**SITUATIONAL AWARENESS AND THE MICROSOFT SIDEWINDER**
**BY**
**WWPIERRE_CAPT.**

One of the hardest learning curves for me in Red Baron 3d (RB3d or simply RB) was the Situational Awareness, or S/A curve. A successful career in this game depends upon knowing where you are in relation to everything, and everyone else in the simulated world. There are many excellent essays in the archives of the RB community and the wider combat sim community which describe the philosophy of S/A, and what to do with your awareness of your constantly changing situation. There is not, to my knowledge, a definitive, RB specific description of the S/A tools at your disposal in the game, and the most efficient use of those tools. This essay is intended to fill this gap, and give the beginner a leg up towards the attainment of close to perfect Situational Awareness.

Lots of this stuff you probably already know, but I am assuming that the reader is starting where I did, having very little experience with computer games of any kind. I should also point out that this essay pertains mostly to Massive Multi-Player (MMP) play on the Net. Many of the points, however, apply equally to Single Player (SP) and Campaign play.

When you enter a server you will be sitting on an airfield somewhere in a virtual world, you hit TAB to start your engine, take off and fly around. Before you think about finding an enemy to shoot down, or a ground target to bomb, you have to know where you are in 3 dimensional space, and which direction you are heading. On your dash are a compass and an altimeter, to tell you your heading and your altitude, or height above sea level. The compass points to Magnetic North, which, in Europe, is slightly west of north, so if you wish to fly exactly N, S, E, or W, follow the seams of the terrain tiles on the ground. You also have a map, which you can glance at by hitting "0" on the keyboard. This will bring up the map with a little airplane icon at your position, pointing in the approximate direction of your heading. Hitting "0" again will return you to your previous view. Once you know where you are in the virtual world, you can start looking for enemies to shoot down.

**VIEWS**

As you sit at your computer playing the game, you are completely surrounded by the virtual three-dimensional world within the game, but you can only view a small portion of this world at any one time through the window of your monitor. This segment of the virtual RB world, which is visible to you, is a four sided pyramid with your eye at the apex, and your screen truncating the pyramid a couple of feet from the apex. The angle of this pyramid is much smaller than the natural angle if your peripheral vision. In order to be able to see into all the nooks and crannies of the virtual world, you need to be able to move this pyramid of visibility around you in all directions. RB gives you the tools to do this in the form of VIEW and TARGETING keys, which you use in various combinations to achieve your goal of perfect S/A. You select the proper view for the

situation, and hit a target key, and your visibility pyramid locks onto the target, putting it in the centre of your screen. You can also change views after a target has been selected.

The views are selected using the function keys at the top of your keyboard:

F1 is the fixed cockpit view, where you see your instrument panel in front of you, and your aiming point in the centre of your screen. If you select a target while in this view, your pilot will swivel his head around to look at it, and your cockpit will "slew" in the opposite direction.

F2 is the slew view you went to when you selected a target in F1. If you select a target in any view, F2 will put you in the cockpit looking at your target.

F3 will give you an external view of your plane in the foreground with the last target you selected in the centre of the screen. Hitting it again will put you back in the cockpit as in F1, except you will be looking over the panel, and can't see your instruments. This is a pretty useful view, but I personally never use it, as I have another way to get the same effect, as will be explained later.

F4 is a useful view. If you select F4, you will get the chase view, looking at your aircraft from behind. If you hold down the ENTER key while in this view, the joystick relinquishes control of the aircraft, (you should be on autopilot or on the ground when you do this) and controls your viewpoint, so that you can look all around and up and down with your aircraft in the centre of the screen. I have also discovered that whenever you are locked on a target, you get the same effect. In the fixed cockpit view, you can also look around with your joystick by holding the "Enter" key down. I have found, however, that relinquishing control of my Spad to look around is sometimes fatal.

F5 puts you behind and slightly to the right side of your plane. You can adjust the distance using the "Z" and "X" keys. I keep my Spad about 5" long on a 17" monitor.

I have never been able to find a good use for F6.

F7 puts you in your own flight path and watches your plane fly by. Kind of neat, but again, I never use it.

F8 is your identifier key. It puts you on the other side of your enemy, with your plane the distance in the centre of the screen. If you have enabled the tags by typing "SHIFT N" you can see who it is; the pilot's handle will appear above him. If you hit F5 while in this view, you will be teleported to the F5 view behind the target plane. Sometimes you can get vouchers by getting into this view and bombing yourself as they pass low over you.

F9, F10, F11, and F12 slew your view in the 3d axes. Curiously, only if you have a target selected. Go figure. Needless to say, I don't use them.

Your choice of view controls is further enhanced by the keypad. The numbers around the edge slew your cockpit view to the corresponding sector, while the 5 looks straight up. The slash (/) key will hold a forward view while it is held down, and then jump back to the last view when released. This works in both inside and outside views.

You can get the same views as the keypad gives you with your point of view (POV) hat on your joystick.

Finally, your "PAGE UP" key gives you a view ahead and up, so you can't read your dials, but you see a greater portion of the view above your wings, and your "PAGE DOWN" key looks down at your dash to see your fuel gauge and your oil pressure gauge which are below your vision in the forward fixed cockpit view. If you have been damaged, and you feel a loss of power, chances are you are losing oil. Keep an eye on your oil pressure gauge, reduce throttle, and head for home. If your oil pressure drops much below 100, you will flame. Shut down your engine immediately. Hopefully you will be within gliding distance of an aerodrome.

**TARGETS**

In the best of all possible worlds, your sim would be set up in the middle of a closed sphere with the virtual world projected 360 degrees in all directions around you, and you could see everything by swivelling your head, and you would never have to leave your cockpit. The game designers have tried to overcome the limitations of your monitor by giving you two types of views in RB, internal and external. The internal views are (F1), what you see as you sit in your cockpit, looking forward; and (F2) the skew view, which, when you select a target, swivels around towards the target, as if your pilot had turned his head to look at it.

Since we are severely limited to the one small window afforded us by our monitors, the game programmers have decided on a bit of a "cheat" if you will, to allow us to see a wider field of vision. In the main external view, (F5), where you are outside, hanging in mid air, looking at your airplane from behind and slightly to the right, (if no target has been selected). If you select a target in this view, or select this view while locked on a target in another view, your plane will appear in the foreground with your target beyond in mid screen.

There are four main types of targets in RB. Enemies, found with the "E" key, Friends, found with the "F" key, Unidentified, or "near" aircraft, found with the "N" key, and landmarks, found with the "L" key. Curiously, "T" will lock on the last plane to get a

bullet into you. Some pilots find this useful. “O”, according to the manual, locks on “the ground object in your cone of fire” I should try it sometime, and see if it helps for strafing machine gun nests. The problem is that the gunsight is only available in F1 view. And if the target is already in your cone of fire, it’s time to switch to F1 anyway.

## THE SPHERE OF TARGET VISIBILITY

A WWI pilot, on patrol over the front, (or any good pilot, for that matter) is constantly looking around to see what he is sharing his airspace with. My flying instructor called it “rubbernecking”. He sees a dot. He knows it is an aircraft, but he cannot tell anything about it yet, except whether it is much higher or much lower than he is, and, depending on the size, that it is about a mile away. He can also identify landmarks on the ground at that distance.

RB simulates this by creating a “sphere of visibility” about a mile in radius around your aircraft. Any object coming within a mile of your aircraft is detected by this sphere, and can be targeted, that is, moved to the centre of your screen, by hitting the “N” key, for aircraft, or the “L” key, for landmarks. Your virtual pilot virtually looks at the object.

If you are in the fixed cockpit view, (F1) your narrow pyramid of visibility will slew around until you are looking at the target. If you are lucky, you will see some part of your plane on the screen, and be able to tell where the target is in relationship to your position and heading. If he is much above you, you will only see blue sky. Sometimes the target shows as a 1 pixel dot in the centre of your screen, sometimes it doesn’t. You are severely limited by your unrealistically narrow peripheral vision. Another limitation of the “Internal Slew View” is that it swivels around, as if your pilot were moving his head. In a hot situation in the middle of a battle, it seems pretty slow.

If, on the other hand you hit the “N” key and detect a target while in external view, (F5), the target (or con, for contact, or unk, for unknown contact) again goes to the centre of the screen, but this time, it jumps instantly, and your plane is in the foreground, and you can tell a lot more about your spatial relationship to the con. I am of course assuming that your aircraft is pretty stable in the air, and you know your heading. As more planes enter the sphere of vision, the “N” key will cycle through them and by noting the position of one, you can keep hitting the “N” key, counting the contacts till you come back to the original.

## THE SPHERE OF RECOGNITION

Our real world WWI pilot decides to find out whether the plane he saw a mile away is a friend or an enemy, so he flies towards it until he can make out the shape and colour of the plane, and identify it as a friend or an enemy. The target will be about half a mile away at this point.

RB simulates this situation by creating a “sphere of recognition”, concentric with the sphere of visibility, and with you at the centre. The radius of this sphere is, of course, about half a mile.

As soon as a target enters this inner sphere, it becomes subject to the actions of 4 more control keys. The “E” key, if it is hostile, the “F” key, if it is friendly, the F8 key, which, when pressed after locking onto the object with one of the other keys, reverses your view, so that you are on the other side of your target looking back at your own plane in the centre of the screen, and the F4 key. Which, when used after pressing F8, allows you to pan your view around the target with your joystick while pressing the enter key, as mentioned above. A very quick glance in the F8 view gives you lots of S/A data. You can tell the type of plane, his altitude relative to you, and if you have hit SHIFT-N at any time during the session, labels are enabled, and the pilot’s name will appear above his craft. When a landmark enters the “sphere of recognition”, it is also subject to F8, but you will see mostly sky, as you are now looking from the ground towards your aircraft. You can use the F4 key here to check the landmark target for damage.

I have found that the F8 key combined with the F4 key can be especially useful for bombing practise. Two bombers arrive at an aerodrome, say. One of them stations himself in an orbit (alt A), which keeps the drome within his sphere of recognition. He then finds his buddy with the F key, hits F8, then F4. Holding down the enter key and using his joystick, he can position himself to watch where his buddy’s bombs are striking, and telling his buddy in chat whether he is long or short etc.

Back again to our real WWI pilot. He has taken off and headed for the front, gaining as much altitude as he thinks he needs to be above the action when he gets to it. Soon he sees aircraft in the air around him. He sees tracer fire, as he nears the action he can make out friends and enemies, he sees unknown planes approaching the battle, probably enemies from the east, and allies from the west. If there are no planes above him, he can analyze the action below, and select an opportunity to engage with advantage.

The virtual pilot can do the same by selecting and quickly cycling through the targets from whatever views are most convenient.

## HOW IT WORKS FOR ME

Being keyboard challenged, I have devised a system whereby most of the controls I use are mapped to my joystick buttons and have by now become second nature. I have a Microsoft Precision Pro, but I am sure this system could be adapted to any programmable joystick.

Button 1 is the trigger. Some people like to use the space bar to isolate the trigger movement from the joystick, as it could tend to spoil one's aim.

Button 2, the oblong one to the left of the POV hat, is mapped to "L" for bombing and reconnaissance missions.

Button 3, the top one to the right, is "F" to find my friends.

Button 4, below 3, is "N" for finding contacts.

Button "A" is F1, to put me in the forward cockpit view.

Button "B" is mapped to F5-E. This puts me outside my plane, looking at the enemy in the centre of the screen. If no enemy is present, it stays in F5. I like to use F5 to bomb, so I automatically know if an enemy arrives while I am bombing.

Button "C" is mapped to keyboard "D". If you lock on a target, and select SHIFT-D, every time you hit "D" subsequently, your view will lock on that target. If I am flying with a wingman, I D-lock on him, so I can keep tabs on him during action. Some pilots use D-lock to their chosen enemy target. If this could be done quickly, it might be useful, especially on solo missions, but I find that SHIFT-D doesn't seem to "take" very well, and often needs 5 or more tries to lock on the correct target. This isn't so bad when leaving base with your buddies at the start of a mission, but in heated action, the uncertainty of obtaining a lock can waste precious seconds, and end up causing a fatal lapse of situational awareness.

Button "D" is mapped to F2, (cockpit slew), putting me in the cockpit with my enemy target in the centre of the screen.

I have 2 buttons mapped to the shift key on my Sidewinder.

J-SHIFT-B is F8, for target identification, and J-SHIFT-4 is mapped to keyboard-0 to bring up the map. I seldom use this, preferring to use KEYPAD-0.

Lets go into a server and fly a typical sortie. I have chosen an Island Team Target server for this demonstration. I will be flying my Spad from the north-east allied drome. Any keyboard selections will be noted; all other selections will be on the joystick. As I enter the server, I am in fixed cockpit view. I can hear flames crackling. I hit F4, on the keyboard, then hold down ENTER and look around at the airfield. I see that only one or two hangars are burning, so I know that the field mechanics are on duty and I can come back to this base to repair. I then select ALT-T from the KEYBOARD, to toggle my transparent cockpit, (This only works if your video card supports GLIDE) and

SHIFT-N from the KEYBOARD to enable the labels. Next I hit the "B" button, the view switches to F5 (chase view) this tells me that there are no enemies within half a mile of the base.

Next, I hit Button 4 (mapped to N, remember) the view switches, I hit J-SHIFT-B and nothing happens, that plane is more than half a mile away. If I repeatedly hit 4, then J-SHIFT-B, I can cycle through the targets. The ones less than half a mile away will be automatically identified whether friend or enemy.

As I climb out, I am looking about, mostly in external view, as the targets change, I identify them and note their positions. I frequently hit keyboard 0 to consult the map, and also A on the joystick to check my speed, rate of climb, and heading. If I run across a member of my own squad, or another Spadder, I will use SHIFT-D on him and join up. After gaining alt, and on patrol it is 4 then J-SHIFT-B repeatedly. This combination of keys immediately tells me when a target enters the "sphere of recognition", and whether it is an enemy or a friend.

I will stay on patrol, flying away from enemies with altitude on me, then circling around until I eventually find an advantageous situation, say 2 enemies below and a couple of friends in the area. Hitting the B button to cycle through the close enemies, I pick the highest one, and begin my attack by turning towards him in external view. As soon as he is in front of me, I hit the D button (mapped to F2, remember?) this puts me in the cockpit slew view, with my chosen victim in the centre of the screen. As I have turned towards him already, I am perfectly oriented for my diving attack. As soon as he can be seen clearly, I hit A giving me my gunsight and line up on him and open up. As I pull out, I hit B repeatedly to see where all the other enemies are, then line up on the best one in external, hit D and repeat the process. If no immediate advantage presents itself on the pullout look-around, I will look around using 4, then J-SHIFT-B, paying particular attention to contacts with superior altitude. Of course, I hit the C button whenever I can to keep track of my wingman.

When I fly back to base to repair or rearm, I usually use the POV hat to line up with the runway. On bombing missions, I find I do better in external view for accuracy and lining up with the target, also it is best to stay low under the guns and the shadow helps with this. Hitting B puts me in external view, and also has the effect of automatically detecting an enemy, should one show up. Hitting L (button 2) also helps in lining up for the next run.

I have enclosed the file RB3d.sw4 which is the set-up I have described above. If you have a Microsoft Sidewinder, you can drop it into the profiles folder (C:\program files\microsoft hardware\game controllers\profiles) and pick it before you open up RB.