CART PATH ONLY

SETTING UP CART PATH ONLY

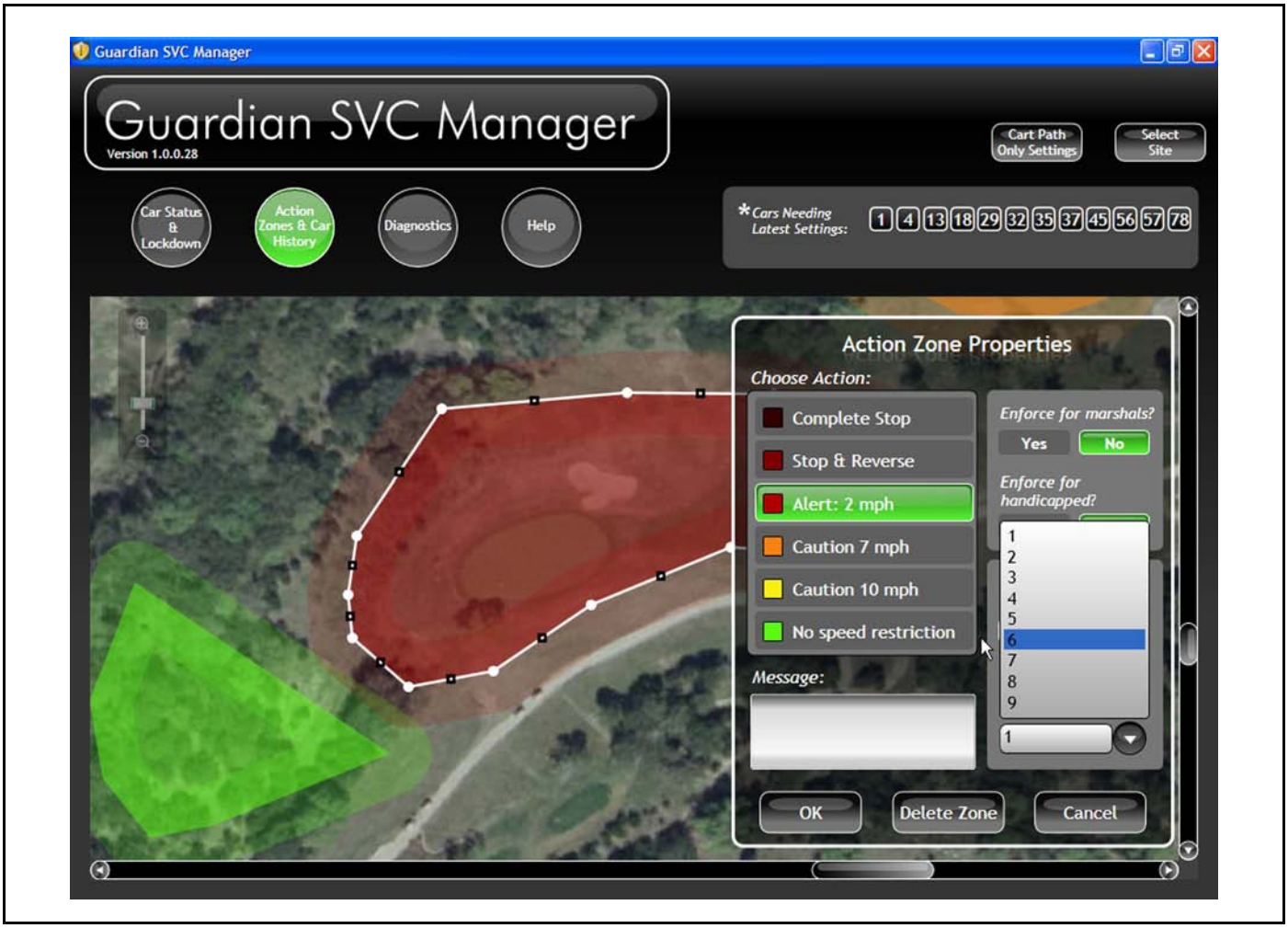
1. To create a Cart Path Only Action Zone, draw it with the Draw Action Zone tool (as described in the section “Drawing an Action Zone”). These areas should be drawn to cover the tees, fairway, and green of a hole, leaving an uncovered buffer at the cartpath and other areas where golfers are allowed to drive. Depending on the configuration of a hole, you may have to draw several Action Zones to cover it completely (for example, if the cartpath cuts across the middle of the fairway).
2. After you have drawn the Action Zone, the Action Zone Properties window appears. Choose the options you want for the Action Zone, then select “Yes” to the “Is this zone used for Cart Path Only?” question. After you select “Yes,” a box appears to let you apply an Action Zone to a selected course and hole.
3. Select course and hole.

1240

Figure 11-1 Enabling the “Cart Path Only” Property

1241

Figure 11-2 Opening the Drop-down List for Holes



1242

Figure 11-3 Associating the Cart Path with a Specific Hole

TURNING CART PATH ONLY ON AND OFF

On the Car Status & Lockdown and Action Zones & Car History pages, there is a button on the upper right portion of the screen called “Cart Path Only Settings.” Clicking this button brings up the Cart Path Only Settings window. If your site has multiple courses, you will see a drop-down menu to allow you to select the course.
Towards the bottom of this window, there is a list of all the holes for which Cart Path Only Action Zones are defined. Next to each hole there is a check box; if the box is checked, Cart Path Only restrictions are in force on that hole. Clicking in the boxes adds and removes the checkmarks from the boxes. You can also click the “All On” or “All Off” buttons to quickly turn on or off all the Cart Path Only restrictions for the selected course.

1243

Figure 11-4 Cart Path Only Settings Button

DOWNLOADING TO THE GUARDIAN DEVICE

Whenever you make a change to an Action Zone, the Guardian SVC Manager will upload the change to the Guardian Server. When the Guardian Devices on vehicles in your fleet check in with the server, they will automatically download the latest settings. If a Guardian Device is out of contact with the server (for example, it is on a vehicle that is in an area outside the Guardian Wifi network), it will download these settings when it returns to the Guardian WiFi network.

Note that a vehicle will continue to use the settings it previously downloaded until it downloads the new settings; in other words, changes you make in the Guardian SVC Manager could take several hours or more to take effect on a particular vehicle if that vehicle's Guardian Device is out of contact with the Guardian Server.

CARS NEEDING LATEST SETTINGS

Changes you make to your Guardian System's settings are uploaded to the Guardian Server, then downloaded by the Guardian Devices. In the interim, some cars (generally cars that are out of the range of the Guardian WiFi network) may not download the settings. These vehicles will be displayed in the list of "*Cars Needing Latest Settings."

1272

Figure 12-1 “*Cars Needing Latest Settings” Display in Upper Right Corner

GEO FENCE

The “Geo Fence” is a special type of Action Zone that is a virtual boundary around your property. If a golf car equipped with a Guardian device drives off the area covered by the aerial photograph (into the gray area surrounding the map), it will be considered to have crossed the Geo Fence.

1271

Figure 13-1 “Geo Fence” Button Displayed in Upper Right Corner

1. To bring up the Geo Fence Properties window, click the Geo Fence button.
2. To configure the Action that your Guardian units will take when they cross the Geo Fence, select an Action from the list (just as you would with any other Action zone), then press OK.

1270

Figure 13-2 Geo Fence Properties window

A vehicle that crosses this boundary is likely to be out of range of the Guardian Server, a fact to keep in mind when selecting an Action. For example, selecting the “Complete Stop” Action property for areas outside the Geo Fence will disable the car. You will have to locate that car and tow or push it back within the boundaries of the property before it becomes operable once more.

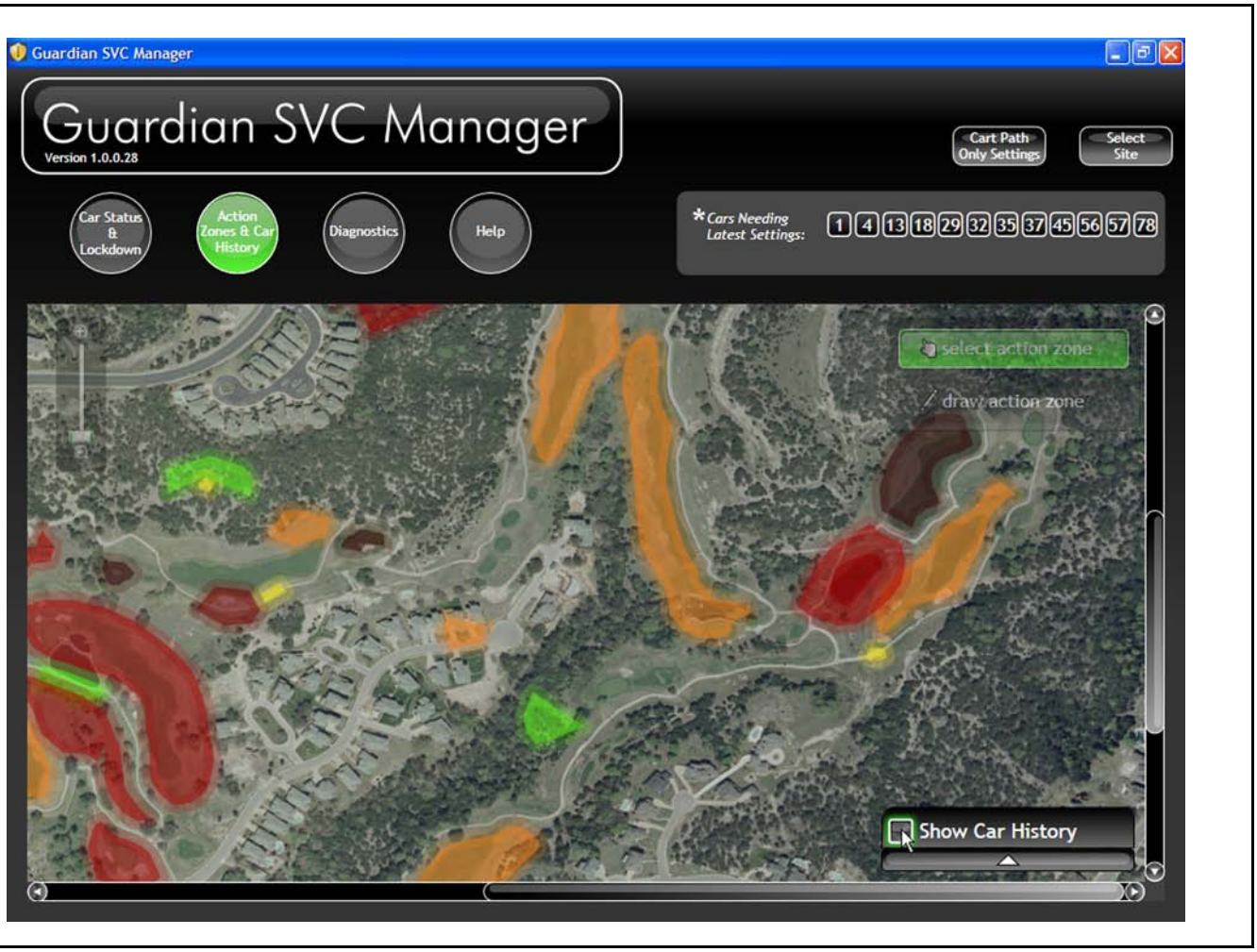
CAR HISTORY

The Guardian unit installed on each vehicle uses GPS to determine its location. The Guardian unit records these locations throughout the day and uses the Guardian WiFi network to upload this information to the Guardian server.

The consecutive locations appear in the Guardian SVC Manager as a trail that shows where the car traveled during the day. You can choose to view the vehicle location history for the entire fleet or focus on the location history of an individual car.

VIEWING CAR HISTORY

1. Click on the check box next to “Show Car History” in the bottom right corner of the screen.
2. Click again to uncheck the box and hide Car History.



1247

Figure 14-1 “Show Car History” Check box in Lower Right Corner

1248

Figure 14-2 Car History Displayed

To view Car History options, click on the up arrow below the “Show Car History” text and check box. This action expands the Car History palette to allow you to select from several options including specifying the date for which you want to view history, or choosing whether to view history for all cars or for a single car.

1249

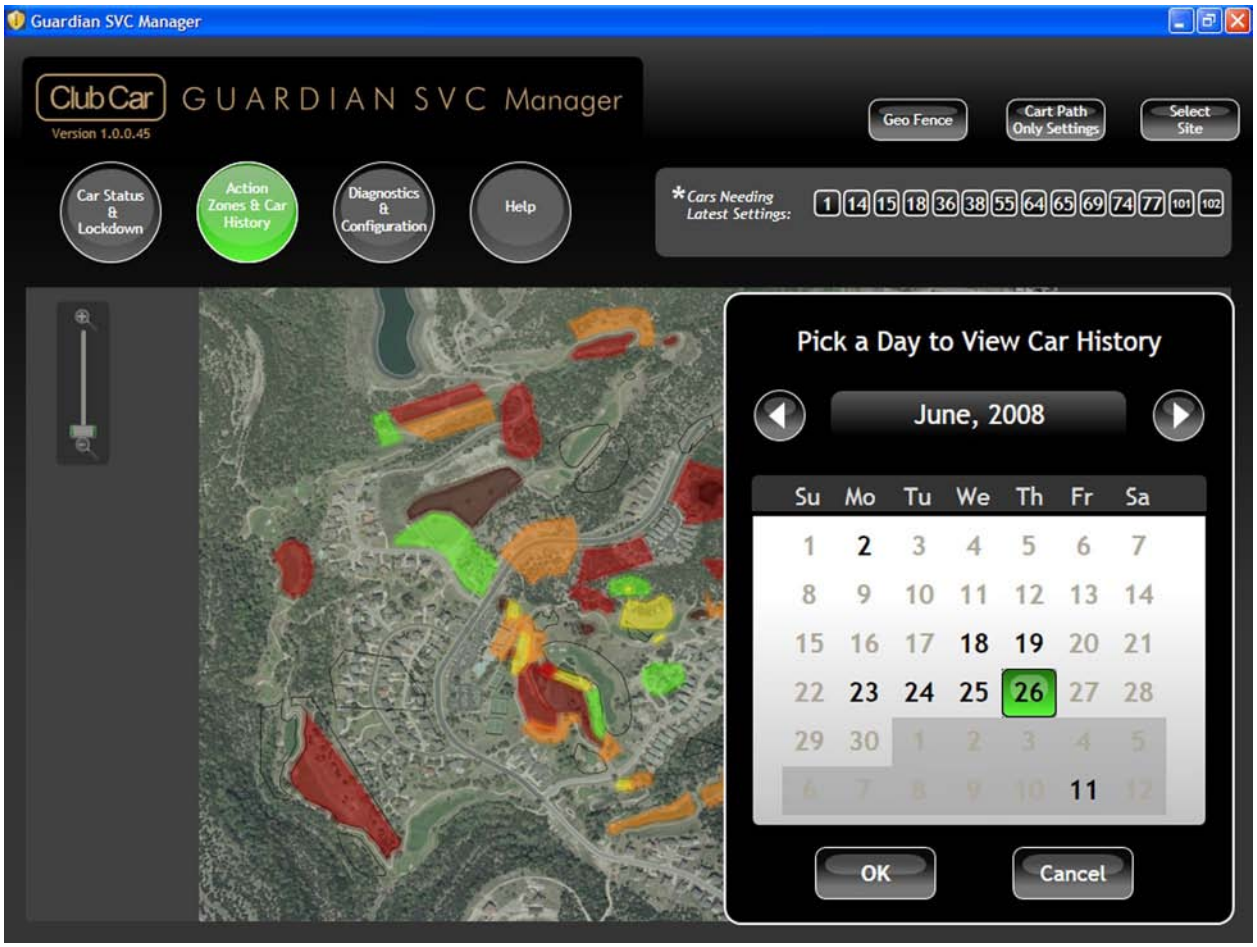
Figure 14-3 Car History Advanced Settings 1

1250

Figure 14-4 Car History Advanced Settings 2

VIEWING CAR HISTORY FOR A CERTAIN DATE

Pressing the “Change Date” button brings up a calendar. Click on the day for which you wish to view Car History, then press “OK”. If there is no data available for a date, its number will be light gray; otherwise, the number will be black. Click the arrows to the left and right of the month to view a different month.



1251

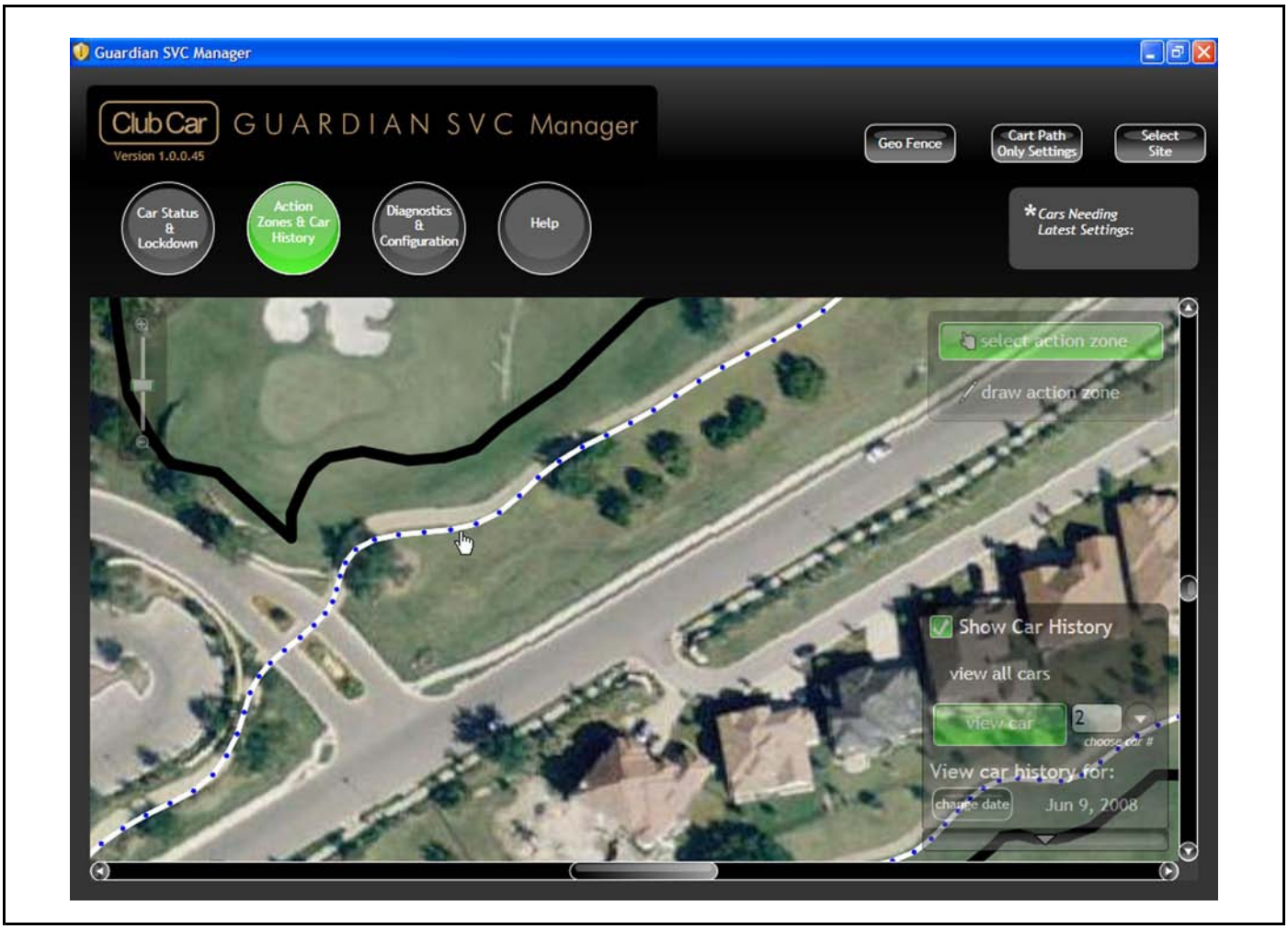
Figure 14-5 Car History Calendar

VIEWING CAR HISTORY FOR A CERTAIN CAR

First, select the date (as described above) for which you wish to view Car History. After doing so, there are two methods to select a certain car's history. The first is to click on the "choose car #" drop down and select the number of the golf car you want to view.
The second way is to move the Select Action Zone tool over a Car History Trail. That particular trail will be highlighted in blue and you will see a pop-up of the car number. Click on the trail, and the Guardian SVC Manager will hide the other trails.

1253

Figure 14-6 Select Car Trail 1



1254

Figure 14-7 Select Car Trail 2

ACTION DOTS

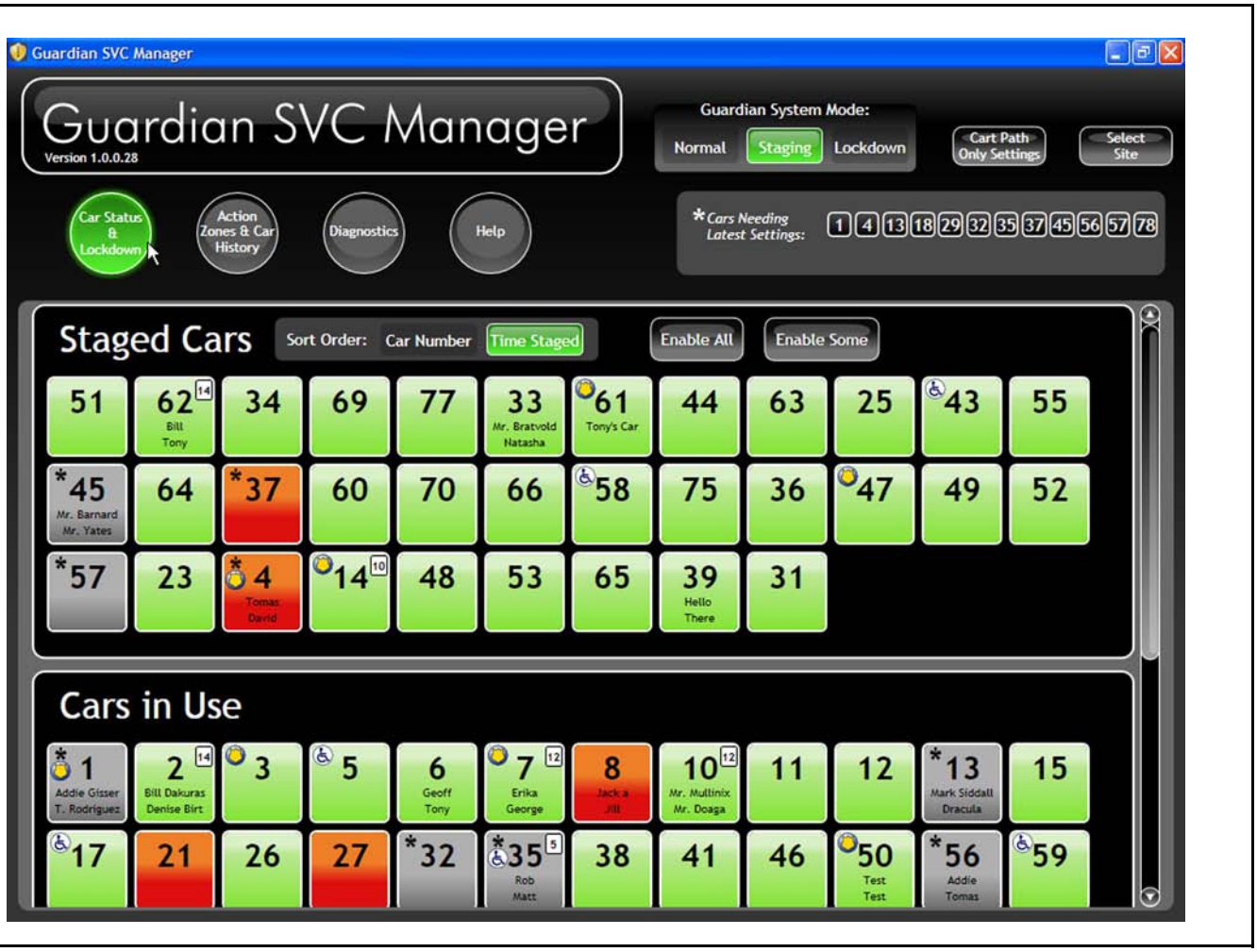
Whenever one of your Guardian-equipped golf cars that has a good GPS fix enters an enabled Action Zone, it will take an action. These actions are represented by blue dots along the otherwise white Car History trails.

1256

Figure 14-8 Action Dots

GOLF CAR STATUS AND LOCKDOWN PAGE

Each car in your fleet is represented by an icon that is a square with a number at the top. The color of the icon indicates that car's status: Green means the Guardian device is connected to the WiFi network and the Guardian server, gray means it is not connected (possibly on the course out of range of the Guardian WiFi network), and red means that the car has either a critical fault or a very low battery and should not be used.



1252

Figure 15-1 Car Status & Lockdown – Overview

GUARDIAN SYSTEM MODES: NORMAL, STAGING, AND LOCKDOWN.

The Guardian System has three modes: Normal, Staging, and Lockdown. In Normal mode, the cars operate as normal, and the Guardian units will take action if the car enters an Action Zone.
Staging Mode is similar to Normal mode, except that they have the capability of being "staged," or temporarily locked down (until they are enabled using the Guardian SVC Manager). Please see "Staging Cars" for more information.
Lockdown mode prevents every car in the fleet from being driven. This mode is intended for use at the end of the day, as a security measure to deter theft.

CATEGORIES

The cars are categorized by status. The two main categories are “Cars on Chargers” and “Cars in Use.” Additionally, when the Guardian System is in Staging mode, there is a third category, “Staged Cars.” The Cars on Chargers category, as you would expect, is a list of all cars that are plugged in to a charger. The Staged Cars category contains all the cars that have been staged. The Cars in Use category encompasses all the rest of the cars.

STAGING CARS

Staging a car with the Guardian System will prevent the car from being used until it is re-enabled by the Guardian SVC Manager. When a car is within the Guardian WiFi network, and the Guardian System is set to Staging Mode, it can be staged by turning the key from On to Off and then quickly back to On. The car will beep twice and display a message on the screen to let you know it has been staged. Its icon will move to the “Staged Cars” category in the Guardian SVC Manager.
After a car has been staged, it can only be moved a short distance, at a low speed, for a short time. This allows you or your personnel to reposition the car without having to enable it, while still discouraging unauthorized drivers from taking the car away to use it.

ENABLING A STAGED CAR

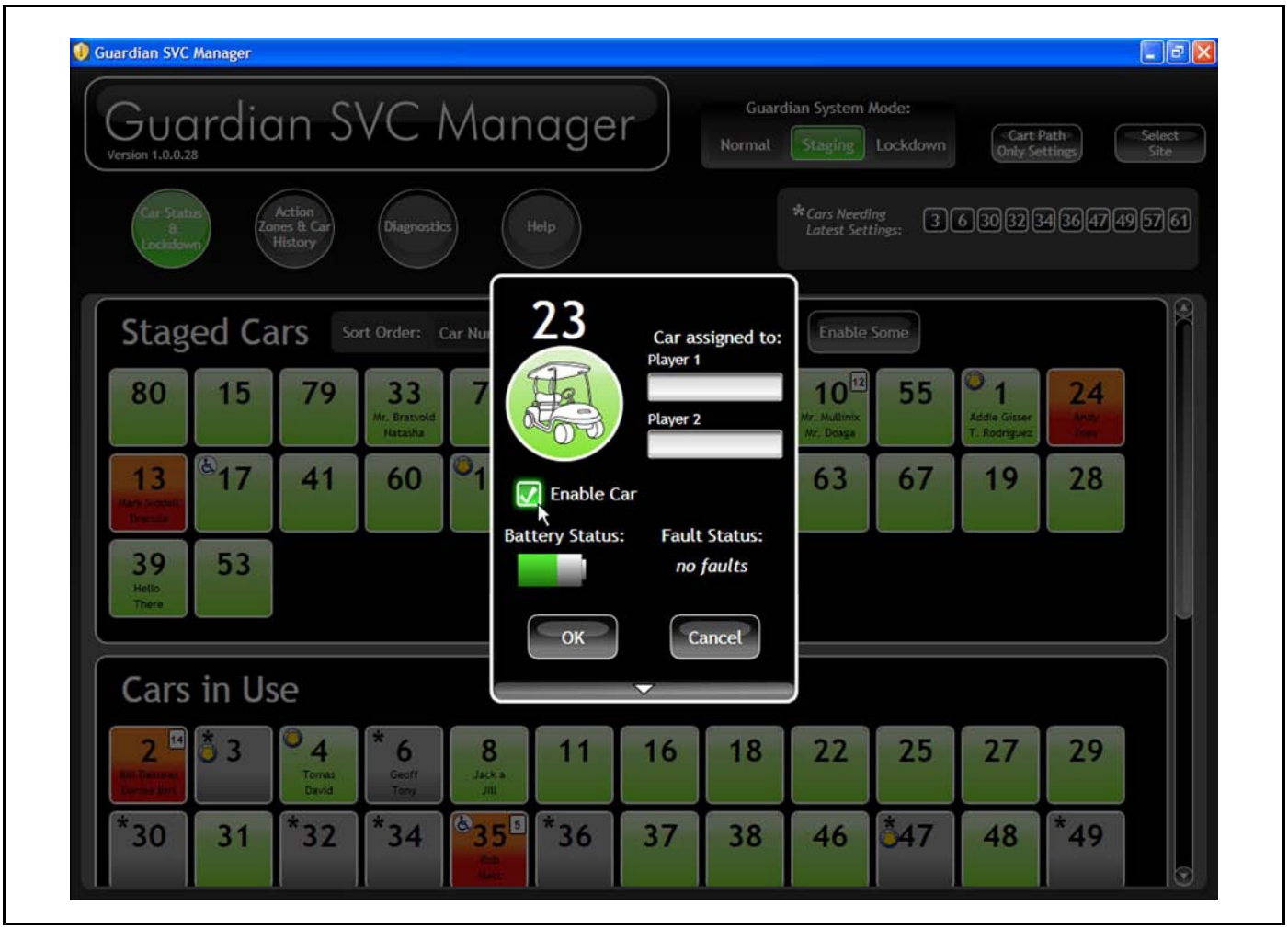
To enable the car for use, click on its icon, and select “enable.” The car’s icon will blink to let you know that it is ready for use. As soon as someone drives the car, it will stop blinking and will move to the “Cars in Use” category.

1258

Figure 15-2 Car Status & Lockdown – Enable Staged Car 1

1259

Figure 15-3 Car Status & Lockdown – Enable Staged Car 2



1260

Figure 15-4 Car Status & Lockdown – Enable Staged Car 3

1261

Figure 15-5 Car Status & Lockdown – Enable Staged Car 4

SORTING BY TIME STAGED OR CAR NUMBER

The Guardian SVC Manager allows you to sort staged cars by the time they were staged or by the car number. For example, if you have a system where the last cars staged are the first ones to be used (Last-in-first-out), you might want to use the Time Staged sort option to assist you in designating cars for use. Simply click the “Car Number” or “Time Staged” options to change the sort order.

1255

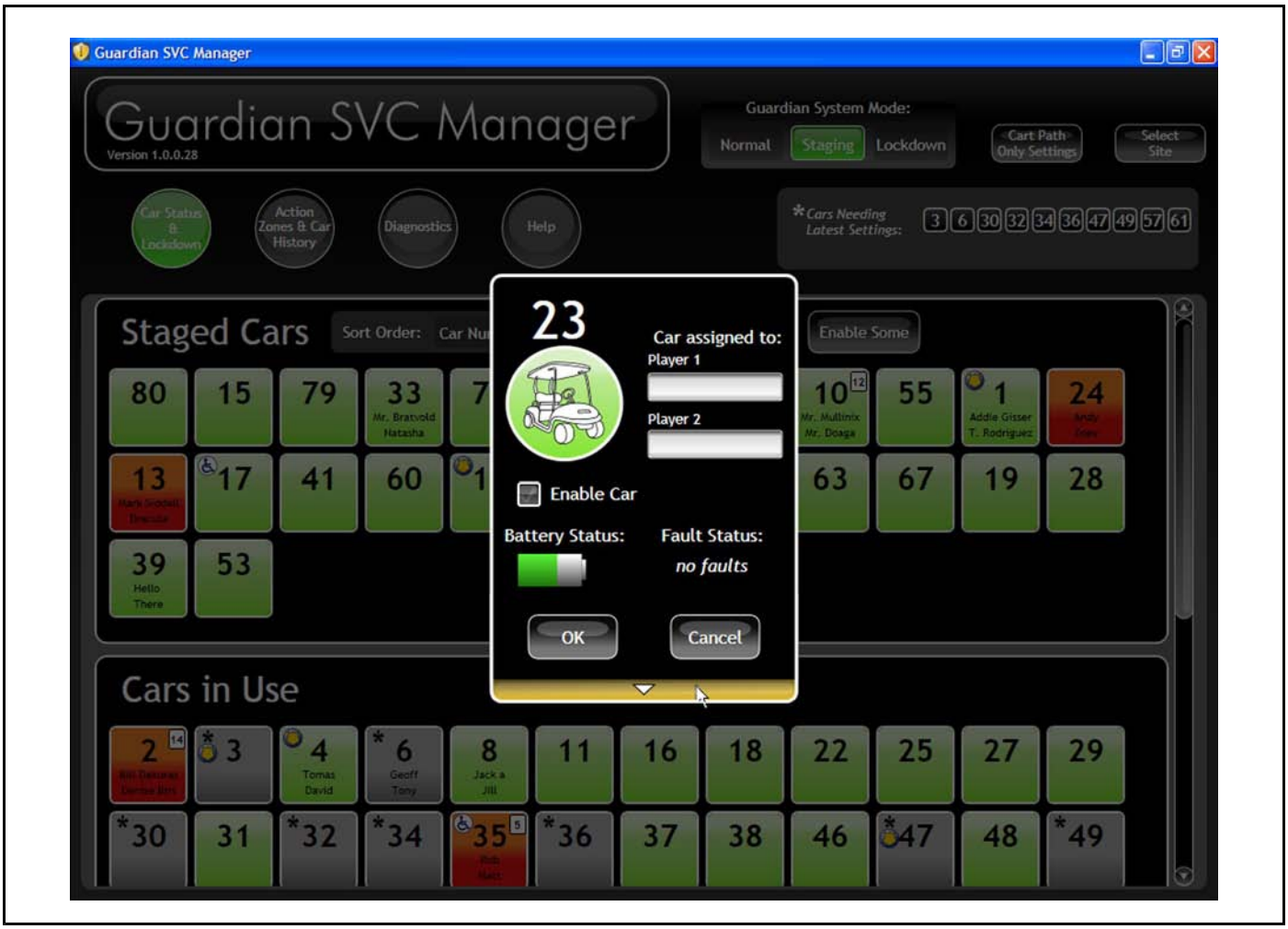
Figure 15-6 Car Status & Lockdown – Staged Cars Time Staged

1257

Figure 15-7 Car Status & Lockdown – Staged Cars Number Sort

CAR STATUS WINDOW

The color of the boxes gives you a quick reference to a car's status. If you require more detailed information, such as battery status or fault status information, you can click on a car's icon to bring up the Car Status window.
By default, you will see the car number, the names assigned to that car, and its battery and fault status. You expand the window to view advanced settings by clicking on the down arrow.



1263

Figure 15-8 Car Status & Lockdown – Standard Settings

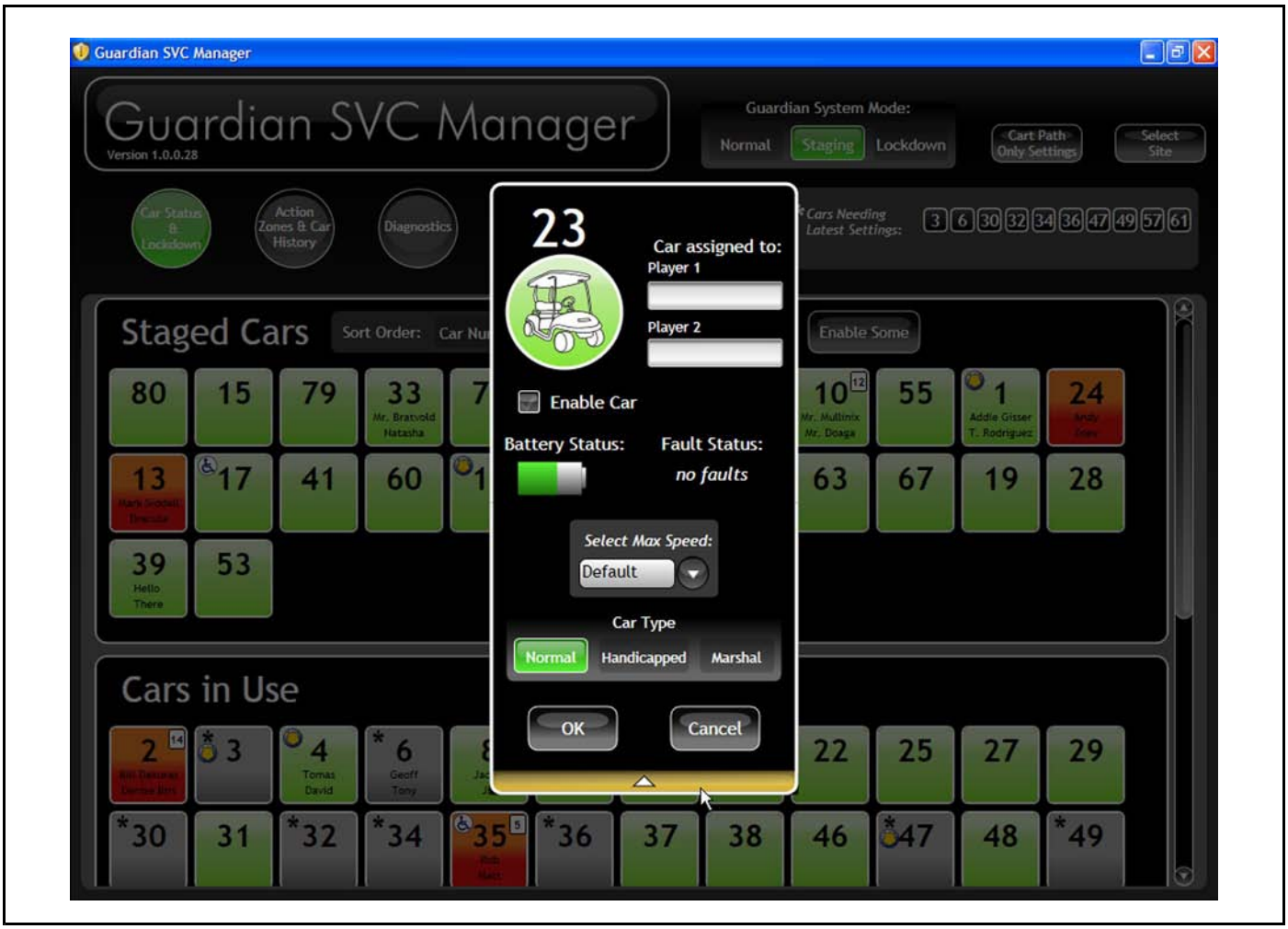
1262

Figure 15-9 Car Status & Lockdown – Advanced Settings

To view detailed information from the motor controller, click on the Motor Controller Status icon. To view more detailed information about the battery, click on the battery icon. Clicking on the detailed information display will return the view to the battery or motor controller status icon.

CAR TYPES

You can designate a car as a normal, handicapped, or marshal car. The only distinction between the different types is that you can choose to have some Action Zones ignore marshal and/or handicapped vehicles. In other words, if a car that is designated as a marshal drives into an Action Zone for which the option to “Enforce for Marshals?” is set to “No,” then nothing will happen. Please see the Action Zone Properties section for further information.
To change a car’s type, first click on its icon. In the Car Status window that appears, click on the down arrow to view advanced properties. Then click on Normal, Handicapped, or Marshal to set the car’s type.



1262

Figure 15-10 Car Status & Lockdown – Advanced Settings

LOCKING YOUR FLEET DOWN

Lockdown Mode is intended for use at the end of the day, or during other periods where your facility will be closed for a period of time. It is not intended for use during normal operational hours to temporarily lock and unlock golf cars; we recommend that you use Staging Mode for this purpose.
To put your fleet into Lockdown Mode, first check that no cars are in the “Cars in Use” category, then click on “Lockdown” from the “Guardian System Mode” selection. If there are any Cars in Use, the Guardian SVC Manager will warn you and ask if you want to continue.

1264

Figure 15-11 Car Status & Lockdown – Vehicle Lockdown 1

If you select yes, the Guardian System will attempt to lock down your Club Car fleet. You will see a lock icon appear on the car icons; the lock will blink until the car is locked down, at which point it will stop blinking.

1265

Figure 15-12 Car Status & Lockdown – Vehicle Lockdown 2

1266

Figure 15-13 Car Status & Lockdown – Vehicle Lockdown 3

If a car is out of contact with the Guardian Server, it will be locked down as soon as it regains contact. You will see the blinking lock icon on this car. This could include a car that one of your customers or employees is driving that re-enters the Guardian WiFi network.

ENABLING A LOCKED CAR

To use a car after the fleet has been locked down, click on that car, then select “enable” from the car configuration dialog that appears. To lock the car down again, click on the car, then select “lock down” from the car configuration dialog.

1267

Figure 15-14 Car Status & Lockdown – Locked Car Enable 1

1268

Figure 15-15 Car Status & Lockdown – Locked Car Enable 2

1269

Figure 15-16 Car Status & Lockdown – Locked Car Enable 3

*CARS NEEDING LATEST SETTINGS

Guardian units need to download new settings whenever you make a change using the Guardian SVC Manager. You will see an asterisk (*) next to the car number of cars that have not downloaded the latest settings. These cars will also appear in the “*Cars needing latest settings” list above the car list. As they download the latest settings, they will the asterisk will disappear, and the car number will be removed from the “*Cars needing latest settings” list.

1269

Figure 15-17 Car Status & Lockdown – Cars Needing Latest Settings

DIAGNOSTICS AND CONFIGURATION PAGE

The Diagnostics and Configuration Page allows you to check on the status of GPS Quality and WiFi Connectivity at your course, both of which are essential to successful operation of your Guardian System. This page is very similar to the Action Zones and Car History page: you have a map of your golf course that you can pan and zoom. However, on this page, the Car History Trails will be color-coded to reflect the status of either GPS Quality or WiFi.

PANNING AND ZOOMING THE MAP

Panning and Zooming work exactly the same on the Diagnostics and Configuration page as they do on the Action Zones and Car History page. To pan the map, select the hand tool from the toolbox. Then, click on the map, hold the mouse button down, and move the mouse (click-and-drag).
You can click on the + or – magnifying glass icon on the zoom slider to zoom in a level at a time, or click-and-drag the zoom slider up and down to zoom in and out quickly. You can also choose to use the scroll wheel of your mouse to zoom in and out (if your mouse is so equipped).

VIEWING WIFI CONNECTIVITY

First, select “WiFi” from the panel in the upper right of the map. Then, check the box next to “Show Car History.”

You will see a series of dots on the map. If the dots are blue, that indicates that the Guardian device on that golf car was connected to the Guardian WiFi network at that time. If the dot is red, that means that the golf car was not connected. You can use this map to get an indication of which areas of your facility are covered by your Guardian network (more blue dots) and which areas are not (more yellow dots).

1276

Figure 16-1 Diagnostics and Configuration – WiFi 1

1277

Figure 16-2 Diagnostics and Configuration – WiFi 2

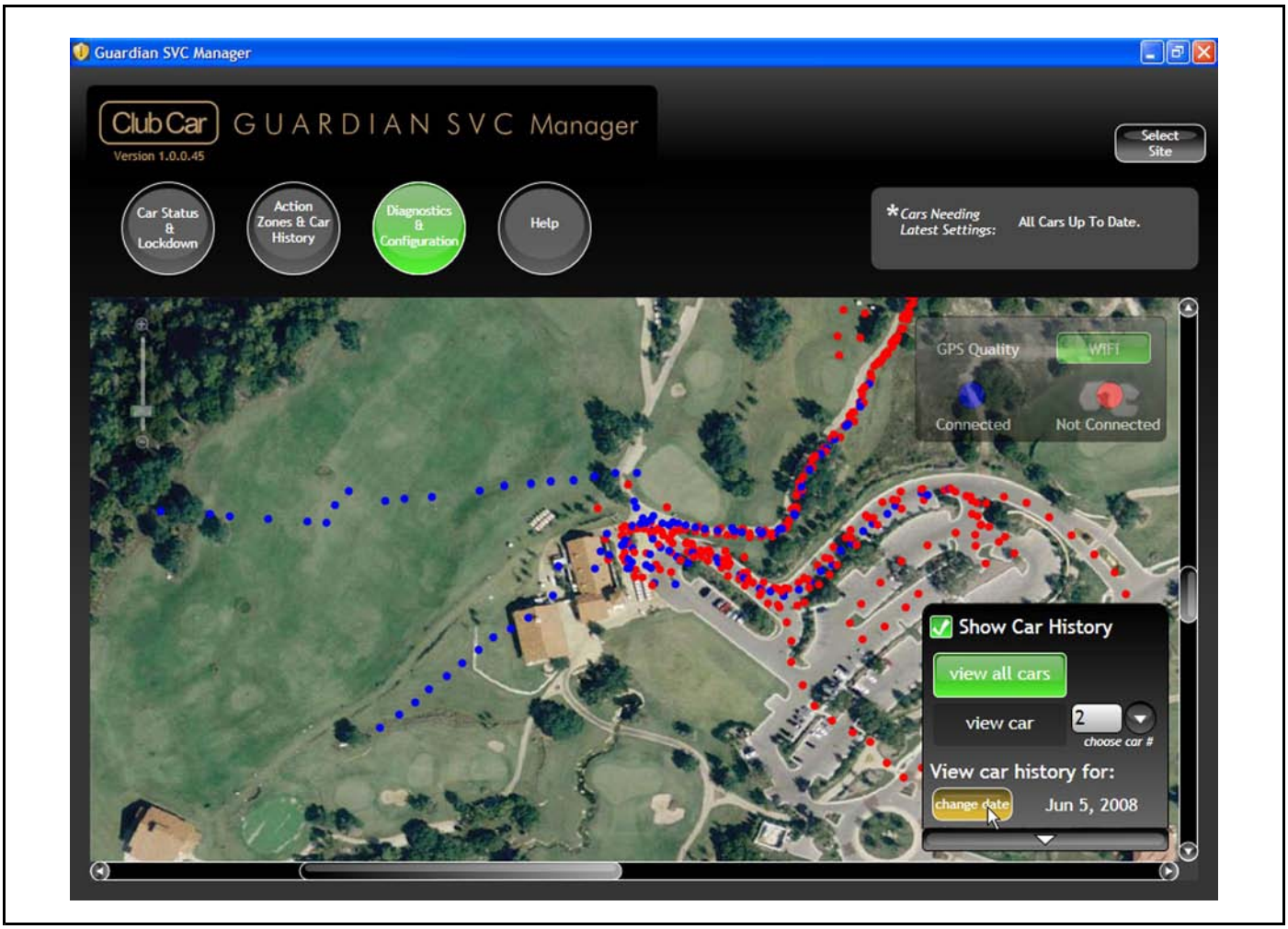
If you move your mouse cursor over one of the dots and pause, you will see a popup indicating which car number the dot represents.

1278

Figure 16-3 Diagnostics and Configuration – WiFi 3

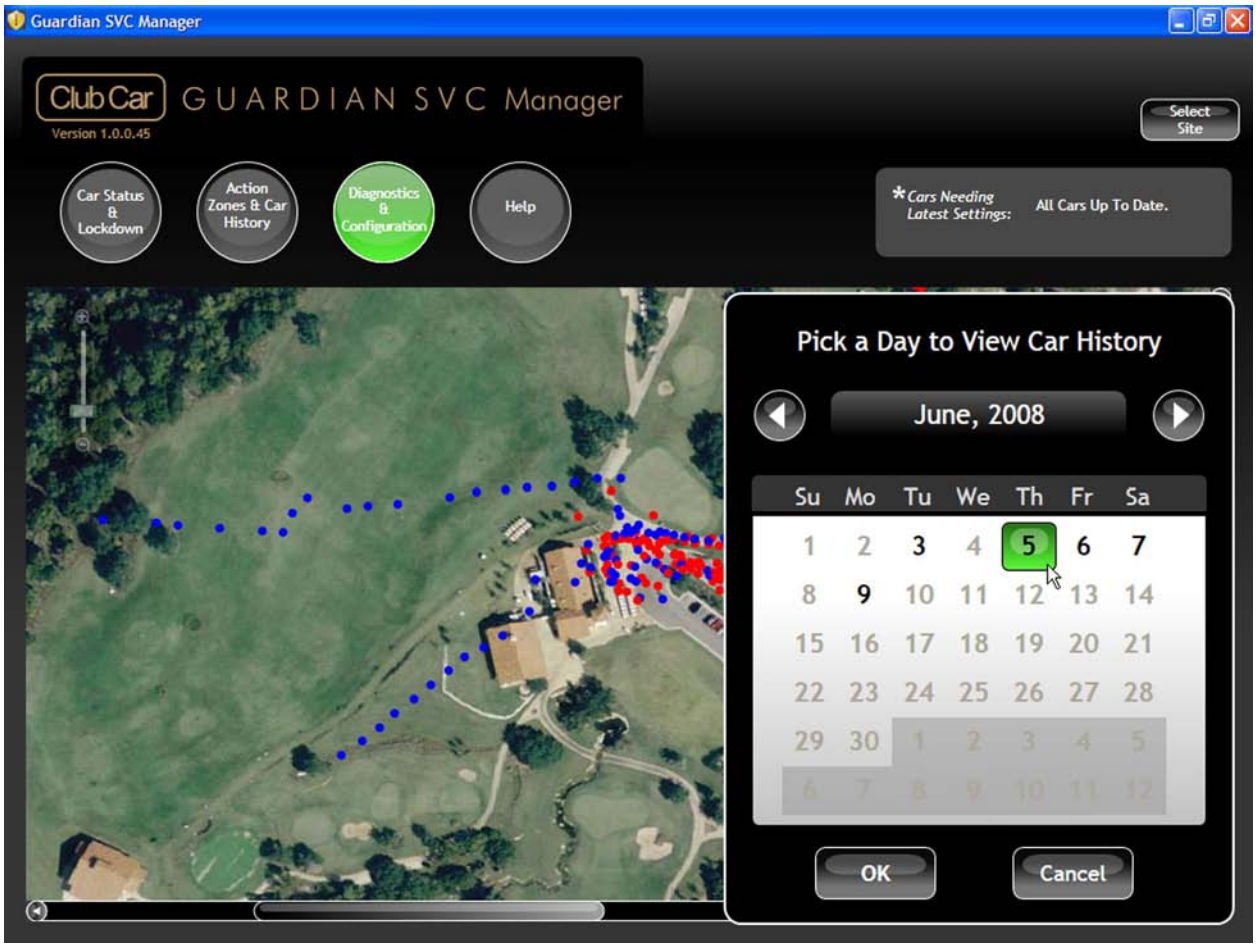
VIEW CAR HISTORY FOR A CERTAIN DATE

Pressing the “Change Date” button brings up a calendar. Click on the day for which you wish to view Car History, then press OK. If there is no data available for a date, its number will be light gray; otherwise, the number will be black. Click the arrows to the left and right of the month to view a different month.



1273

Figure 16-4 Diagnostics and Configuration – Change Date 1



1274

Figure 16-5 Diagnostics and Configuration – Change Date 2

VIEWING GPS QUALITY

Click on the “GPS Quality” option from the panel in the upper right of the map. Then, check the box next to “Show Car History.”

You will see a series of dots on the map. Blue dots indicate good GPS quality, yellow dots mean that the quality was average, and red dots mean that the golf car had poor GPS quality at that spot. Guardian units will not take Actions within Action Zones if their GPS quality is poor.

There are several possible causes of poor GPS quality. The most likely is interference of the satellite signals from trees or buildings. If there are certain areas of your map where you see more red dots, that is a good indication that that area of the course has poor GPS coverage.

If a particular car consistently has poor GPS quality, even in areas where other cars have good quality, that may be an indication that the Guardian device on that golf car is not functioning properly. If you believe this to be the case, please call Guardian technical support.

1275

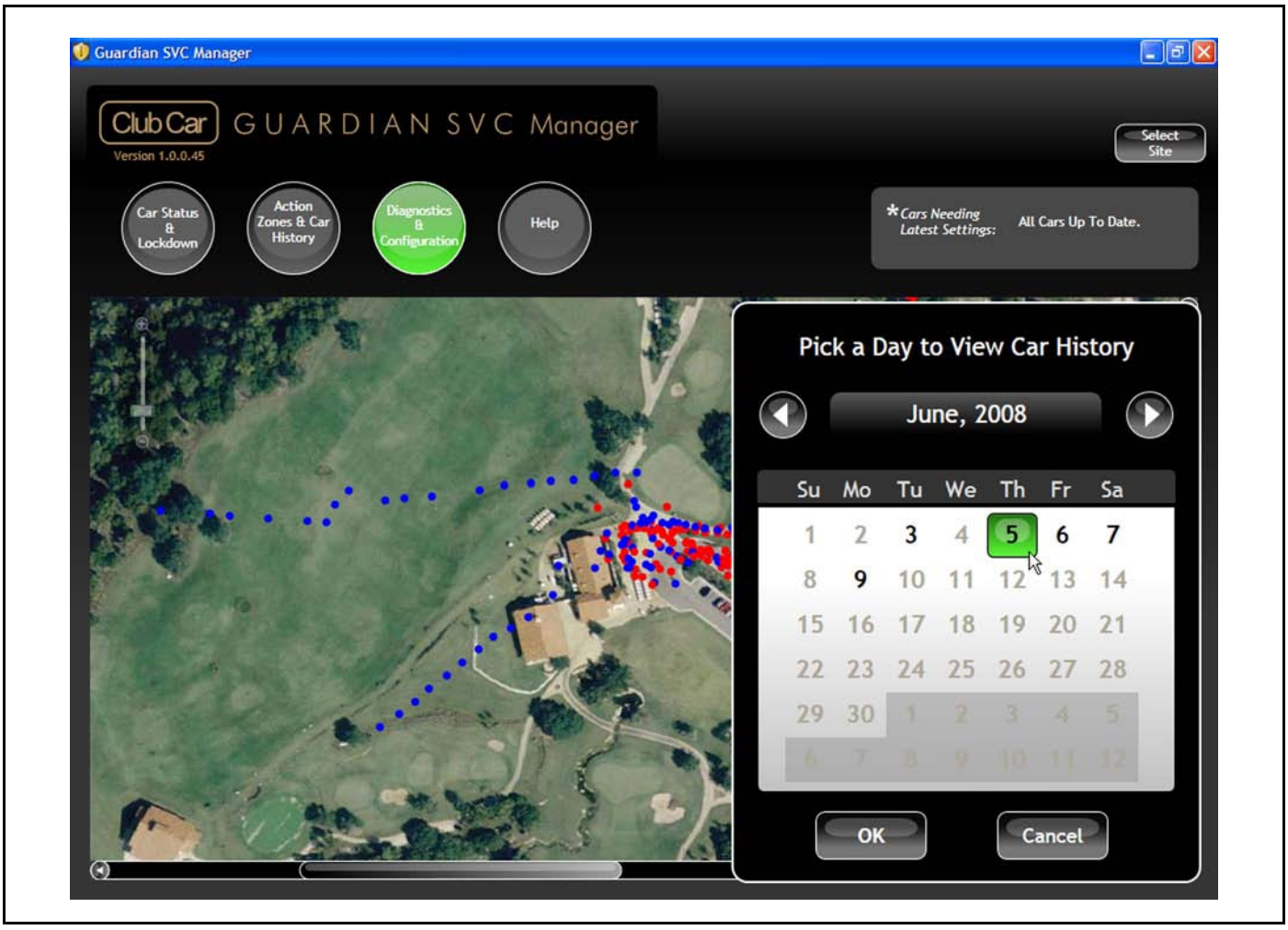
Figure 16-6 Diagnostics and Configuration – GPS Quality

VIEW CAR HISTORY FOR A CERTAIN DATE

Pressing the “Change Date” button brings up a calendar. Click on the day for which you wish to view Car History, then press OK. If there is no data available for a date, its number will be light gray; otherwise, the number will be black. Click the arrows to the left and right of the month to view a different month.

1273

Figure 16-7 Diagnostics and Configuration – Change Date 1



1274

Figure 16-8 Diagnostics and Configuration – Change Date 2

FREQUENTLY ASKED QUESTIONS

I TURNED ON CART PATH ONLY RESTRICTIONS, BUT I SEE A CAR DRIVING IN THE FAIRWAY. WHY IS THIS HAPPENING?

There are several reasons this could occur. The first step is to make sure that you have created a Cart Path Only Action Zone that is assigned to that hole. Go to the Action Zones & Car History page, then look to see if there is an Action Zone covering the hole in question. Check to see if the Action Zone is enabled (colored means enabled, black outline means it is disabled), then click on the Action Zone to verify that it is assigned to the correct hole.
The next most likely issue is that this car was not within the Guardian WiFi network when you turned on Cart Path Only restrictions, and therefore did not receive the notification that those Action Zones should have been in force.
Another possibility is that the Guardian device was not receiving high quality GPS signals; Guardian units will not take an action unless they have an accurate, reliable GPS position.
You can check either of these by going to the Action Zones & Car History page and showing Car History for that car as Diagnostic Dots. Pan the map to the area where the car entered the fairway. You should see white dots along the cartpath (indicating no Action Zone) and gray dots in the fairway, indicating that the Guardian device recognized an Action Zone but did not take action for some reason. Click on one of the gray dots to see the reason why the Guardian device might not have taken action.
You must remember as well that you typically allow a 10-yard buffer between Action Zones and areas were golf cars are permitted to drive. The golf car in the fairway might have been in that buffer zone, so it had not yet crossed into the Cartpath Only Action Zone.
It is also possible that the car you saw in the fairway was taking the action associated with the Cart Path Only Action Zone for that hole (you would see blue Action Dots in Car History in this case). Remember, Action Zones only take action once the car enters them; by definition, then, drivers will sometimes enter a fairway before their car is stopped. At full speed, the car travels more than 7 yards per second. Taking the buffer zone into account, a golf car could get as far as 25 yards from the cart path, even with perfect setup and functioning of the Guardian System.
However, because the Guardian device beeps, displays your message, and takes the action associated with the Action Zone, the golfers will be discouraged from entering a fairway again.

I WANT TO TURN ON CART PATH ONLY FOR A PARTICULAR HOLE, BUT THE HOLE IS NOT LISTED IN THE CART PATH ONLY SETTINGS WINDOW. WHY NOT?

If the hole is not listed, it means that there is no Action Zone assigned to that hole's Cart Path Only restrictions. If you have not created one, you will need to do that first, then assign it to the hole. When you return to the Cart Path Only Settings window, you should see that hole listed.
If you believe that you have drawn an Action Zone for Cart Path Only for that hole, then the Action Zone probably is not assigned to that hole, or it is not defined as a Cart Path Only Action Zone. To check this, go to Action Zones & Car History, then click on the Action Zone in question. Make sure that "Yes" is selected under "Is this zone used for Cart Path Only?" Then, make sure that the correct hole is selected under "Which hole?" Now, when you return to the Cart Path Only Settings window, you should see that hole listed.

I SAW A CAR DRIVE THROUGH AN ACTION ZONE. WHY DIDN'T THE GUARDIAN SYSTEM STOP THE CAR?

There are several reasons this could occur. The most likely is that the Guardian device was not receiving high quality GPS signals; Guardian units will not take an action unless they have an accurate, reliable GPS position.
Another possibility is that the Action Zone either is currently disabled or had been disabled when the Guardian device last contacted the Guardian Server. Either of these would lead to the Guardian device not taking the action associated with that Action Zone.
You can check by going to the Action Zones & Car History page and showing Car History for that car as Diagnostic Dots. You should see white dots leading to the Action Zone (indicating no Action Zone) and gray dots through the Action Zone, indicating that the Guardian device recognized an Action Zone but did not take action for some reason. Click on one of the gray dots to see the reason why the Guardian device might not have taken action.
It is also possible that the car you saw driving through the Action Zone was taking the action (you would see colored Diagnostic Dots in this case). Remember, Action Zones only take action once the car enters them; by definition, then, drivers will enter an Action Zone before their car is stopped. However, because the Guardian device beeps, displays your message, and takes the action associated with the Action Zone, the golfers will be discouraged from entering Action Zones again.
As mentioned in a previous FAQ, at full speed, a golf car travels more than 7 yards per second. The Guardian device processes positions once per second, so it could travel that far into the zone before taking action, even with perfect setup and functioning of the Guardian System. If your Action Zone is smaller than 7 yards across, a golf car could get completely through the zone without taking action.
For this reason, you need to make your Action Zones larger in order to give the Guardian System a chance to take effect.
It can also help for you to provide signage identifying restricted areas and other Action Zones, so that drivers are prevented from even attempting to enter the Action Zone.

I TRIED TO STAGE A GOLF CAR, BUT SOMEONE DROVE IT AWAY.

The most likely cause of this is that the car was not staged in the first place. When you stage a car, you must quickly turn the key to Off, then back to On. If this maneuver is not done correctly, the Guardian device will not know to attempt to stage the car.
Because you need connectivity to the Guardian Server to enable a staged car, the car will make sure it has connectivity before staging itself. Even if you turn the key to Off and On properly, you Guardian device will still need to contact the Guardian server before it can become staged.
If it contacts the server successfully, it will beep twice and display a message telling you that it has been staged. However, if it cannot contact the Guardian Server (for example, if you are outside the Guardian WiFi Network), it will not lock itself down, and will instead show a message informing you that staging has failed on its screen.
Another possibility to consider is that someone may have used the Guardian SVC Manager on a different computer without your knowledge to enable that car. You can use the Guardian SVC Manager on several different computers at once to manage the same course.

I TRIED TO ENABLE A LOCKED OR STAGED CAR, BUT WHEN I WENT OUT TO MOVE IT, IT WAS STILL LOCKED OR STAGED.

When you enable a car in the Guardian SVC Manager, it sends a message to the Guardian Server that the car should be enabled. When the Guardian device on that car next checks in to the server, it will find out that it should enable itself. The Guardian units check with the server every minute, so you may have gotten to the car before it had a chance to check with the server and unlock itself.
Another possibility is that the car has lost contact with the Guardian Server. For example, its access to the Guardian WiFi network might have been blocked by a large obstruction, such as a truck, or the WiFi network might be down. In these cases, the car should show up as gray in the Guardian SVC Manager, indicating that it had not checked in with the Guardian Server.

In the case of the large, temporary obstruction, the Guardian device will be able to connect once the obstruction is removed, and will enable itself. If the Guardian WiFi network is down, you will need to repair the network, or [use the IQDM Handheld to reset the Guardian device, or whatever on-car method we choose to override a lockdown state].

HOW MANY ACTION ZONES CAN I CREATE?

You can create as many as you want to. You'll reach your limits of patience before the UpLink System reaches its limits of capacity!

WHAT ARE THE COMMON MISTAKES PEOPLE MAKE IN CREATING ACTION ZONES?

1. Placing an Action Zone too close to where it is OK for the cars to be driven. Make sure to use the guide ring to allow a 10-yard buffer zone between areas where it is permissible and areas where it is forbidden to drive.
2. Placing too many speed zones around your property. The less important zones will not significantly improve safety, but will irritate drivers. If you are really concerned about safety or have a particularly challenging property, consider using the Guardian System to set the maximum speed on the car fleet to mode 2, or approximately 12 mph.
3. Not verifying performance of your Action Zones and making appropriate adjustments. In order to achieve your desired results, and to take full advantage of Guardian, you will need to invest time fine-tuning your Action Zones.

WHY DO GOLF CARS ON THE CART PATH SOMETIMES STOP AND TELL MY GOLFERS TO RETURN TO THE CART PATH OR EXIT A RESTRICTED AREA?

The position of the car is being recalculated every second (which means about 16,000 positions during the course of a 4 ½-hour round of golf), based on information received from GPS satellites. This process produces accurate results the vast majority of the time, but will calculate positions that are temporarily inaccurate. The rate of occurrence varies based on the number of satellites the UpLink Caddies can receive data from, which changes based on the positions of the satellites, and how much of the sky is blocked by trees, buildings, or other features of the landscape.
You will notice many fewer such occurrences in fairways, with a wide-open view of the sky, than under trees, covered by foliage, or next to buildings or cliffs.
You can mitigate these sources of error by using Car History to verify operation of your Action Zones and The Guardian System. You can then use that knowledge to make appropriate adjustments, such as increasing the size of buffer zones, to account for your property's unique conditions.

WHY DO THE CARS SOMETIMES NOT TAKE THE DEFINED ACTION WHEN IN AN ACTION ZONE?

The Guardian units must judge that the GPS positions they are receiving are sufficiently accurate in order for the car to take the action. Insufficient GPS quality is a temporary condition, and is usually caused by not being able to receive communication from a sufficient number of GPS satellites. As mentioned in a previous FAQ, the quality of a GPS position is related to the position of the car and what objects are blocking open view of the sky.

I WANT TO PREVENT GOLFERS FROM EVER DRIVING INTO MY COURSE'S NATURAL AND RESTRICTED AREAS.

Action Zones deter, but do not prevent, golfers from driving golf cars into restricted areas. The Guardian System takes action once a golfer has entered such an area; therefore, by definition, golfers will be entering Action Zones. However,

when they do, the system will punish them by stopping their golf car (or whatever other action you may have defined for the area), and they will be much less likely to violate restricted areas in the future. Additionally, word will spread quickly, so other golfers will attempt to drive in these areas with much less frequency.

HOW CAN I USE THE CART HISTORY TO VERIFY MY ACTION ZONES?

Car History shows the positions that each of the cars traveled. Viewing the Car History data from a busy day, will give you a good feel for which Action Zones may be set too close to an acceptable driving area, whether the buffer zones you have allowed are large enough, and which Action Zones can be further expanded. At times, you will also see cars that are driving in unexpected areas where you may want to define additional Action Zones.

WHAT IS CAR HISTORY?

Each Guardian device records its position (along with other status and diagnostic information) every second. When it is in range of the Guardian WiFi network, it will upload this data to the Guardian Server. You can use the Action Zone Manager to view all the positions recorded on the cars. To make it easier for you to interpret, the software will “connect the dots” of each position to make a trail representing where that Guardian device (and the golf car on which it is installed) has been.

HOW CAN I USE CAR HISTORY TO IMPROVE COURSE CONDITIONS?

By viewing the trails of each golf car, you can detect and potentially head off damage being done to your course. For example, Car History shows that golfers are starting to cut through a certain area, you can create an Action Zone to help prevent potential damage to the turf before it occurs.

HOW CAN I USE CAR HISTORY TO MANAGE MY PERSONNEL?

You can view the positions of individual golf cars, so you can ensure that your marshals are making their rounds efficiently. If you have Guardian units installed on your beverage or maintenance units, you can check on them as well, to ensure they are covering the course effectively and not goofing off.

HOW CAN I USE CAR HISTORY TO REDUCE EXPENSES RELATED TO VEHICLE DAMAGE, THEFT, AND LIABILITY?

Periodically, we hear tales from owners of Guardian Systems whose golf course or golf cars have been damaged. They use Car History to determine where the damage occurred, and can take steps to confront the golfer who caused the damage, or prevent that sort of damage in the future. In one case, a golfer who got into an accident in a golf car filed a lawsuit against the golf course. The owner of the course was able to use Car History to show that the golfer was driving recklessly at the time. The suit was dismissed, and the golfer’s lawyer even apologized for having wasted the owner’s time!

HOW DOES GPS WORK?

There is a network of GPS Satellites orbiting the earth and transmitting radio messages. A device equipped with a GPS receiver can use these signals to determine how far it is from a given satellite. If the device knows how far it is

from several satellites, and it knows where the satellites are in relation to the earth, it can use geometry to calculate its position. The more satellites a GPS receiver can receive, the more precisely it can determine its location.

HOW ACCURATE IS GPS? WHAT AFFECTS GPS ACCURACY?

Under good GPS conditions, the calculated position is typically accurate to within 3 yards 98% of the time. It is important to note, though, that the 2% of the time means many positions over the course of a day. For example, a typical golf round of 4 ½ hours would calculate over 16,000 positions (one per second). That means that a GPS receiver will not be within the 3 yard accuracy range more than 300 times.

The accuracy of a calculated GPS position depends mostly on the number of satellites it can receive GPS signals from. A GPS receiver in the middle of an open field, with a view of the sky, will be more accurate than a GPS receiver whose view of the sky is blocked by buildings, trees, cliffs, and so forth. This is why your Guardian units may have difficulty getting an accurate GPS position when they are inside your golf car storage facility.

The time of day can affect accuracy as well. The satellites are on precisely coordinated orbits, but at times, most of the satellites may have orbited to “the other side of the earth,” so to speak, meaning GPS receivers at your location will pick up fewer satellites.

SECTION 18 — TROUBLESHOOTING

18

A

C

D

E

F

G

L

M

P

R

S

V

W

Your Comments Are Appreciated

Please select your category:

- ☐ Distributor/Dealer
- ☐ Individual Owner
- ☐ Club Car Associate/Representative
- ☐ Technician
- ☐ Golf Course Superintendent
- ☐ Other: _____

In order to help us better serve you, please rate this publication in the following catgories:

	Poor	Fair	Average	Good	Excellent
1. Ease of Understanding	☐	☐	☐	☐	☐
2. Ease of Finding Information	☐	☐	☐	☐	☐
3. Clarity of Illustrations	☐	☐	☐	☐	☐

Comments/Suggestions

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Please fax a copy of this page to (706) 228-2662.

Thank You!
Club Car Technical Publication Department

Club Car, Inc.
P.O. Box 204658
Augusta, GA 30917-4658
USA

Web www.clubcar.com
Phone 1.706.863.3000
1.800.ClubCar
Int'l +1 706.863.3000
Fax 1.706.863.5808

Ingersoll Rand
Industrial Technologies