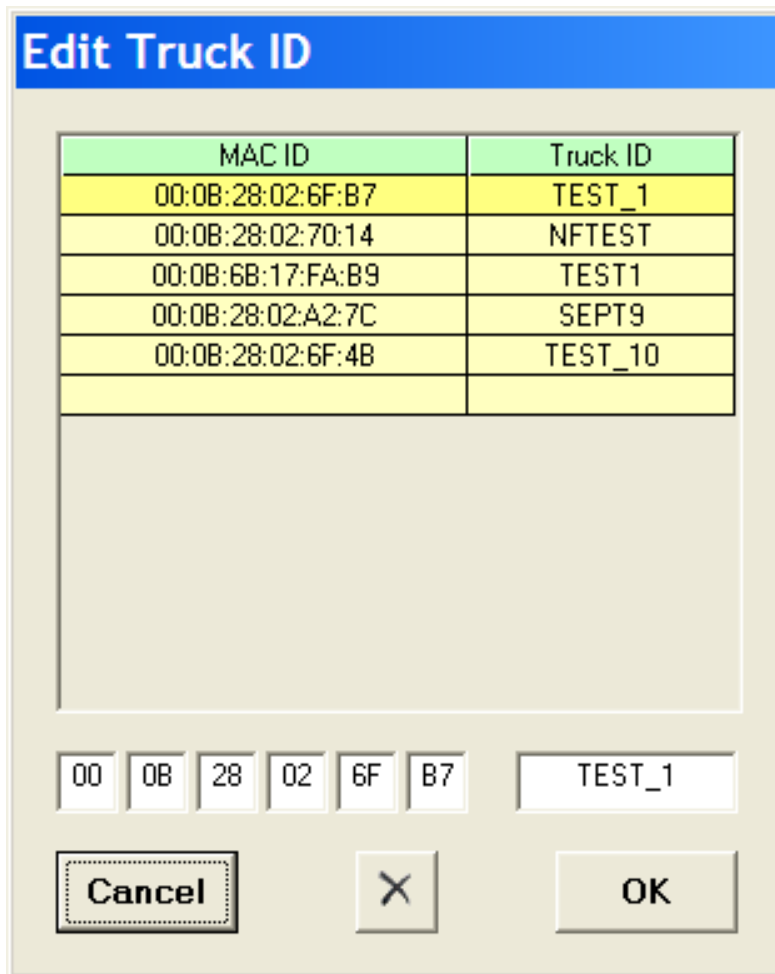
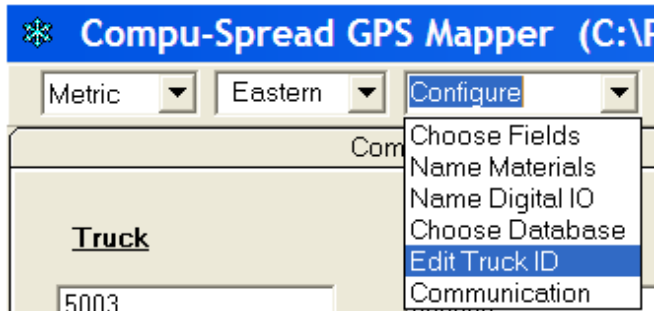
When you run the program the first time you need to select your local unit (Metric or Imperial) and the time zone on the menu bar.

If the 440 Desktop Software is not installed on the computer the database location should be changed to C:\Program Files\CSMapper\compu.mdb.

If 440 controllers are used ensure TRUCK ID match those of 440 controllers.



To add trucks click 'Configure' on the MENU the following screen would pop up. This requires MAC address and Truck ID of each truck that recorded in **3 (Mounting Instructions)**.



## 10.6 Communication

The CSMapper is used to collect data from truck units, generate reports, and map waypoints. It can be configured as a view or real time node by clicking on Configure->Communication, and choose 'No' or 'Yes'.

## 11 CS-Mapper - Generating Reports

### 11.1 Setting up CS-Mapper

Select Unit (Metric or Imperial), and Time Zone on the menu bar.

Choose fields of preferred values that show in the CSMapper by holding Ctrl key and clicking on the selected fields.

Name all solid and liquid materials used to match those configured in the spreader controllers.

If Digital inputs are used to monitor application status such as Plow Down, Hoist Up ... name all digital inputs to the functions that system monitors.

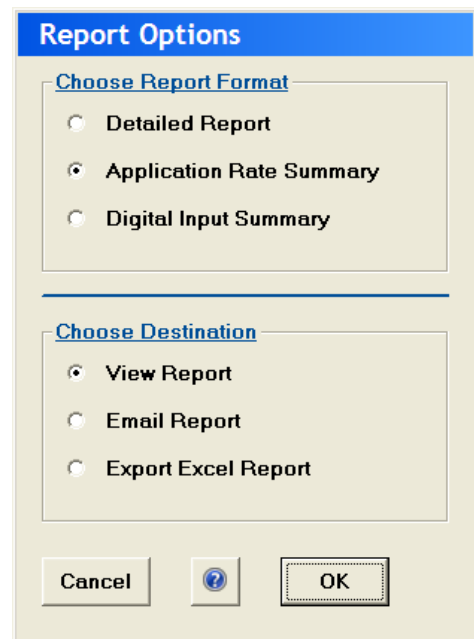
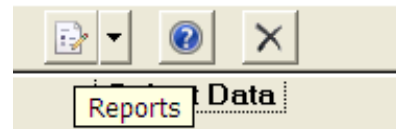
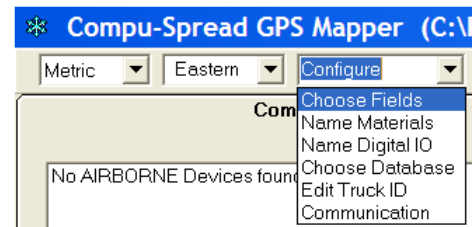
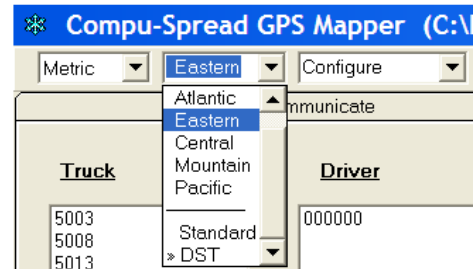
Note: Only four colors can be configured for 6 digital inputs.

### 11.2 View Reports

The reports button (first from left) allows you to view, e-mail or export a report.

You may choose to view a detailed report of the logged data, or a summary of either the application rate or the status of the digital inputs for selected time duration.

To view a report, click on the drop down menu of the reports button and select either detailed report, summary report, or digital input report.



### 11.2 View Reports (continued...)

You can generate a report for one or multiple trucks by holding the CTRL key&clicking on each truck. Start time and end time can be selected as well by clicking in the Time field to move the GREEN time line. The BLACK mark in the Time field indicates where the data logging starts and ends(see the screenshot below). You may glance at the bottom of the screen to view the totals.

Compu-Spread GPS Mapper

Data				Map (Digital Inputs)			
Truck	Driver	Start Date	Time	End Date	Time		
CS-DEMO	000000	07/11/2007		07/11/2007			
TEST_18		07/12/2007		07/12/2007			
TEST_28							
TEST_29							
			08:30		22:39		

Record	Truck_ID	Date_time	Speed	Status	Mode	App_acd	App_set	Liq_set	Qty	km.	Error	Digin
1	CS-DEMO	7/11/2007 5:18:13 PM	0.0	Normal / OLI	0	0	0	0	0	0.00	0	0 0 0 1 0 1
369	-	7/11/2007 9:37:39 PM	-	-	-	-	-	-	2160	28.20	-	-

Total Qty

Total Dist

### 11.2.1 Application Rate Summary Report

The Application Rate Summary report displays the material and distance summary for the selected truck.

GPS Rate Summary Report : TRUCK1

Jul 13/ 2007

Date	Time	Event Type	Solid Rate (kg/km)	PreWet Rate (tonne)	Ground Speed (km/hr)	Headings (deg.)	Total Time (hh:mm:ss)	Total Dist. (km)	Total Solid (kg)	Total PreWet (liter)	State / Ctrl Mode	Spin Rate (%)	Gate / Error	Temp (deg C)
Truck = TRUCK1 / Driver = 000000														
Date = 07/04/2007														
07/04/2007	17:11:00	SPRED	SOLID3 197	Calcio 58	0.0	0.0	0:34	0.00	289	10	Normal / CLP	400	7 / 0	22
07/04/2007	17:11:36	SPRED	SOLID3 253	Calcio 0	0.0	0.0	0:10	0.01	13	0	Normal / CLP	400	7 / 0	22
07/04/2007	17:32:58	SPRED	SOLID3 0	Calcio 0	5.6	0.7	0:22	0.05	0	0	Normal / CLP	0	7 / 0	0
07/04/2007	17:33:17	SPRED	SOLID3 169	Calcio 0	13.8	231.6	1:05	0.55	308	0	Normal / CLP	600	7 / 0	23
07/04/2007	17:34:26	SPRED	SOLID3 197	Calcio 0	28.5	317.5	0:08	0.10	222	0	Normal / CLP	600	7 / 0	22
07/04/2007	17:34:31	SPRED	SOLID3 225	Calcio 0	29.4	317.5	2:07	1.35	871	0	Normal / CLP	600	7 / 0	22
07/04/2007	17:36:39	SPRED	SOLID3 84	Calcio 0	24.9	136.7	2:08	1.21	852	0	Normal / CLP	600	7 / 0	22
07/04/2007	17:38:47	DIR	Salt 0	Brine 0	7.4	15.7	0:18	0.08	555	0	Normal / CLP	0	0 / 0	0
07/04/2007	18:56:17	SPRED	SOLID3 0	Calcio 0	61.8	282.0	0:06	0.17	0	0	Normal / CLP	0	7 / 0	21
07/04/2007	18:56:23	SPRED	SOLID3 169	Calcio 0	61.8	281.4	13:47	23.11	3397	0	Normal / CLP	400	7 / 0	21
07/04/2007	19:10:08	SPRED	SOLID3 0	Calcio 0	3.2	333.1	0:22	0.09	19	0	Normal / CLP	0	7 / 0	20
07/04/2007	21:02:22	SPRED	SOLID3 141	Calcio 0	0.0	0.0	0:06	0.00	0	0	Normal / CLP	500	7 / 0	22
07/04/2007	21:02:26	SPRED	SOLID3 0	Calcio 0	0.0	0.0	0:04	0.00	7	0	Normal / CLP	0	7 / 0	22
07/04/2007	21:02:39	SPRED	SOLID3 141	Calcio 75	0.0	0.0	6:58	6.51	1902	113	Normal / CLP	500	7 / 0	22
07/04/2007	21:10:20	SPRED	SOLID3 0	Calcio 0	0.0	3.5	0:56	0.01	297	18	Normal / CLP	0	7 / 0	20
07/04/2007	21:10:45	SPRED	SOLID3 141	Calcio 41	4.8	3.0	1:38	0.53	356	15	Normal / CLP	500	7 / 0	21
07/04/2007	21:12:08	SPRED	SOLID3 0	Calcio 0	0.0	183.6	0:10	0.01	39	1	Normal / CLP	0	7 / 0	20
07/04/2007	21:22:40	SPRED	SOLID3 141	Calcio 33	0.0	0.0	9:29	7.03	2296	71	Normal / CLP	500	7 / 0	22
07/04/2007	21:32:55	SPRED	SOLID3 0	Calcio 0	0.0	0.0	1:40	0.52	0	0	Normal / CLP	0	7 / 0	0
SubTotals for:														
			SOLID3	Calcio			41:50	41.26	10,868	228				
			Salt	Brine			0:18	0.08	555	0				
SubTotal for: 07/04/2007							42:08	41.33	11423	228				
Total for: TRUCK1 / Driver = 000000							42:08	41.33	11423	228				

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It also lists all application rate changes for the selected truck(s) during the selected date(s).

### 11.2.2 Detailed Report

The Application Rate Detailed Report tabulates all the GPS points logged for the selected truck(s). Depending on the number of GPS points, this could be a very lengthy report. This type of report proves itself useful for diagnostics.

It is not recommended to print this report unless absolutely necessary.

GPS Detailed Report : 00001

Sep 18/ 2007

Date	Time	Event Type	Solid Rate (kg/km)	PreWet Rate (l/tonne)	Ground Speed (km/hr)	Heading (deg.)	Total Time (hh:mm:ss)	Total Dist. (km)	Total Solid (kg)	Total PreWet (liter)	State / Ctrl Mode	Spin Rate (%)	Gate / Error	Temp (deg C)
Truck = 00001 / Driver = 000000														
Date = 03/29/2007														
03/29/2007	13:57:54	DIR	Sand 99	LIQUD3 0	12.4	83.3	0:12	0.09	13	34	Normal / OLP	0	4 / 0	0
03/29/2007	13:58:30	TIME	Sand 198	LIQUD3 0	13.6	300.5	0:36	0.02	0	45	Normal / OLP	0	4 / 0	0
03/29/2007	13:58:45	TIME	Sand 198	LIQUD3 0	25.2	315.2	0:15	0.15	0	43	Normal / OLP	0	4 / 0	0
03/29/2007	13:58:52	DIR	Sand 198	LIQUD3 0	12.9	14.7	0:07	0.05	0	56	Normal / OLP	0	4 / 0	0
03/29/2007	13:59:07	TIME	Sand 198	LIQUD3 0	0.0	36.6	0:15	0.04	0	0	Normal / OLP	0	4 / 0	0
03/29/2007	13:59:27	TIME	Sand 198	LIQUD3 0	10.1	35.0	0:20	0.02	0	0	Normal / OLP	0	4 / 0	0
03/29/2007	13:59:42	TIME	Sand 297	LIQUD3 0	1.4	36.8	0:15	0.08	0	0	Normal / OLP	0	4 / 0	0
03/29/2007	13:59:57	TIME	Sand 297	LIQUD3 0	0.0	36.0	0:15	0.03	0	0	Normal / OLP	0	4 / 0	0
<b>SubTotals for :</b>														
			Sand	LIQUD3			2:15	0.48	13	178				
SubTotal for : 03/29/2007							2:15	0.48	13	178				
<b>Total for : 00001 / Driver = 000000</b>							2:15	0.48	13	178				

1 of 1    8 of 8    Total 8    100%

### 11.2.3 E-mail report

This option opens your e-mail client and e-mails the report to the set e-mail.

### 11.2.4 Digital input summary

This report shows the status of all digital inputs

GPS Digital Input Report : Truck002

Jul 13/ 2007

**GPS Digital Input Report : Truck002**

Date	Time	Digital Inputs	Solid Rate (kg/km)	PreWet Rate (l/tonne)	Ground Speed (km/hr)	Heading (deg.)	Total Time (hh:mm:ss)	Total Dist. (km)	Total Solid (kg)	Total PreWet (liter)	State / Ctrl Mode	Spin Rate (%)	Gate Error (deg C)	Temp (deg C)
Truck = Truck002 / Driver = 000000														
Date = 06/29/2007														
06/29/2007	09:26:31	0 0 0 0 0	Salt 135	LIQUID3 30	6.4	128.0	1:39	0.15	0	0	Normal / OLP	500	3 / 0	0
06/29/2007	09:40:09	0 0 0 0 0	Salt 0	Brine 0	0.0	0.0	0:27	0.06	0	0	Normal / CLP	0	0 / 0	0
06/29/2007	09:40:32	Plow ON	Salt 0	Brine 0	22.6	217.4	0:26	0.17	0	0	Normal / CLP	0	0 / 0	0
06/29/2007	09:40:57	Plow OFF	Salt 0	Brine 0	11.3	204.2	0:28	0.17	0	0	Normal / CLP	0	0 / 0	0
		Wing ON												
06/29/2007	09:41:20	Wing OFF	Salt 0	Brine 0	24.4	155.1	0:17	0.10	0	0	Normal / CLP	0	0 / 0	0
		Body ON												
06/29/2007	09:41:35	Body OFF	Salt 0	Brine 0	24.9	312.5	0:03	0.02	0	0	Normal / CLP	0	0 / 0	0
06/29/2007	09:41:36	Plow ON	Salt 0	Brine 0	26.2	312.9	0:01	0.01	0	0	Normal / CLP	0	0 / 0	0
06/29/2007	09:41:50	Plow OFF	Salt 0	Brine 0	32.6	315.1	0:20	0.17	0	0	Normal / CLP	0	0 / 0	0
		Wing ON												
06/29/2007	09:42:01	Plow ON	Salt 0	Brine 0	30.9	36.8	0:05	0.03	0	0	Normal / CLP	0	0 / 0	0
		Wing OFF												
06/29/2007	09:42:12	Plow OFF	Salt 0	Brine 0	32.3	35.2	0:37	0.18	0	0	Normal / CLP	0	0 / 0	0
<b>SubTotals for : Wing</b>							0:48	0.34	0	0				
<b>Plow</b>							0:32	0.21	0	0				
<b>Body</b>							0:17	0.10	0	0				
<b>SubTotal for : 06/29/2007</b>							<b>4:23</b>	<b>1.06</b>	<b>0</b>	<b>0</b>				
<b>Total for : Truck002 / Driver = 000000</b>							<b>4:23</b>	<b>1.06</b>	<b>0</b>	<b>0</b>				

## Export to Excel

Exporting the report to excel creates a 'csv' (comma separated values) file in your installation directory. You may open this file with most spreadsheet programs.

Microsoft Excel - TEST\_18.csv

1	Compu-Spread CSMapper - v 1.00.0037 : 06/07/2007 - 1:58:10 PM													
2	Truck_ID	Driver_ID	Event_type	GPS_valid	SPRD_valid	Date_time	Latitude	Longitude	Velocity (km/hr)	Heading (deg)	Ctrl_flag	Status		
3														
4														
5	TEST_18	0	POSN	1	1	06/18/2007 20:00:01	-81.6915	-113.224	60	40	1	Normal / SQM		
6	TEST_18	0	POSN	1	1	06/18/2007 20:00:09	-81.6898	-113.214	60	40	1	Normal / SQM		
7	TEST_18	0	POSN	1	1	06/18/2007 20:00:17	-81.6881	-113.204	60	40	1	Normal / SQM		
8	TEST_18	0	POSN	1	1	06/18/2007 20:00:24	-81.6866	-113.196	60	40	1	Normal / SQM		
9	TEST_18	0	POSN	1	1	06/18/2007 20:00:32	-81.6849	-113.186	60	40	1	Normal / SQM		
10	TEST_18	0	POSN	1	1	06/18/2007 20:00:40	-81.6832	-113.176	60	40	1	Normal / SQM		
11	TEST_18	0	POSN	1	1	06/18/2007 20:00:48	-81.6815	-113.166	60	40	1	Normal / SQM		
12	TEST_18	0	POSN	1	1	06/18/2007 20:00:56	-81.6798	-113.156	60	40	1	Normal / SQM		
13	TEST_18	0	POSN	1	1	06/18/2007 20:01:04	-81.6781	-113.146	60	40	1	Normal / SQM		
14	TEST_18	0	POSN	1	1	06/18/2007 20:01:12	-81.6764	-113.136	60	40	1	Normal / SQM		
15	TEST_18	0	POSN	1	1	06/18/2007 20:01:19	-81.6749	-113.128	60	40	1	Normal / SQM		
16	TEST_18	0	POSN	1	1	06/18/2007 20:01:27	-81.6732	-113.118	60	40	1	Normal / SQM		
17	TEST_18	0	POSN	1	1	06/18/2007 20:01:35	-81.6715	-113.108	60	40	1	Normal / SQM		
18	TEST_18	0	POSN	1	1	06/18/2007 20:01:43	-81.6698	-113.098	60	40	1	Normal / SQM		
19	TEST_18	0	POSN	1	1	06/18/2007 20:01:51	-81.6681	-113.088	60	40	1	Normal / SQM		
20	TEST_18	0	POSN	1	1	06/18/2007 20:01:59	-81.6664	-113.078	60	40	1	Normal / SQM		
21	TEST_18	0	POSN	1	1	06/18/2007 20:02:06	-81.6649	-113.07	60	40	1	Normal / SQM		
22	TEST_18	0	POSN	1	1	06/18/2007 20:02:14	-81.6632	-113.06	60	40	1	Normal / SQM		
23	TEST_18	0	POSN	1	1	06/18/2007 20:02:22	-81.6615	-113.05	60	40	1	Normal / SQM		
24	TEST_18	0	POSN	1	1	06/18/2007 20:02:30	-81.6598	-113.04	60	40	1	Normal / SQM		
25	TEST_18	0	POSN	1	1	06/18/2007 20:02:38	-81.6581	-113.03	60	40	1	Normal / SQM		
26	TEST_18	0	POSN	1	1	06/18/2007 20:02:46	-81.6564	-113.021	60	40	1	Normal / SQM		
27	TEST_18	0	POSN	1	1	06/18/2007 20:02:54	-81.6547	-113.011	60	40	1	Normal / SQM		
28	TEST_18	0	POSN	1	1	06/18/2007 20:03:01	-81.6532	-113.002	60	40	1	Normal / SQM		
29	TEST_18	0	POSN	1	1	06/18/2007 20:03:09	-81.6515	-112.992	60	40	1	Normal / SQM		
30	TEST_18	0	POSN	1	1	06/18/2007 20:03:17	-81.6498	-112.982	60	40	1	Normal / SQM		

### 11.3 Route Mapping

Depending on the application you can choose application rate mapping, digital input mapping, or both.

#### 11.3.1 Application Rate Mapping

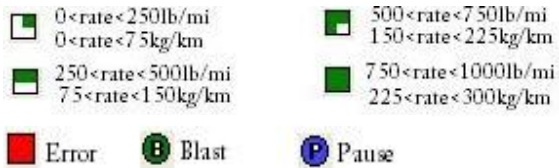
From the Main Screen select a truck and date and time duration, and click on the Map Tab. All the waypoints for that truck in the selected time period would be plotted on the map.

For application rate mapping:

**GREEN** - Spreading

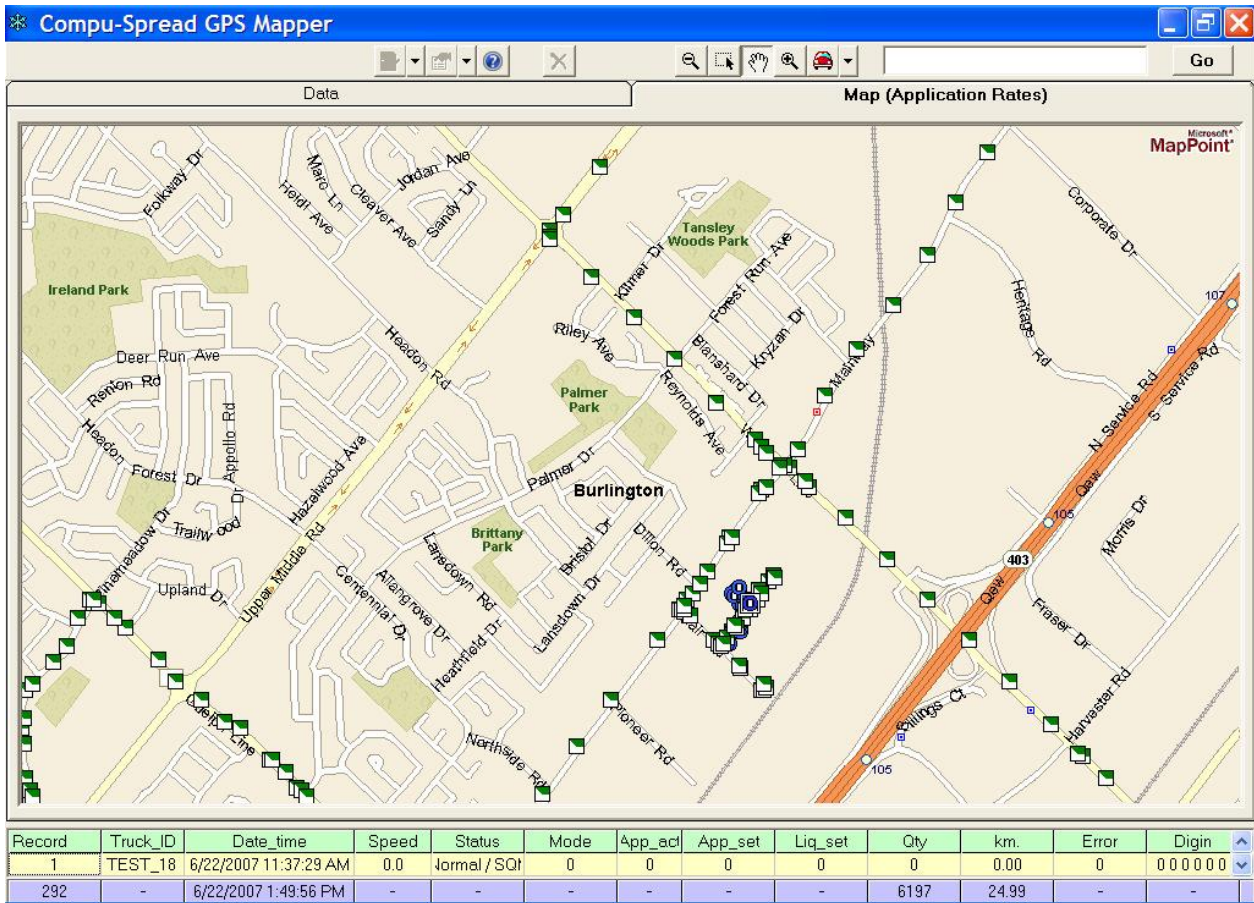
**BLUE** - Non-spreading

**RED** - Error condition



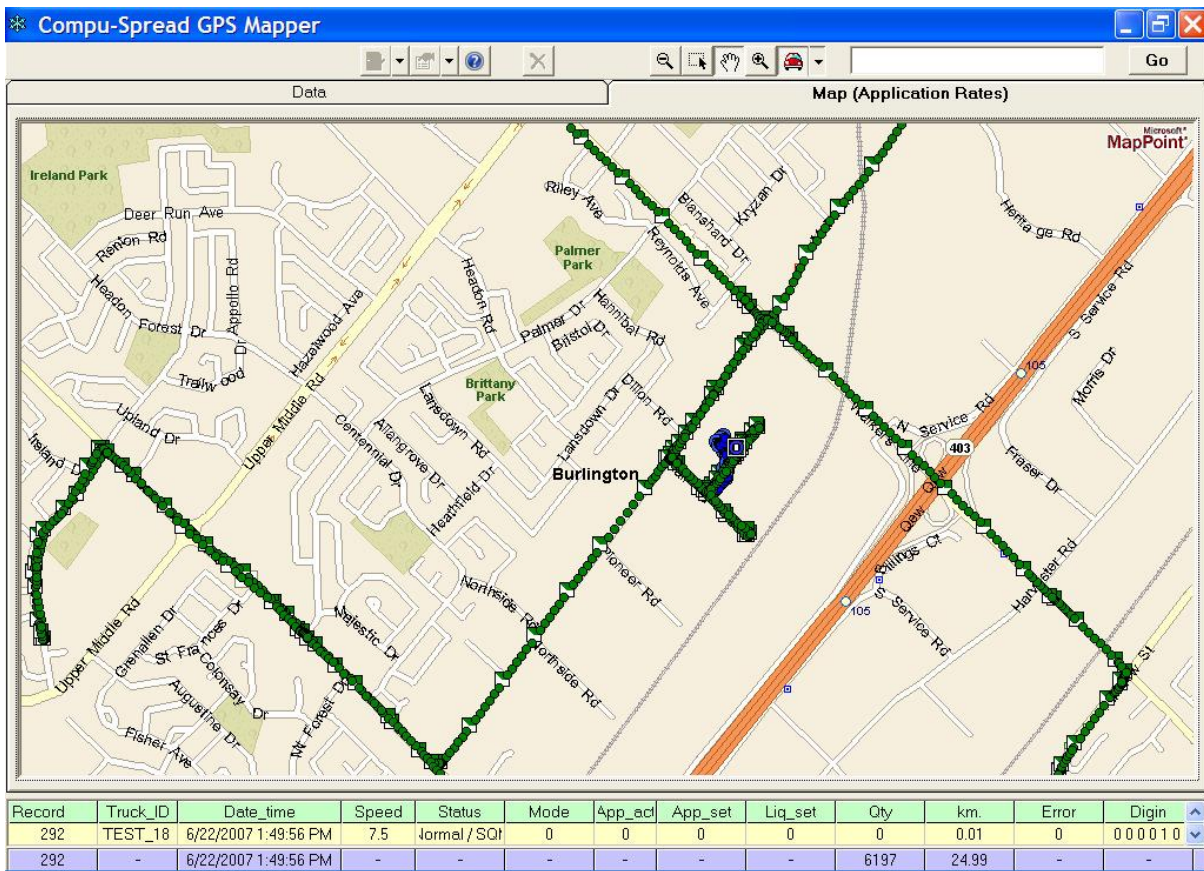
To check the status of spreading activity at a point on the map you can click on the waypoint to see all the defined fields (11.1) on the bottom of the screen. These are the fields you can select depending on the application:

*Truck ID, Date & Time, coordinates, direction, speed, control mode (Automatic, Open, Manual), Status (Blast, Pause, Unload, Reverse), application rate, liquid rate, solid material selected, liquid selected, gate setting, spinner setting, Qty, Distance, Volume, Error, Digital In Status, Pave & Air temp (if temp sensor is in the system).*



- Requires mechanical expertise
- Requires IT knowledge

Click on the car symbol on the menu bar to give you the activity replay for the truck and time duration selected.



### 11.3.2 Digital Input Mapping

For digital input mapping ensure name and color of each digital input is defined (11.1). keep in mind that only four colors are supported.

See 5.1 for digital input cable pinout

Name Digital Inputs - Ass...

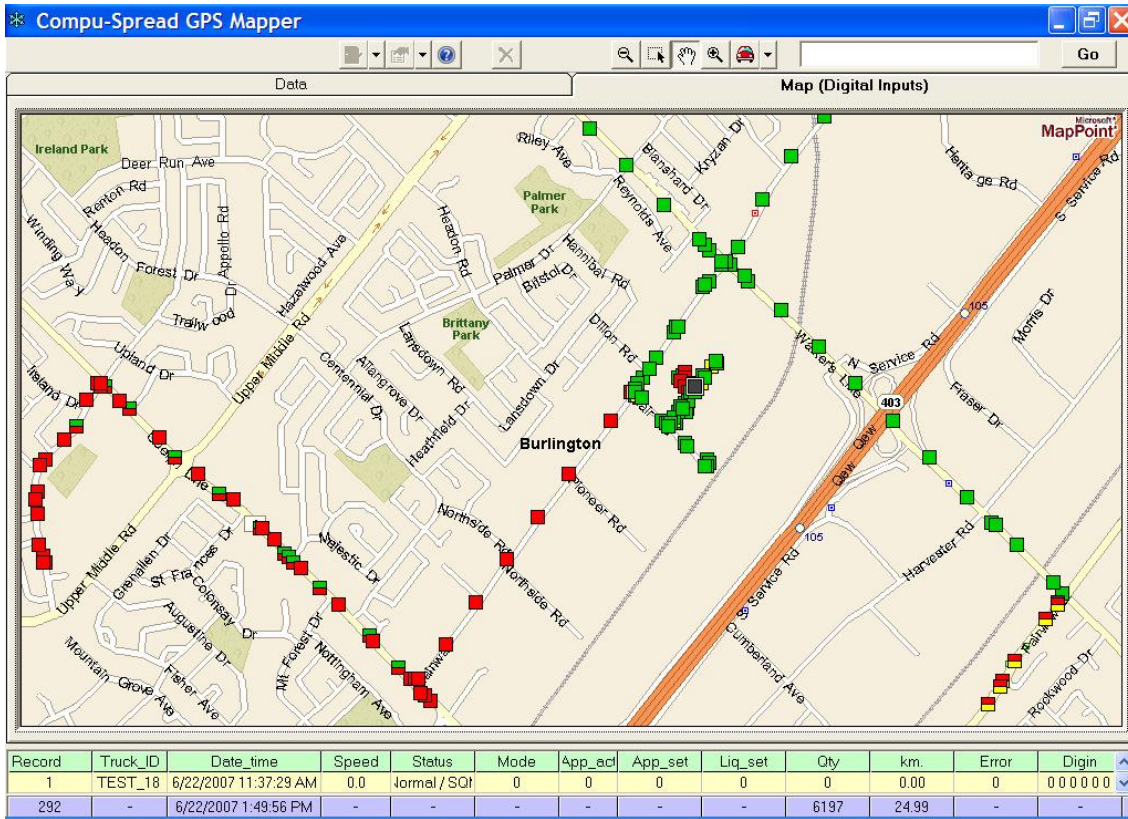
Red	Plow
Green	Wing
Yellow	Body
Blue	Broom
None	
None	

Cancel ? OK

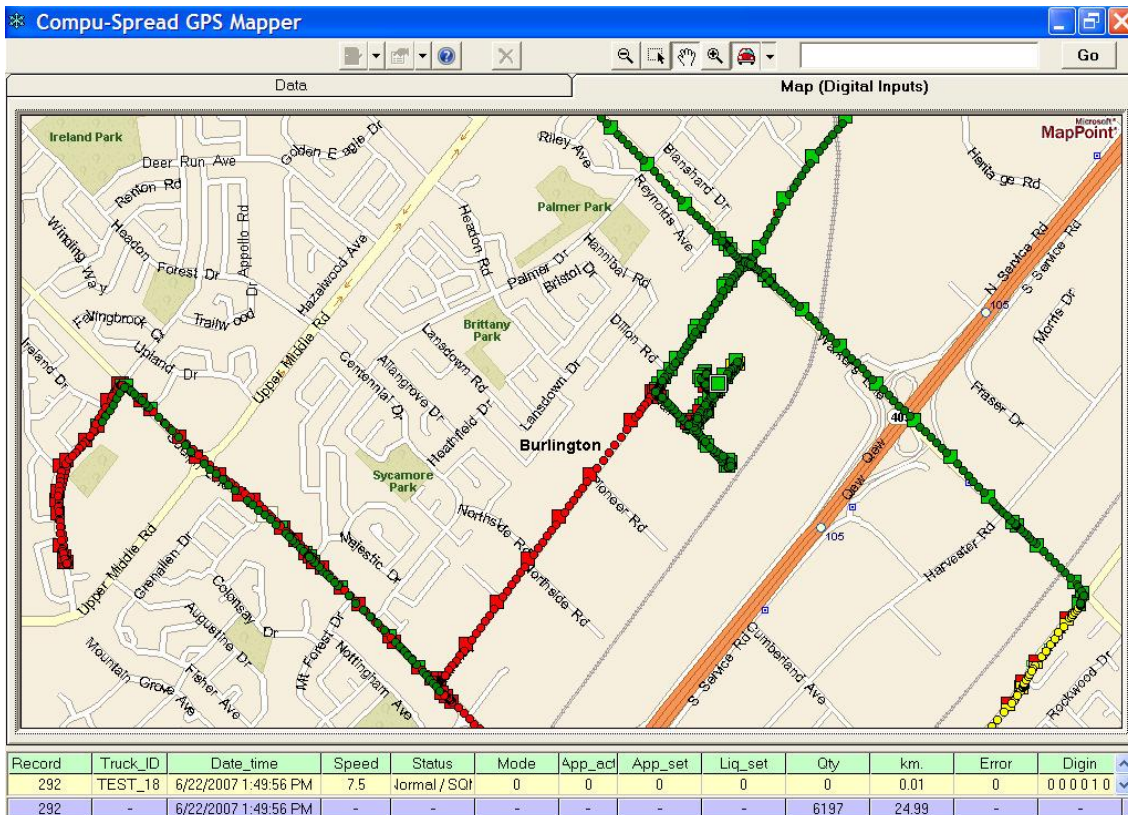
Name Digital Inputs - Ass...



Red	Plow
None	Wing
Yellow	Body
Blue	Broom
Green	Hoist
None	

Cancel ? OK



Click on the car symbol on the menu bar to give you the activity replay for the truck and time duration selected.



-  Requires mechanical expertise
-  Requires IT knowledge



## 12 Troubleshooting

### 12.1 Desktop software

Cannot load map on CS-Mapper.	Check if Microsoft map-point is installed.
Computer crashes when reading data with wireless data loader	Check if database (Compu.mdb) exists in installation directory. Default installation directory is C:\Program Files\Compu-Spread Desktop\
	Check if the wireless data loader points to the proper directory.
Wireless data loader shows inconsistent data	The CS-440 and CS-230 CS-WDTS devices are not interchangeable. Make sure you have the device connected to its intended spreader controller.
	Inconsistent data such as "0 records, 238%" is a sign of incorrect serial port configuration. This may happen if the WLAN module was reset using DPAC. Call technical support for help on reconfiguring the WLAN module using DPAC.
Wireless data loader keeps displaying NO DATA although truck has completed a route.	Check if device is connected to the GPS receiver and Spreader controller. Go into the truck and check the diagnostic LEDs to make sure the LED "D3 - CONNECT / ERROR" is not blinking. If the LED is blinking twice it means that the spreader controller is not connected, three blinks means that the GPS receiver is not connected.
Map takes too long to display	Check if the base station PC meets the minimum PC requirements.



Requires mechanical expertise



Requires IT knowledge

## 12.2 Connection issues

Device restarts for no apparent reason.	Make sure the device is not under direct sunlight. If the device overheats it will automatically shut down to prevent damage to the processors.
Cannot connect to the wireless router	Check if the device is switched on.
	Try to discover the device with ACC diagnostic utility.
	Check if the device is in close proximity to the wireless network.
GPS receiver not connected (Error LED blinking 3 times)	Check that the GPS receiver is connected to the GPS port on the CS-WDTS unit and that the CS-WDTS unit is turned on.
	After switching on the unit for the first time it may take some time for the GPS receiver to acquire the satellites. If you are in a dense urban area this may take a few minutes.
	Check if the LED in the GPS receiver is on. If it is off the device is not powered. Turn off the CS-WDTS unit and wait for a few minutes then turn back on. If this solves the problem it may have been due to heat. Make sure your device is not exposed to direct sunlight.
CS-440 not connecting (Error LED blinking 2 times)	Make sure the CS-440 is turned on and connector P5 on the CS-440 is connected to X3 on the CS-WDTS.
	Make sure that the GPS software switch is ON. Settings → system setup → control mode → 01-GPS If the software switch is set to 00 (OFF) then there will be no connection to the CS-WDTS when the ground speed is zero. This should only be set to 00 when a palm pilot is to be used.
CS-230 not connecting Error LED blinking 2 times)	Make sure the CS-230 is turned on and connected to port X3 on the CS-WDTS.
No GPS, no CS-440 or CS-230 Error LED blinking once	Make sure the CS-440 or CS-230 is turned on and connected. Check if the LED on the GPS receiver is on, and ensure that the GPS receiver is in the view of the sky.



Requires mechanical expertise



Requires IT knowledge