

Warbirds Manual



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You can also obtain customer service online. We can be reached as follows:

Email: techsupport@imagicgames.com

Web: <http://www.imagicgames.com>

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Introduction: Welcome to Warbirds!

It's Easy to Get Started

(No, it *really* is! Trust us!)

No phenomenon in the history of PC entertainment has grown faster or attracted more people in such a short space of time than online multiplayer gaming. The reasons for this explosion of interest are easy to explain:

- No matter how sophisticated a software program's AI (Artificial Intelligence) may be, human opponents are almost always more challenging, more devious, and more *fun* to compete against.
- Online play adds a beguiling element of socializing to what would otherwise be a solitary experience. It brings back that grand old beer-and-pretzels camaraderie that made board games so popular in the Sixties and role-playing adventures like *Dungeons & Dragons* so popular in the Seventies. To whatever extent you find personally comfortable, you can chat with and compete against people all over the world who share your gaming interests. In time, you may form lasting friendships while playing *WarBirds*, and perhaps even enlist for intense campaigns in a virtual squadron.
- No matter what hour of the day or night you have the urge to dogfight, there is always a place for you in one of the game's online arenas—some of which can accommodate up to 400 players simultaneously!

There's a First Time for Everything

Let us assume you are one of the many computer gamers who have heard a lot about this multiplayer business, but have not yet taken the plunge. If all of your previous gaming experience has been solo play against the AI, you may well find the prospect of going online intimidating. (All those acronyms! All those protocols!). Until now, all you had to do, when in a gaming mood was boot-up the computer, slide a CD into the tray, and click on a few icons. It is only natural, if you have never done it before, for the process of going online to seem complicated and fraught with difficulty.

To be honest, that *used* to be at least partly true, back in the early days of multiplayer technology. To the uninitiated, online advocates spoke in arcane terms, and sometimes expressed disdain for those less enlightened than themselves. As more and more non-techie individuals, however, became comfortable with the Internet, with email, with large commercial services and their user-friendly procedures, every aspect of online gaming became simpler. It *had* to if the phenomenon were to attract a mass audience—which is, of course, how online game services make a profit.

We, here at iMOL, understand your hesitations. But we are so convinced that you will *love* playing *WarBirds* online, that we are dedicated to making your initiation experience as easy and hassle-free as possible.

We Never Close

Always bear this in mind: If at any time you need something explained or clarified, we are ready and eager to help. Our philosophy is simple: there is no such thing as a “dumb question”, period. Almost everybody needs advice from time to time, especially if you are a newbie (newcomer).

WarBirds is supported by a large, well-trained staff of expert support personnel. They are always glad to answer any questions you may have. You will *never* encounter a snide, know-it-all attitude when you contact us.

Help is available, in several languages, from several sources:

- **iMOL's Technical Support:** Dial (817) 424-5638. Are you uncertain how to load the game files? Are you not sure if you have enough hard drive space to store the game? Can you not get the sound effects to work properly? Do the colors on the monitor look like a Grateful Dead poster from the Sixties? Give these folks a call and tell them what is bothering you—the chances are they can straighten out the problem quickly and in language that does not mystify you.
- **Interactive Magic's Web Site:** Go to <<http://www.iMagicOnline.com>>. There is a lot of advice already posted there, in the form of detailed answers to FAQs (Frequently Asked Questions). You often find that a question has been asked by many others, and the answer is waiting here for you to read and, if you wish to, print out for future reference.
- **By Email:** Send email inquiries to <wbtech@iMagicOnline.com>. iMOL is the software development company which created *WarBirds* and we have spent many years improving and refining the game. It is very easy to send a question, and you usually receive an authoritative answer very quickly.

- **By Telephone:** If you are more comfortable dealing with a real person—one who is willing and eager to walk you through a problem step-by-step—just give us a ring: dial (817) 424-5638. We would love to hear from you, and we promise you will not be kept on hold while a John Tesh record plays in the background.
- **Printed Documentation and Online Help:** The manual gives a tangible source of guidance that you can have right beside your keyboard while you are familiarizing yourself with the game. The software has an even more detailed reference guide, laid out for easy access to whatever information you are looking for. Simply click *Help* whenever you are in the Control Tower; the online documentation is displayed.
- **WarBirds Player Web Pages and News groups:** These are participatory chat rooms where *WarBirds* enthusiasts gather to swap tactical advice, campaign strategies, trouble-shoot technical problems, and sometimes just to regale one another with war stories. You can deepen your understanding of the game by browsing these web sites, and you can make some good friends in the bargain.
- **Browsing:** Whether you are using America Online or a regional ISP (Internet Service Provider), you can use your web-browser program to seek out other sites devoted to *WarBirds* lore. In the blank space provided at the start of every web-browser program, type in <WarBirds> then click *Search*. The search engine functions like an extremely diligent, reference librarian. It combs through thousands of web sites and culls from them a list of every site containing <WarBirds>. It then displays a complete list of these sites along with a brief description of their contents. Click on any entry that piques your curiosity, within a few seconds the electronic magic carpet whisks you there.

Once you become hooked on *WarBirds*, and we are firmly convinced that you *will* get hooked after you have had a taste of the online action, it is a good idea to conduct a web search every month or so, to learn about new *WarBirds* sites and to check out new material posted on the older, more established sites. At the time this document was being readied for publication, there were approximately 300 independent Websites dedicated to *WarBirds*!

WarBirds fans are a huge, ever-growing, community. Part of the fun you have when playing online derives from becoming a member of that community. Whether it is talking to an opponent or hatching tactical plans with a member of your own squadron, all *WarBirds* fliers are comrades at heart.

Getting Started

For all its rich texture and vast scope, *WarBirds* is not a very demanding piece of software. You do not need a red-hot Pentium, a ten-gigabyte hard drive, or a super-fast modem. The basic system requirements are, in fact, quite modest.

System Requirements

- Microsoft Windows 95.
- A Pentium 90 or faster (Pentium 133 if playing with a D3D compatible 3D accelerator card).
- 46 MB free space on your hard drive (104 MB to run the game on its highest graphic resolution—1024 x 768).
- An Internet connection—every America Online account comes with one; so does every ISP account. (Only necessary for playing online).
- A joystick. (*Highly* recommended. You can use a mouse to fly, but it is much harder).
- A Windows 95 compatible sound card.
- A modem that sends and receives information at a rate of no less than 9600 bauds. “Baud” is the term used to measure bandwidth, which is the amount of data you can squeeze through the phone line that connects you to cyberspace. The higher the baud number, the faster you can send and receive data.

For Added Enhancement

- A 56000 baud modem—greased lightning in a box, and not very expensive.
- A D3D compatible 3D accelerator card. If you do not own a D3D card, we suggest you check our constantly updated 3D card FAQ, at <<http://www.iMagicOnline.com>> for supported cards.
- A “virtual cockpit” rig. A fancy joystick with lots of programmable buttons (so you can configure gun-shooting, bomb-dropping and so forth according to your personal whims), and foot-pedals to control the rudder. This kind of setup is not cheap, but it dramatically increases the illusion of being in a real cockpit.
- A hi-fi speaker system. Another aid to greater realism, especially if it has a sub-woofer, so you can feel the engine’s roar in the pit of your stomach.
- A “force feedback” joystick. This is a new development and, simply put, the joystick senses the force and inertia of any move made, and transmits feelings of weight, torque, and G-force which simulate what you would feel at the controls of a real plane, or race car, or whatever the simulation is. Lots of players swear by them; just as many swear *at* them. Try one out at Ye Olde Computer Shoppe before investing, as they are not cheap.
- A microphone designed to work with Windows 95 so you can chat with other pilots (and taunt your enemies).
- A headset (so you don't wake up the kids).

Installation

Before installing *WarBirds*, please close all other applications that may be running.

Insert the *WarBirds* CD into your CD-ROM drive. After a few moments the *WarBirds* Autoplay screen appears.

Click *Install* to begin the installation of *WarBirds* and follow the onscreen instructions. *WarBirds* installs all the components you need to play online, including DirectX 5.0.

At the end of the install program, you are asked to create an iMOL account. You need to create an account to play online, and to receive your five free hours. In addition, you need to be an iMOL member to receive the \$30.00 online credit offer.

After installation is complete, restart the computer so that all of the new settings can take effect.

Run *WarBirds* by selecting the *Start menu*, then *Programs*, then *iMagic Online*, then *WarBirds* and, finally, click on *WarBirds*.

If you have a *WarBirds* D3D compatible 3D-accelerator card, you can play with 3D acceleration by clicking on *WarBirds (Direct 3D)*.

You do not need the CD-ROM in your drive to play *WarBirds*.

Creating an iMOL (iMagic Online) Account

You need to have an account with iMOL to fly *WarBirds* online. Creating an account with iMOL is easy. Every new account created through *WarBirds* receives five free hours of online play. Additional hours are charged at the assigned hourly rates, listed in the *WarBirds* Arena menu.

There are several ways to create an account. During the easy account creation process, you complete a form that asks you to assign a *Login ID* and a *Password* to your account. When you enter *WarBirds* online, you are asked to assign yourself a callsign—a nickname or handle. Choose this carefully, because you will live and die by that callsign in *WarBirds*. Vulgar and profane callsigns are not permitted in *WarBirds*.

Creating an Account during Installation: At the end of the installation process of *WarBirds*, you are asked to check the appropriate box if you want to create an account. Complete the electronic iMOL Registration form, then click *OK*, to create an account.

Creating an Account from the *WarBirds* Game menu: After starting *WarBirds*, select *Create Account* from the Startup menu.

The iMOL Registration form is displayed. Complete the form and click *OK* at the bottom. The form is electronically sent and approved within minutes, usually seconds.

Creating an Account by Phone: You can start your account by calling iMOL. Just dial (817) 424-5638.

Modem Setup

To play games via a modem, make sure that your modem is installed properly, then configure certain optional settings for optimum performance. If necessary, connect and configure your modem following the manufacturer's instructions or the Windows 95 documentation.

Once you have configured your modem, you need to turn off data compression to ensure smooth play.

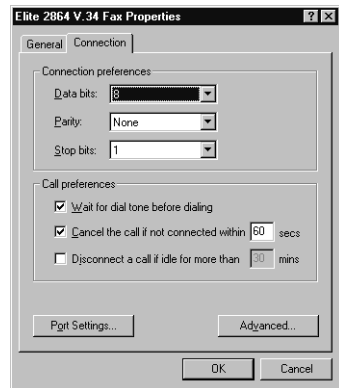
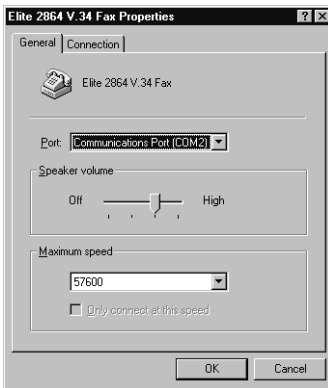
You can change these settings using the Control Panel.

To change your data compression settings, follow these instructions:

1. Open the Control Panel.

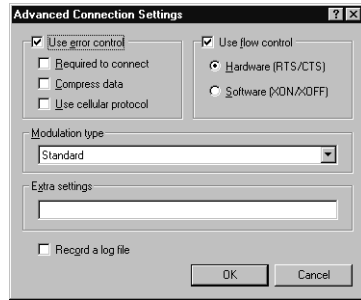
To do this, click the Windows 95 *Start* button, then select *Settings*, then *Control Panel*.

2. Double-click *Modems* to display the Modem Properties window.
3. Select the modem whose settings you want to change.
4. Click the *Properties* button to display the Properties window for the selected modem.
5. Select the *Connection* tab.



6. Select the *Advanced* button.
7. Make sure that *Compress data* is **not** checked.
8. Select *Hardware* for flow control. The hardware control is usually the default.
9. Select *OK* to return to the Properties window and apply the new settings.

10. If the phone line quality is poor, your modem may not be able to establish a stable connection. If this happens, reinstate the *Use error control* check mark, but be sure to disable (remove the check mark for) data compression.



Joystick Configuration

Configuring your joystick can be as simple or as complex as you like. We are assuming that, at this point, all you want to do is jump into the fray as quickly as possible, so here is the quick procedure for joystick configuration.

Quick and Easy Joystick Configuration

1. Boot-up your computer until the Windows 95 desktop appears.
2. Click *Start*.
3. Highlight *Settings*, then click *Control Panel*.
4. Double-click on *Game Controllers*.
5. Your joystick is listed (assuming it is connected and the software that came with it has been loaded...), and highlighted.
6. Click *Properties*. If you have one of those fancy rigs with foot-pedals that control the rudder, check the box next to that option; otherwise leave it blank.
7. Select *Test*. There is a box that represents the limits of your joystick's movements along the vertical and horizontal axes, and an indicator that symbolizes the stick itself. Move the stick around to test it.
8. If it is necessary to calibrate your joystick, select *Settings*. Click *Calibrate* and follow the onscreen instructions. When you are satisfied with the way your joystick moves the indicator around in the box, click *Finish*, to save the settings.

NOTE: Whenever you start a *WarBirds* mission, press **F12** to center the joystick and ensure precise control.

Complex Joystick Configuration

For most players, the simple Windows 95 joystick-configuration process is adequate. Your plane goes where you want it to, climbs or dives, or whatever. Some players, however, especially those who have logged a lot of hours playing *WarBirds*, like to customize their joystick configuration to get the maximum out of it, especially if by doing so, they stand to gain a tactical advantage.

If you want to experiment with this, click *Setup* when you are in the Control Tower. See [“Customizing Your Joystick” on page 55](#) for further details.

The Basics of Flying and Fighting

In the Control Tower

Whether you choose to fly online, offline or head to head, the first place you go is the Control Tower. This is the opening screen of any *WarBirds* session. Observe the buttons at the top-left of the screen: these access functions which allow you to set up the kind of session you are in the mood for, and to choose which aircraft you are going to fly.



Control Tower

Setup Screen

Click *Setup*, to access the options screens.

Flight: Click *Flight*. A list of options is displayed. Check *Easy Flight*: this option makes your aircraft somewhat easier to control and minimizes the different—sometimes ornery—handling characteristics of certain aircraft.

The screenshot shows a 'Flight' setup screen with the following options:

- Easy Flight
- Cockpit shading
- Default Altimeters
- Stick Set Messages
- Hud Off
- English System Altimeters
- Metric System Altimeters

Offline Play Only:

- Blackouts
- Start behind drones
- Invulnerable to Weapons
- Structural Limits
- Unlimited Ammo
- Indestructible Drones

Starting Altitude:

Offline Terrain:

Flight Screen

Leave *Blackouts* unchecked for now. When you are ready to experience a more realistic flight, check this option to experience a momentary fainting spell (blackout or redout), if you turn your plane so hard that the G-force interferes with the blood-flow to your brain. This can be a dangerous event during a dogfight. When playing offline whether or not you decide to add this bit of realism is entirely up to you.

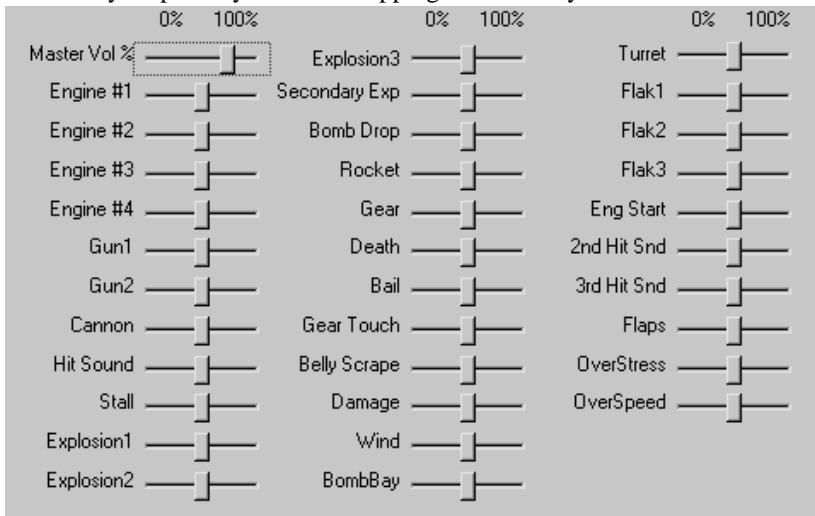
The *Start Behind Drones* option, which is only available when playing offline, starts you in the air behind a sitting duck target. In other words, you do not have to actually takeoff from an airfield. Since takeoffs are important, leave it unchecked for now.

Leave *Cockpit Shading* unchecked. Checking here gives shading in the cockpit art during blackouts and redouts. Leaving it unchecked may make the animation smoother if you are playing on a slower computer, or with an older video card.

Starting Altitude allows you to begin in midair and is only available when playing offline. Since we are going to practice takeoffs, type **0** (zero) in the space provided, to begin on the ground.

Leave the default for *Offline Terrain*.

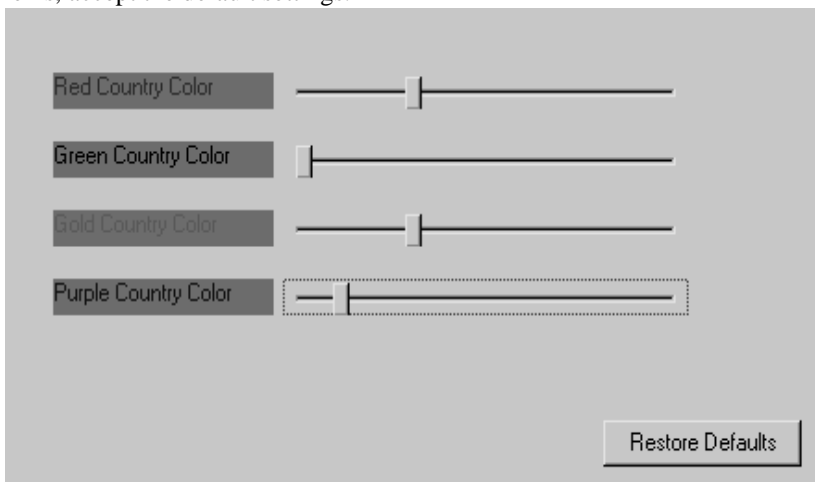
Sound: Click *Sound* to adjust the volume of all the game’s sound effects—this is very helpful if you have a napping infant near your desk.



Sound Screen

HTH: Click *HTH* to set up head to head duels with a specific opponent, either online, over a LAN or a modem-modem link. See [“Flying Head to Head” on page 29](#) for full details.

Colors: Click *Colors* to adjust the brightness and intensity of the colors representing the various countries in the game. Unless you have monitor problems, accept the default settings.



Color Screen

Close: Click *Close* to return to the Control Tower.

Select Screen

From the Control Tower, click *Select*. When playing offline, there are several missions for practice available (see [“Missions” on page 34](#)).

The Select screen has six buttons. *Score*, *Gunner*, and *Pilot* are used for combat missions (see [“Scenarios” on page 43](#)).

Click *Plane* to access the Plane screen.



Plane Screen

Plane Description: On the left of the screen is a list of the aircraft that can be flown. Scroll through the list to see the entire inventory of aircraft available, and read the brief description about each. Some aircraft are easier to fly than others. Select the British Spitfire; it is particularly forgiving to novices.

Convergence: The default convergence is 300 yards. This means that fire from your machine guns and cannon will converge at a range of 300 yards. Even though the actual range of a typical aircraft machine gun is 1,000 yards, it is extremely unlikely that you will hit a small, elusive, target at that range, except by blind luck. Between 150 and 400 yards is a more realistic range to engage an enemy, although some players prefer longer ranges, especially if they have trouble getting close to their targets.

Fuel: Click on *F* on the fuel gauge to load your aircraft with a full tank of gas, or enter the amount you want loaded in the space provided. It is rarely necessary to load a full tank of fuel. Normal fuel load online is between 35 and 40 percent. An aircraft handles better without all that heavy fuel.

Ordnance-Loadout: There are several switches that govern how many bombs and rockets you carry on a mission. The aircraft flies faster and is more maneuverable without the drag of bombs under its wing, so select *No Load Out* for now.

Click *Field* to access the Field screen.



Field Screen

A map of the mythical continent over which *WarBirds* campaigns are fought, is displayed.

Location: In the location scrolling list are all the airfields you can start from. For a training mission, it does not make any difference—just leave the default for the first one.

Country: There are four countries to fight for, each with a different color. After playing for a while, you will probably develop loyalty to a certain country, but until then sign up for any one of them.

Map: The map has a “You Are Here” indicator which moves as you select different airfields. Click on the map to select the airfield nearest to that point.

If you have trouble remembering which color you are, look at your gun sight—it is the color of your country.

Now that you have chosen a plane to fly, and a field to takeoff from, exit the Select screen and return to the Control Tower.

Help

Clicking *Help* brings up the complete online help for *WarBirds*. Whenever you need help during a game, this is where to find it. For many players, the *Keyboard Control* charts (see [“Keyboard Controls” on page 61](#) or the “Keyboard and Command Reference” sheet provided in the box) the most helpful information.

Taking Off

Is everything ready? Then it is time to takeoff!

To takeoff:

1. From the Control Tower screen, click *Fly*.
2. You are now sitting in the cockpit, at the end of the runway. Although each aircraft in the game has a cockpit modeled on its real-life counterpart, all of them have the same basic instruments:
 - An RPM indicator, showing what amount of power the engine is generating.
 - A compass.
 - An altimeter.
 - An indicator showing how many rounds of ammo are left.
 - The automatic pilot indicator.
3. Press **F12** to center your joystick.
4. Press **E** to start your engine.
5. Use **=** to rev up the engine to about 25% of its full power—this gives enough power to taxi (if you need to get a better line up on the runway) but not so much that you might lose control.
6. If the aircraft starts veering (yawing) to one side or the other, press **A** (steer left), **S** (center), or **D** (steer right), to use the rudder to steer. Use these keys sparingly, or you are likely to end up spinning helplessly on the grass; a gentle nudge is sufficient. Yawing is caused by engine torque and is not present in easy mode.

7. When you are lined up and ready to go, increase the engine power to full by either pressing = until the RPM gauge goes into the red, or pressing **0** (zero) which is a shortcut to full throttle. The aircraft starts rolling down the tarmac, picking up speed. When your airspeed indicator shows 130 mph or faster, ease back on the joystick; the aircraft should lift off.
8. Press **G** on the keyboard to raise your landing gear—if you forget to do this, the aircraft flies with all the grace and maneuverability of a barn. You can also damage your gear if you go too fast with it down.

Attacking

1. Now it is time to find a target. In online combat sessions, you often need to refer to the map to locate the action. Put the aircraft on autopilot by pressing **X** on the keyboard. The aircraft flies straight and level until either **X** is pressed again, or you take over the controls once more. Now press **F1** to access the map. Engaging autopilot before looking at the map ensures that no sudden changes in direction, or nosedives into the ground, occur.
2. When you spot a target on the map, notice the direction and distance it is from you, then press **F1** again to return to the cockpit and alter your course to intercept. Targets are not displayed on the map when playing offline.
3. When a target comes into view, it is labeled with either a callsign or the plane type. The number beneath the label tells you how far away the target is in hundreds of yards. If your guns are set to converge at 500 yards, that is the range you want to be close to. Remember to lead the target, so your bullets reach the place where the target will be; if you fire straight at the target (except at very close range), your tracers pass harmlessly behind it.
4. When the target is in your sights at 500 yards, lead it just a bit...now hit the trigger button on your joystick and watch your tracers converge. The target flashes. A hit! Good, isn't it?

Landing

When you have flown around for a while, whacking drones, and you are out of bullets or low on fuel, it is time to head for home. If you are offline and do not want to practice a realistic landing, press *Exit Plane* at the bottom-right of the screen. You are transported back to the Control Tower. When online, *Exit Plane* only works when you are stopped on the ground.

To execute a realistic landing:

1. Achieve a good approach. That is, find your airfield and line up your plane with the runway while you are still three to five miles away. Your altitude should be between 1000 and 1500 feet.
2. Throttle back to an airspeed of about 120 mph; more than that is too fast for a safe landing; less than that, and you may stall and fall out of the sky before reaching the runway.
3. Press **G** to lower the landing gear.
4. Press **Q** to lower your flaps (some planes require more than one push on **Q** to fully lower their flaps).
5. Approach the runway in a shallow descent, using the throttle (- and =) to control your speed, and elevator trim (**K** and **I**) to control your rate of descent. Ideally, you should pass over the beginning of the runway at an altitude of less than 75 feet, and a speed of just under 100 mph.
6. Just before touchdown, gently pull back on the joystick, raising the nose just enough for you to see the horizon below your gun sight.
7. When the tires screech on the tarmac, press the **Spacebar** to engage the wheel brakes. When the plane comes to a complete stop, click *Exit Plane* to return to the Control Tower.

Autopilot Settings

Autotrim mode: Press **X** to engage the autopilot. The aircraft now flies straight and level until **X** is pressed again or you take over the controls once more.

Speed mode: Press **Shift-X** to display the Speed box. Type in the speed you want to maintain. Depending on your throttle setting, the aircraft may climb or descend—experimenting with these settings allows you to achieve the preferred climb rate. Most of the aircraft in *WarBirds* attain optimal climb rates at speeds between 140 and 180 mph.

Angle mode: Press **Ctrl-X** to instruct the autopilot to maintain the climb or descent angle of the aircraft at the moment it was engaged. Be careful if your aircraft is descending when you engage Angle mode, or you could crash.

Views

Since enemy planes have a nasty way of diving on you out of the sun, sneaking up on your “six” (directly behind you), and seemingly popping up out of nowhere, it’s a good idea to look, at regular intervals, in all directions. To do this, use the View keys.

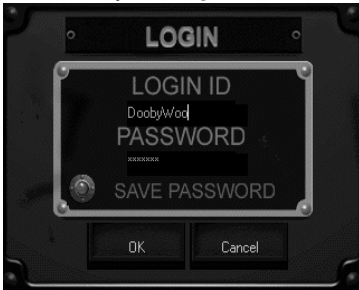
Press **4** and **6** on the numeric keypad to look left and right. Press **2** to look behind you. Pressing the **5** key lets you look straight up. Pressing different combinations of keys, and using **7**, **9**, **1** and **3**, gives the 45 degree views. For example, if you press **4** and **2**, the view is like taking a quick glance over your left shoulder. Try out different key combinations to become familiar with looking around. Ideally, it needs to be intuitive and this can mean the difference between victory and defeat.

NOTE: If you have a joystick with hat switches you can also set them to the various views.

Flying Online

When you have shot down lots of drones (offline targets) and become proficient at taking off and landing, you are ready to engage in some real combat. If you have not yet done so, create an account with iMOL (see [“Creating an iMOL \(iMagic Online\) Account” on page 15](#)).

1. Start *WarBirds*.
2. Click *Go Online*.
3. Enter your *Login ID* and *Password*, then click *Okay*.



4. Scroll down the Arena list. The first listing is for a real-time combat arena. Select it and click *Join*.
5. The first time you play online, you are asked to enter your callsign—this is the label by which you are identified within the game.
6. From the Control Tower, select a plane, a country and an airfield (see [“The Basics of Flying and Fighting” on page 19](#)).

7. Once you are airborne (and assuming there is not a dogfight going on directly over your air base), put the plane on autopilot and press **F1** to consult the map. There are two arrows superimposed over the terrain: the red arrow points toward the nearest group of enemy planes; the white arrow points toward the closest formation of friendlies. These arrows do not point out the location of individual planes—once you follow them to the general area of combat, you have to scan the skies like a real pilot would, in order to spot both friend and foe.
Remember: Each plane you spot has an label identifying it, and a range number telling you its distance away.
8. As soon as you join the fray, you start receiving messages from allied pilots, and a running commentary on the action from the Host. These messages are displayed along the bottom of your screen. You might, for example, receive a warning that an enemy plane is “on your six” (take evasive action quickly), or a request for you to join an attack on an enemy airfield. To respond to radio messages, click the *Radio* button in the bottom-right of the screen and type in your message. (See [“Radio Procedures and Protocols” on page 52](#)).
9. From this point on, what happens is up to you. Fly as a loner, accept or decline missions, or attach yourself to the nearest bunch of friendlies and be prepared to help them out. In time, you start to recognize certain pilots’ callsigns, and develop an online relationship with them. You may be invited to join a bomber crew or a squadron. *WarBirds* is entirely open-ended, in the sense that once you start flying, your actions are yours to determine.

A Note on Etiquette

The vast majority of pilots you meet online are friendly and cooperative, and forgiving of your mistakes if you identify yourself as a newbie. Enemies tend to be chivalrous, even as they shoot you down in flames, but they may also taunt you (all in the spirit of good, competitive, fun). Human nature being what it is, however, you may sometimes encounter someone who gloats over your defeats, brags about his prowess, or broadcasts insulting remarks. The technical term for such an individual is “jerk”, and if this pattern of ill-mannered behavior persists, the Host admonishes the offender, and the more civilized pilots shun him.

Finally, you do not have to worry about an enemy pilot joining and posing as a “friendly” then suddenly turning on you. *WarBirds* has an ingenious safeguard against such treachery: if you attempt to fire on a friendly plane, your bullets are deflected back to your own aircraft—in other words, you shoot yourself down.

Flying Head to Head

WarBirds supports free head to head play. You are able to connect with any other *WarBirds* player to teach or learn dogfighting techniques, or to just duke it out one to one.

Head to head sessions are initiated by clicking *Head to Head* on the Startup menu.

The *Host New Game* and *Join Existing Game* buttons are for TCP/IP or direct play sessions which you have already arranged with another player.

TCP/IP: For a TCP/IP session, the joining player needs to know the IP address of the hosting player.

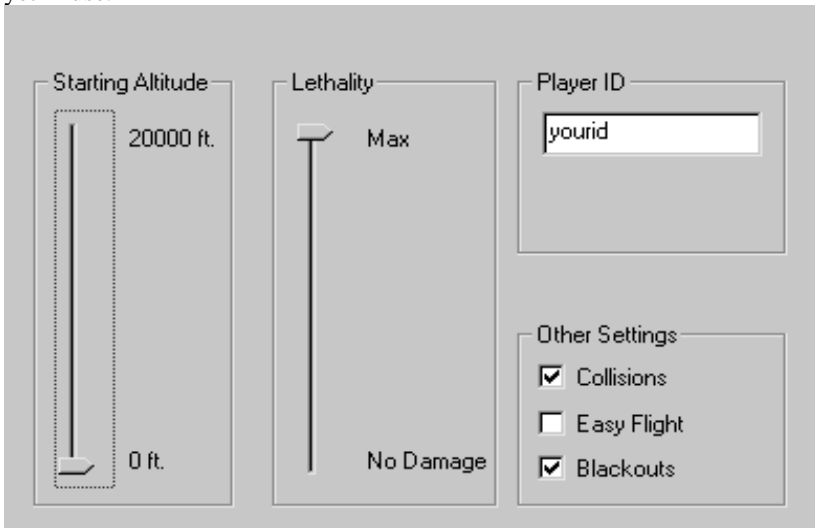
Choosing *Direct Play* allows you to setup a session using IPX, Modem, or Serial connections.

IPX: Selecting IPX searches a LAN for a hosting machine and connects over the LAN.

Modem: Modem play simply requires you to enter the phone number of the host to connect via modem.

Direct Serial Link: Serial connections require a serial cable connection between the host and guest machines.

The last two options, the *iMOL Games Lobby* and *Direct Play Lobby*, are not yet in use.



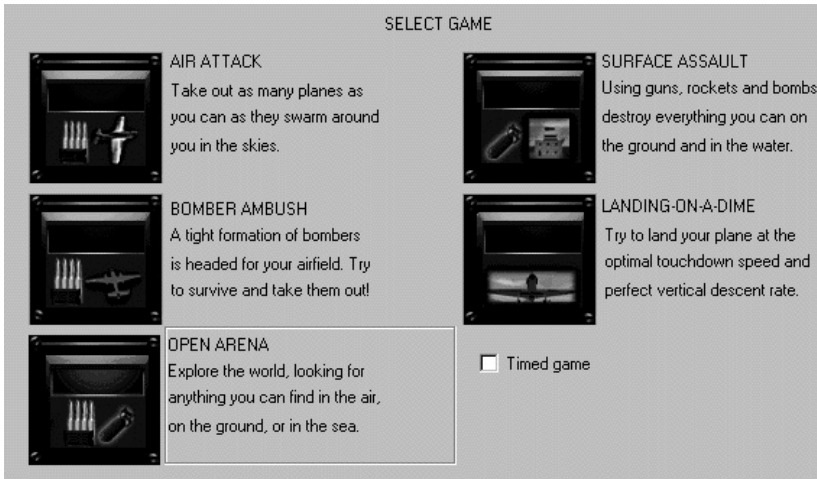
HTH Screen

The HTH screen, accessible from the *Setup* screen, allows settings for the current session to be changed. All settings are made on the host computer. Enter the callsign by which you wish to be known, as in an online combat session.

NOTE: Settings for easy flight and blackouts here override settings for the same parameters in the *Flight* screen.

Practice Offline

When you select *Practice Offline* from the Startup menu, you are taken to the Control Tower with Game screen selected.



Game Screen

There are five simple missions available for practice: *Air Attack*, *Bomber Ambush*, *Surface Assault*, *Landing-on-a-Dime*, and *Open Arena*. There is also an option for flying the missions with a time limit. To fly a mission, select the one you want, then choose your aircraft from the Plane screen, and choose the airfield from the Field screen, then click *Fly* from the Control Tower (see [“The Basics of Flying and Fighting” on page 19](#)). While in flight, there is a score display at the top right corner of your screen which lets you know how you are doing. Some aircraft cockpit art obscures the score display. If you cannot read the score, look out of your cockpit in different directions, where the cockpit frame does not block the display.

Options for Offline Play

From the Control Tower choose *Setup*, and click *Flight*. Look at the Offline Play Only section. Point and click in any of the white boxes beside an option to turn it on (check), or off (empty).

Easy Flight Cockpit shading Default Altimeters
 Stick Set Messages Hud Off English System Altimeters
 Metric System Altimeters

Offline Play Only

Blackouts Start behind drones Invulnerable to Weapons
 Structural Limits Unlimited Ammo
 Indestructable Drones

Starting Altitude:

Offline Terrain:

Blackouts: If you pull too many G's or too few (negative), you may blackout or redout respectively. Online you have to deal with this situation, so to get used to it offline, before you have an enemy on your "6", check this option.

Structural Limits: With this checked on, your plane has all the weaknesses of a real plane in flight. Too fast or too hard and it might snap apart. Don't worry about this too much, these are war planes so they are fairly sturdy, and are not likely to fall apart under anything but severe punishment (your aircraft starts shaking, and you may hear metal fatigue sounds when you reach the limit). Online, this is always activated, so if you want to learn where your plane's structural limits are, check this option.

Start behind drones: With this checked on, when you select *Fly* in the Control Tower, you start behind a drone, just as the name implies. This is useful if you just want to practice your gunnery and don't want to have to find and chase a drone before you can shoot. When a mission has no drones, checking this option has no effect.

Invulnerable to Weapons: With this checked on, your plane cannot be damaged by enemy fire. The bomber gunners in *Bomber Ambush* and the anti-aircraft ground fire cannot harm you. Although this option allows you to practice your attacks and offense, don't get too used to invulnerability. Online, of course, you do not have this kind of protection against enemy fire.

Unlimited Ammo: With this checked on, your ammo does not decrease when you fire. You can shoot forever. If your plane is loaded with bombs or rockets, you do not run out of them either. This is a useful option for offensive practice, but don't let the infinite ammo spoil you for when you are online and need to conserve. A plane out of ammunition is defenseless.

Indestructible Drones: Checking this box gives the offline drones the same invulnerability that you have with the Invulnerable to Weapons option. Use this option to practice your gunnery without having to hunt down another target every time you kill one. This option when combined with Unlimited Ammo, allows you to practice your gunnery skills continuously on one target.

Starting Altitude: In the box to the right of this option, type in the altitude in feet, at which you want to start your flight. Zero altitude starts you on the runway. If you put in 5000 (no comma needed), you begin your flight in mid-air at 5,000 feet, on autopilot. If you start in the air, remember to turn up your throttle so you don't immediately begin losing altitude. Online, you always start on the runway of your chosen airfield.

Offline Terrain: Scroll through the list to see the terrain available, and choose what you want to fly over. Online, the terrain is chosen to match the Arena map.

Offline Missions Compared to the Online Game

The offline missions are great for practicing the basics of *WarBirds*, but the actual online game is quite a different world. You can ambush the bomber formation over and over and over offline, and become proficient at hitting the planes and avoiding the gunners. But until you go online and see a bomber formation, possibly escorted by a few fighters, you have not experienced the true excitement of *WarBirds*, because online, the bombers and fighters are not drones that fly in circles or a straight line. Every plane in the air is piloted by a real person playing the game, and whereas your self-determined mission in the game might be to shoot them down, their mission is to shoot you down, or bomb your airfield. And they are certainly not going to give you an easy time!

Missions



Air Attack

In this mission, you see many, many aircraft circling over your airfield. All of the *WarBirds* aircraft are represented. Pick out a target and attack it. The planes only make individual circles, without maneuvering. Practice lining up behind a target drone. As you get better at this, and can hit the drones regularly and repeatedly from behind (the “6” position), you should then practice attacking from different angles and at different speeds.

Use this mission to practice your situational awareness. Continuously scan the sky around you, know where the nearest drones are, and learn to predict where they will be a few seconds later. In an online furball (that is the technical term for a lot of planes fighting in a small area), you really need to be aware of the location of any and all nearby friendlies and enemies. Do not become so focused on your target that an enemy can pull up behind you without you knowing. Offline, of course, the drones do not attack you, although sometimes their crossing, circular paths make it look as though they are coming up on you. When you see this happen take defensive action, while keeping an eye on both the enemy behind you, and the target you are having to break off from. Then, after you shake off the enemy, go back and attack on the original target. Practicing this helps immensely when playing online.

Fly above the mass of planes, or just above one particular plane, and learn to work out the direction of travel and altitude of your target. Taking a few moments to make this determination improves your chances of making a successful attack. Online, diving down onto an enemy plane when you do not know its direction and probable intentions, may put you at a disadvantage in the final showdown. If the plane is coming toward you when you attack, you will probably end up in a head-on confrontation where your target is approaching and shooting directly at you. It is no fun to have a 20 mm shell come through your cockpit windshield, not to mention those destructive collisions. Dead pilots cannot brag.

Use the **F2** key on your keyboard to toggle the icon over the drones. The icon settings are:

- **Arena Default:** Showing the distance in hundreds of yards, and the pilot's callsign.
- **Plane Type:** Showing the distance and plane type, i.e. P51, SPIT, 190.
- **Range Only:** Showing only the distance.
- **Off:** Showing no icon at all.

Do not leave the icons on the arena default all the time and, for example, always go after Pyro. Switch the icons off or to range only, and try to identify the type of planes around you visually. Try to judge ranges without the icon. In some special events online, the icons are adjusted to give a historical feel to the game play.

NOTE: Online, enemy pilot callsigns are not shown. The Arena default setting shows only the names of your countrymen, and only the plane type of enemy craft.

Damage to drones is similar to that which occurs in the online game. The major difference is that a drone can still fly with several control surfaces, such as ailerons, elevators, or rudders, shot off. Online, a plane may well start to go down with this damage because the pilot cannot stay in control without these pieces. A drone explodes if you shoot off a critical part of a plane, such as a wing. Online, the planes do not usually explode, but start spinning and spiraling, diving to the ground; the pilot normally bails out.

When a drone explodes, it reappears elsewhere in the sky. Even without the reappearance, there are so many planes in the air during *Air Attack*, that you need never worry about running out of targets. Unless you chose *Unlimited Ammo* in *Setup*, eventually you have to land to reload your guns. Even with unlimited ammo, you can run out of fuel.



Bomber Ambush

At the beginning of this mission, you receive a message over the radio alerting you to an incoming flight of enemy B-17 bombers. Try to intercept and shoot them down. Sounds simple doesn't it?

Unlike the *Air Attack* mission, the gunner positions on the bombers shoot back at you. This is what makes this mission a real challenge. The flight of bombers flies straight and level at about 5,000 feet altitude, so they are big, slow, and easy targets to hit. But, and this is a big but, there are gunners in the nose, top, belly, left-waist, right-waist, and the tail (for a total of ten 50 caliber machine guns on each plane),

who shoot at your plane, and they will leave it in pieces if you are not very careful—probably, even if you are careful. The standard real-life tactics in World War II were to attack a bomber formation head on, so a fighter could fire at, then pass by the bombers quickly, giving the defending gunners only a few seconds to fire.

If you are a bomber pilot and want to practice formation flying, select Gold as your country in the *Field* screen. The bombers in this mission are Gold, and their gunners do not shoot at countrymen. For a novice bomber pilot, it might be best to start behind the drones. Choose this from the *Setup* options, under *Flight*, available from the Control Tower. That way, instead of having to takeoff, climb, and catch up with the formation, you start about 1500 yards behind them, at the same altitude, and you can just close up and hold formation with them. For optimum gunner coverage, and thereby safety, keep your formation within a range of 0-1, that is no more than 100 yards. When you go online with a formation, this distance makes fighter attacks very dangerous for the fighters.

NOTE: When you start in the air offline, put your throttle full up, by using the = key or by pressing 0 (zero). It may take a few seconds for your engines to pull you up to speed, but they do so eventually. At first, the formation may gain some distance on you, but as your speed picks up, you slowly start to close with it. The formation is flying at about 180 mph.

These bombers take damage just like the *Air Attack* drones, and continue to fly until blown up. You will discover that bombers are tough to shoot down. Online, bombers give *WarBirds* another strategic element besides the basic dogfight. Although a formation of bombers is a tough nut to crack, you may often see a lone bomber flying a mission, with or without a fighter escort. As you can see from flying the *Bomber Ambush* mission, hunting bombers is no cakewalk.



Open Arena

This is the mission for basic flight and reconnaissance practice. There is not much going on in this arena, just a single drone plane circling each airfield, and lots of empty terrain to explore. For those players who have been playing *WarBirds* for a while, this is the basic offline arena you are used to. Use this area to test fly new planes and new maneuvers. Learn the flight characteristics of many different types of planes, this knowledge can help you in an online dogfight.

When you first try out *WarBirds*, you will probably become attached to one particular type of aircraft. That's great. Online, however, the Main Arena

operates under a Tour of Duty schedule, known as the Rolling Plane Set (RPS). The RPS schedule can be found on the iMOL web site, and it mimics the plane set rotation of World War II. A Tour of Duty is three weeks long, wherein the plane set rolls from early war, to mid war, to late war, and finally to all planes available. In the *Plane* screen, a *Select* option which you access from the Control Tower, you can see the dates of the war that the selected plane was available to war pilots. Note the dates for your favorite planes. If you only fly late war aircraft, it is advisable to find an early war plane as well, so you are comfortable (and deadly) in all stages of the RPS. Use the Open Arena offline to test the choices.



Surface Assault

When you pick an aircraft for this mission, be sure to choose your ordnance according to the targets you want to hit. Pick heavy bombs for hard targets, lighter bombs or rockets for softer targets (you can usually carry a larger number of light bombs than heavy bombs), or torpedoes for ship targets. The larger bombs also have a wider blast radius, so a near miss may still damage your target.

If you pick a bomber to fly, you have the bomb sight to help you keep level for bombing, but if you pick a fighter with a bomb load, you need to practice dive bombing.

Once you have mastered hitting your target with explosive weapons, you should try doing it while being shot at. Fly to a nearby enemy field (that is a field of a different color than you—your gun sight shows your country color), and attack it. If you are using a low-level bomber or a fighter-bomber, you will probably see lots of yellow and red tracers zipping up at you as you attack. If you are in a high altitude bomber, like the B17, you may fly above the range of most ground fire, but anti-aircraft artillery may still be able to reach you. Fortunately, not all airfields have these guns, but expect it over major targets, including the carrier group.

Carpet bombing (dropping bombs all over the place in one run) can be fun, but try to be precise with your drops. It takes more than one run to hit every target at a base, so you need to turn around and make a second, third, and maybe even a fourth pass, to totally destroy all the targets.

Online, bombing is the first step in capturing an enemy air base. When your country wants to expand its borders, and pick up new real estate, it needs bombers to do the heavy work. Bombers do the raids, fighters provide cover, and if it is all done properly, your country gains a new airfield.



Landing-on-a-Dime

For beginners, takeoff and landing are difficult missions all by themselves. This mission lets you practice these two basic procedures. You can find technical takeoff and landing tips on the iMOL web site, at the Flight Academy. For this mission, you need to takeoff and climb over 200 feet, then wait for the radio message which tells you to land.

You are scored on your grace and skill at this maneuver. You may have heard the phrase: “any landing you can walk away from is a good landing”. Well, in this man’s army, that is just not true. The mechanics in this outfit really do not like having to repair aircraft that some jock dropped out of the sky. The razzing you receive at the unit mess hall is not pretty, so try not to smash your engine, or break your landing gear, or snap off a wing when you land—your tour of duty will be much easier.

Having said the above, let us contradict ourselves. Sooner or later, you need to practice ditching. It is not uncommon online to have your landing gear damaged or your engine knocked out by enemy fire. Use this offline mission to practice the art of dead stick landing, and gear-up landing.

Fly up to some random altitude, then press **E** to shut off your engine. Resist the urge to turn it back on, and just try to coax your aircraft down to the airstrip. Using only altitude and maneuver, control your speed and make a safe landing.

Next, takeoff and turn around for a landing, like normal, but this time, don’t lower your gear. Done properly, your plane just slides in on its belly with minimal damage, and no explosion. For extra difficulty, try a gear-up landing with no engine. Do not laugh at the idea. Online, you may have to do it sometime, unless you want to be a wimp and just bail out. If you think your mechanics give you a hard time over bringing them a damaged aircraft, think what your commanding officer may say when you come back with no aircraft at all!

Also, try ditching somewhere other than on a paved runway. Learn what terrain is easiest to land on, including water. You never know when you may be forced down far away from a friendly base. Fortunately, since this is a game, no one gets captured by enemy troops (just like a killed pilot can just re-plane and takeoff again)—virtual reality goes only so far.

Timed Games

In the Game screen, there is the option of setting a timer for your missions. Point and click in the white box next to *Timed game*, and pick a time length between 1 and 60 minutes. You can use the slide bar, or just click in the white area and type in the time directly.

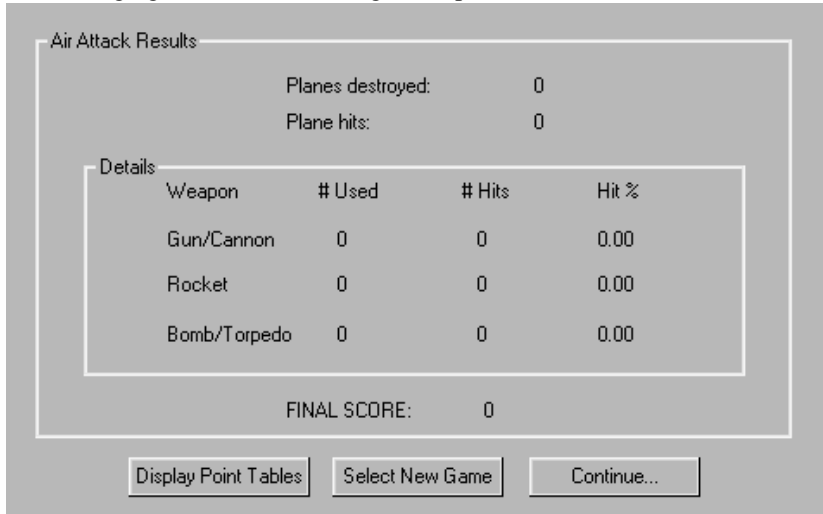
Mission countdown time is shown under the score counter in the top right corner of the screen, in minutes:seconds. When the timer reaches ten seconds left, a message pops up over your gun sight, warning you.

Once you have the hang of shooting down drones in the *Air Attack* mission, see how many you can kill in two minutes. If you are so good that you can destroy a bomber formation in the *Bomber Ambush*, try it with a five minute time limit. If you can place a 500 pound bomb on each target of a major airfield, try it with a 10 minute time limit. Use the timer to count down how long it takes you to takeoff and fly from your home airfield to the next field away.

Becoming good at missions within a time limit helps you play successfully online. Online, if you find a single enemy plane ripe for attack, you need to be quick about it, because you do not know how soon their friends may show up to help them out. If you find an enemy field with no aircraft nearby, and begin bombing it, you can be assured that someone is going to notice and fighter defenders will soon start showing up. You need practice in getting to your target, hitting your target, and getting away all within only a few minutes.

Debriefing After a Mission

When you finish a mission, whether by exiting your plane, crashing, or running out of time, you are taken back to the Control Tower where you can see your score for that mission. You are given the options of continuing that mission, changing missions, or looking at the points table.



Score Details

If you want to fly again in the same mission, click *Continue*, and then click *Fly* from the Control Tower. You are returned to the mission, to finish from where you left off. If you want to fly a different mission, click *Select New Game* and choose what you want from the *Game* menu. If you want to see the Points Table, click *Display Points Table*. This table shows you how your points are awarded.

Scoring

The score box, shown at the top right corner of your screen when you are flying, keeps track of the targets you have destroyed, the number of hits you have made, and your overall score. If you are using the timer, the time remaining is given just under the score box.

You are awarded points for simply hitting a target, but the weapon you hit with determines how many points. For instance, hitting a plane with your guns is not that hard (once you practice at it anyway), so you only get ten points for that. But if you hit a plane with a bomb (highly unlikely) you get

1500 points. Hitting a ground target with your guns net only two points, and only 100 points with a bomb.

Points for Kills		Points for hits			
Plane:	1000	TARGET	Guns	Rocket	Bomb
Ship:	150	Plane	10	500	1500
Building	100	Ship	2	100	150
		Building	2	75	100

Ammo use deductions		Miscellaneous	
Bullet:	-0.10	Player hit deduction:	-10
Rocket:	-25.00	Successful landing:	500
Bomb:	-25.00	Carrier landing bonus:	2500
		Damaged landing penalty:	-250

OK

Points Table

You are awarded points for destroying a target: 1000 for a plane, 150 for a ship, 100 for a building. These points are cumulative with the hit points. That is, if you hit a plane 10 times with your guns to destroy it, you get 1100 points (10 points x 10 hits = 100 points + 1000 points for destruction = 1100 total points). Actually, you won't receive exactly 1100 points. Every round of ammo you use is deducted from your score: -0.1 per bullet, -25 per rocket, -25 per bomb. So if you fired 20 rounds to score those 10 hits (a great percentage for offline, and astounding for online), you have a penalty of -2 points, and an actual total of 1098 points. Fortunately, the computer keeps track of all these numbers for you, but we thought you might like to know how it all worked.

Above and beyond the score modifiers, you have 10 points deducted every time you are hit by enemy fire. Watch out, and don't get hit by ground fire or bomber gunners! You also get 500 points for landing successfully (2500 points if you land on a carrier). You have 250 points deducted if you damage your plane on landing. Remember those mechanics?

In Bomber Ambush, due to the difficulty of destroying bombers, the penalties for taking hits and expending bullets are greatly reduced.

In the Open Arena and Surface Assault debriefing screens, hit percentages for bombs and missiles may sometimes register 100 percent even when they did not all hit. This is because it is possible (and common) to hit multiple targets with a single weapon. Doing so increases your hit percentage (although it can never go above 100 percent).

Advanced Play

Scenarios

While random dogfights and head-to-head duels are certainly fun (and can be enjoyed on demand, whenever you are in the mood and have a few hours to kill...no pun intended), sooner or later, you will probably want to take part in a fully fledged scenario.

A scenario is a linked series of engagements, usually fought over a period of days, pitting all the pilots of one country against those of another. Scenarios can be scheduled in advance (one side issuing a challenge to another, rather like arranging an old-fashioned gentlemen's duel), or you can join one in progress and lend a helping hand to your favorite country.

Victory Conditions and Scoring

Victory in a scenario goes to the side which captures or neutralizes all of the opposing country's airfields. This is not easy to do. Capturing an enemy field requires smooth teamwork and split-second timing. If you surprise the enemy and quickly suppress his defenses, a capture can be a quick and brutal affair. On the other hand, if the enemy is waiting for you with a CAP (Combat Air Patrol) shielding his field like an umbrella, and lots of anti-aircraft guns manned and ready, it can be a costly action indeed.

Scoring is done for individual pilots. You can check any pilot's score by clicking *Score* on the Select screen in the Control Tower.

A Typical Capture Operation

There are three phases to a successful capture operation:

The Attack

The side which initiated the attack needs to destroy all the important enemy ground assets. These include hangars and other structures, flak gun emplacements, and any enemy aircraft caught on the ground. Speed and accuracy are essential because damaged facilities are repaired rather quickly, which means you have to destroy them all over again, usually with a greatly diminished supply of bombs and rockets.

Hangars and other buildings are considered destroyed if their roofs are blown off; it is not necessary to destroy the walls although you can if you want to—doing so increases the time it takes to repair those structures.

Ordnance-Loadout: Ordnance or loadout is the number of bombs and rockets your aircraft can carry. When playing offline, practicing your bombing and strafing skills, you can load a plane with everything shown on the Plane screen (see [page 22](#)). If you are playing online, your aircraft can only carry the amount of ordnance its historical counterpart could haul.

Destroying a hangar or other ground structure usually requires a direct hit with a bomb or a full salvo of rockets. It is possible to do the job with massed gunfire, but it takes a lot of time and effort to do so and your chances of success dwindle accordingly. As a rule of thumb, a rocket does about half the damage of a 100 lb bomb. The amount of ordnance required to knock out a specific target depends on the weight of the bomb, the range and angle it is dropped from, and the accuracy of the pilot. Bombs have a blast radius, so it is not always necessary to make a direct hit, but closer is always better.

Flak: When you approach an enemy-held airfield, you should notice multi-colored streaks appearing in the sky around your plane. These are tracers being fired at you by the AI-controlled anti-aircraft crews defending the base. This is flak, the German word for anti-aircraft artillery. In modern aviation parlance, it is referred to as Triple A, but since *WarBirds* is set in a World War II environment, we use the word familiar to pilots of that era, on both sides. Besides which, flak has a sharper, more deadly ring to it than the somewhat sanitized Triple A, doesn't it?

Carrier Operations

In addition to its airfields, each *WarBirds* country has a small AI-controlled fleet; a carrier group, comprising of a single carrier and six escorts (two cruisers and four destroyers). Ships cannot be captured. If you lose all your land bases, you lose a campaign, even if your navy remains intact.

The carrier group, however, is still a powerful asset, a moving air base whose planes can add considerable punch to any operation. Sinking an enemy ship is a major achievement—not only do you feel proud of yourself, but also, if the carrier is close to your own fields, it prevents any attacks coming from it. Ships can be sunk by bombs, but doing so usually expends a lot of ordnance, since the ships are all armored and can throw up a wall of flak.

When a carrier is sunk, the surviving vessels regroup and head for their country's home port, where the sunken carrier is regenerated. Once restored to full strength, the fleet resumes active operations. If an escort ship is sunk, it waits at the port until the carrier is sunk and joins the fleet at the port.

Carrier Takeoffs

Flying from the deck of an aircraft carrier is one of the most demanding skills a pilot can acquire; landing on one is even hairier—the deck is only 800 feet long, after all, and only a portion of that can be used for takeoffs or landings.

There is not much margin for error. Takeoffs are handled in the same way they are from land runways, but with some additional risks. Engine torque—the force generated by the propeller which causes a sideways pull—can easily hurl you over the side if you lose control for an instant. Your plane also needs full climbing power to become airborne once it clears the deck.

Carrier Landings

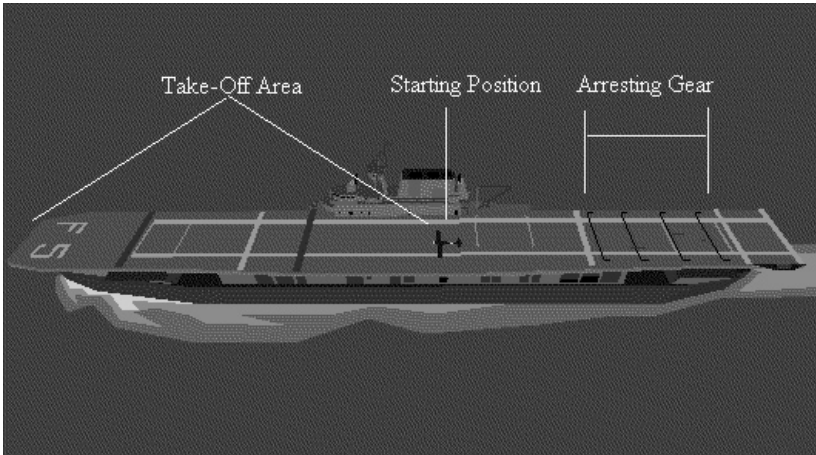
Airmen sometimes describe carrier landings as controlled crashes, because they are such delicate maneuvers. Firstly, you need to make a slow, level, approach, with just enough power to avoid a stall. If you sense that your approach is not going well, do not be brave and try to save it, just throttle up and climb gently away, circle around, and try it again.

Carrier aircraft do not have the luxury of taxiing to a gentle stop—there is not enough room. Instead, they come to a bone-cracking halt by means of a gizmo called the arresting gear. It is, basically, a big hook that extends down from an airplane's tail and, if everything goes right, it catches on one of the thick cables strung across the aft part of a carrier's deck.

A successful carrier landing goes like this: approach the ship at a fairly steep angle, then, when you are properly lined up with the deck, flare the nose up and chop the throttle all the way down just before your wheels touch down.

Just keep one thing in mind: the ship is moving, and what may initially seem like a good approach might, in fact, be too short to compensate for the fact that your landing area is moving away from you. Short approaches are the single most common cause of crash-landings.

Obviously, carrier-based flying is much tougher than ground-based flying. Most veteran online players, however, eventually strive to master it, just because it is so exhilarating when you get it right!



Carrier Vessel

Torpedo Attacks

The torpedo is the weapon of choice when trying to sink a ship. Bombs only damage the superstructure, so you have to pound a ship to bits in order to sink it with brute iron. Torpedoes, however, strike at the hull, below the water line, and a single well-placed “fish” can inflict a mortal wound on any ship.

You can only arm planes with torpedoes if their real-life counterparts were capable of carrying them. An American TBF Avenger and a Japanese B5N2 “Kate” could carry one such torpedo, while the German JU-88 could haul two of them. Just click on the *Ordnance* switches which are on the Plane screen (see [page 22](#)), which is accessible from the Control Tower by clicking *Select*.

Executing a successful torpedo attack is much trickier than simply dropping a tight pattern of bombs. In order to hit a ship, the plane executing the drop needs to fly steady, low, and slow—below 200 feet and at about 200 mph. This naturally makes it a vulnerable target, since every gun in the enemy fleet has a nice steady shot.

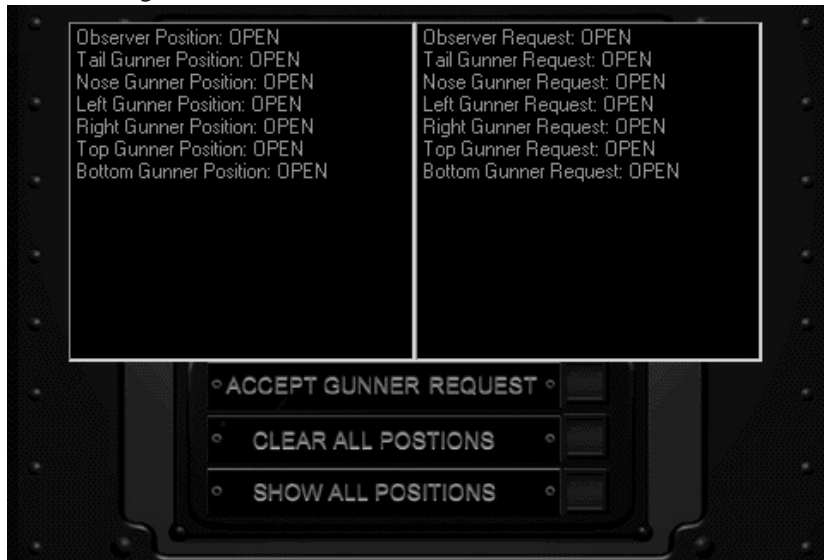
When there are enemy CAPs (Combat Air Patrols) on the scene, and there usually are, a torpedo plane, being only able to make more the minimum of evasive maneuvers during its attack run, makes an inviting, almost defenseless, target.

The angle of attack is crucial. Ideally, a torpedo plane should approach at a right-angle as this gives the biggest target. A head-on or stern attack renders the torpedo plane slightly less vulnerable, but also decreases its chance of scoring a direct hit. In any case, there is always a chance that the ship may execute a hard-starboard turn just as your tin fish is streaking in...

The Zen of Bombing

While solo combat is the most glamorous form of online flying, a lot of *War-Birds* players enjoy an occasional bombing mission. Some even make a specialty of bombing.

Bomber missions are especially gratifying when you are flying online with a group of friends or with people whose callsigns you have come to know and respect. One player—usually an experienced one, since bombers are more difficult to get airborne than fighters—selects a bomber. He or she controls takeoff, navigation, and acts as bombardier when the time comes.



This pilot's friends then choose which defensive gun positions they want to crew on the mission. If there are not enough people to man all the available machine guns, open slots remain.

To join the mission, offer your services by typing your callsign in one of the open slots. The chances are, you will be accepted; if you are not, do not take it personally—the pilot is the commander, after all, and he or she may be waiting for someone in particular to show up. For more details, see [“The Joys of Gunnery” on page 51](#).

Setting Up a Bombing Mission

Choose the bomber you want to fly from the Select Plane screen. Select your bomb-load using the *Ordnance-Loadout* switches on the same screen.

Some pilots and bombardiers prefer to manually drop each bomb by pressing **B** when they are over the target. Others claim better accuracy and increased damage by dropping their bombs in timed salvos, so that the explosives land in a ripple pattern. This is called “pickle mode” because the World War II bomb-release device supposedly resembled a pickle.

Customize a drop-pattern from the Control Tower using the following radio commands:

<.salvoXX> where XX is the number of bombs in each salvo.

<.delayXXX> where XXX stands for the delay, in milliseconds, between the release of each bomb in the salvo (50 - 1000 milliseconds).

NOTE: Enter “pickle mode”, by pressing **F9** while in flight, to enable your salvo settings. You can enter new settings while flying to the target.

Executing a Bomb Run

You are flying in pilot mode, and your gunners, you hope, are keeping enemy interceptors at bay. Observe the situation around you by using the keyboard controls (see [page 61](#)).

If you are flying an uncrewed bomber, press **Alt-V** to toggle the external view of the bomber. Use the various view keys to check out the environment, just as you would in any other mission.

Remember that each sector on the *WarBirds* map is 20 miles across, representing 400 square miles. As soon as your bomber enters the sector where your target is located, make your approach turn—ideally at a distance of 10-15 miles.

Press **Y** to assume the bombardier's role. The autopilot engages automatically when you do this, allowing you to concentrate on your new task. You are, however, still able to make gentle course corrections to center the bombsight's cross-hairs on the target.

Now press **2** to look through the bombsight. *WarBirds* bombsights simulate the famous Norden sights of World War II, and the bombardier's view is essentially the same no matter what kind of bomber you are flying.

You see the aiming cross-hairs and a needle located in the upper-right portion of the display. You know you are on the right course when that needle centers on the green light, but you must hold a straight and level course for the needle to center itself. Any violent evasive maneuvers at this point compromise, if not ruin, your chances of a good drop, so you are dependent on your gunners to buy time for you to complete the bomb run. If you need to increase the magnification of the bombsight view, press **[;** to decrease the magnification, press **]**.

Now comes the moment of truth: press **O** to open the bomb bay doors. This is rather important, unless you want to bomb the interior of your own aircraft...

When the needle is centered, the green light is on, and the target is squarely in the cross-hairs, press **B** to release your bombs. Unless you have previously engaged "pickle mode"—by pressing **F9**—one bomb drops for each key press. If "pickle mode" is engaged, the bombs fall in salvos according to the settings established earlier.

Getting Home in One Piece

After the bombs are dropped, the plane suddenly becomes lighter, faster, more maneuverable. Press **Y** to return to the cockpit, if necessary. You may not be able to watch the bombs actually strike, but your tail gunner or waist gunners should be able to give you a radio report on the results.

NOTE: Channel 111 is the bomber intercom.

If enemy planes are closing in, you may want to boost your engine power to the maximum setting, also known as War Emergency Power (WEP). Press **Shift-E**, then **0** (zero) to boost all engines to full throttle. WEP is not available on some planes.

Find your way back to your home base and follow standard landing procedures.

The Joys of Gunnery

Newcomers to *WarBirds* can learn a lot about the feel of the game by enlisting as a gunner. Your odds of survival are greater than in a solo mission because, even if you lack experience, at least some of the other gunners will not be, and you can gain valuable skills in leading targets and deflection shots—that is, figuring the angles between your bullets' trajectory and the target's turns, so that the bullets intercept plane.

In fact, if you have scheduled some one-on-one training with an instructor, your tutor may suggest that you accumulate some hours of gunnery experience before attempting a solo dogfight.

How to Sign On as a Gunner

Click *Gunner* from the Select screen in the Control Tower. This is where you request a gunner position.



Gunner Screen

Not all planes have the same number or configuration of gun positions, but the full list includes: bottom, top, left waist, right waist, nose, and “obs” (observer). The observer's position is usually on top of the aircraft, just in front of the cockpit. If you see an open slot for a position that appeals to you, type in your callsign to request it.

If the pilot accepts you, a message says so. Congratulations. If you see a message that you have been turned down, there is probably nothing personal going on—the pilot may simply be waiting for someone he knows and expects to show up online, or he may wish to use the “Otto” gunners (automatic gunners).

Once you have been accepted in a gunner’s slot, click *Radio* and type in: `<.radio x 111>`. This plugs you into the bomber’s intercom system.

Jump: A gunner can jump from his original slot to another one. This is useful if a bomber takes off short-handed and one waist gunner has to move from left to right, depending on which direction the enemy threat is coming from. To jump to another gun, use the **1, 2, 3, 4, 5, or 6** keys, as appropriate. The numbers vary with the number of positions the plane has.

Controlling your Chosen Gun

Some gun positions are electric turrets which rotate using the plane’s internal power system. Others are attached to flexible mounts, so that the gunner physically controls the aiming process. It is up to you as to which device you are most comfortable with. The joystick is the default tool for aiming and firing guns, but if you prefer to use a mouse, just press **Alt-M** while in position. We recommend mouse control for flexible guns and joystick control for powered turrets.

NOTE: Any vacant gun positions are controlled by “Otto”, the automatic gunner. You can override this by using the jump command shown above, or your pilot may request that you switch positions if they feel the situation warrants such a move.

Radio Procedures and Protocols

Radio communication with other pilots gives you the chance to socialize with the players. It also provides you with vital tactical information and situation updates.



Radio & Channel Display

Select one of four radios by clicking *Radio*. In each of the displayed slots, you can tune in your set by typing in the number of any one of 106 radio channels. These channels serve different purposes and reach different ears, so depending on what you need to say and to whom you wish to speak, use an appropriate channel.

Channel 100: This is the common channel—every player can send and receive messages when tuned to channel 100. If, however, you are in the Control Tower or a designated Headquarters screen, only players in that room receive your channel 100 transmissions.

To communicate with players during flight, you need to use one of the squadron, country, or private channels, as shown below:

Channel ID and Number	Who Can Transmit/Receive
Channel 100 (Common)	Everybody
Red Channel 101	Anyone can transmit; only Reds receive.
Green Channel 102	Anyone can transmit; only Greens receive.
Gold Channel 103	Anyone can transmit; only Golds receive.
Purple Channel 104	Anyone can transmit; only Purples receive.
Squad Channel 110	Only members of the same squadron.
Intercom 111	Only crew members of the same bomber.
Channels 1-50	Reserved for private conversations between individual players within a country
Channels 51-99	These channels permit private conversations among fliers who are not members of the same country. Only the Radio One slot can be tuned to them.

Radio Tuning

The *Radio Bar*, in the lower right corner of the screen, displays the radio number and channel to which you are currently tuned. Remember that there are four radios in the game.

To tune your radio, use the command `<.radio X YYY>`, where X is the radio and YYY is the channel you want to tune it to.

Transmitting a Message

Each of the four radios has its own key:

Radio	Key Press
One	/
Two	Shift-/
Three	Ctrl-/
Four	Alt-/

To send a message, select the radio by pressing the appropriate key, type in your message, then press **Enter**.

You may also tune the radios to individual players by entering the command `<.radio # xxxxxx>`, where # is the number of the radio you wish to modify and xxxxxx is the six-letter callsign of the player you wish to assign to that radio.

If you enter the command `<.radio>`, a summary of your currently tuned channels is displayed.

Example: A player flying for Purple might tune Radio One to channel 100 and Radio Two to channel 104. In flight, he or she would then press / to transmit a signal to everyone in the current game, or **Shift-/** to transmit sensitive information to Purple pilots only.

If this pilot were a member of an organized squadron, they could send messages to squadron members only, by going to Radio Three, tuning to channel 110, and then pressing **Ctrl-/** to transmit.

Customizing Your Joystick

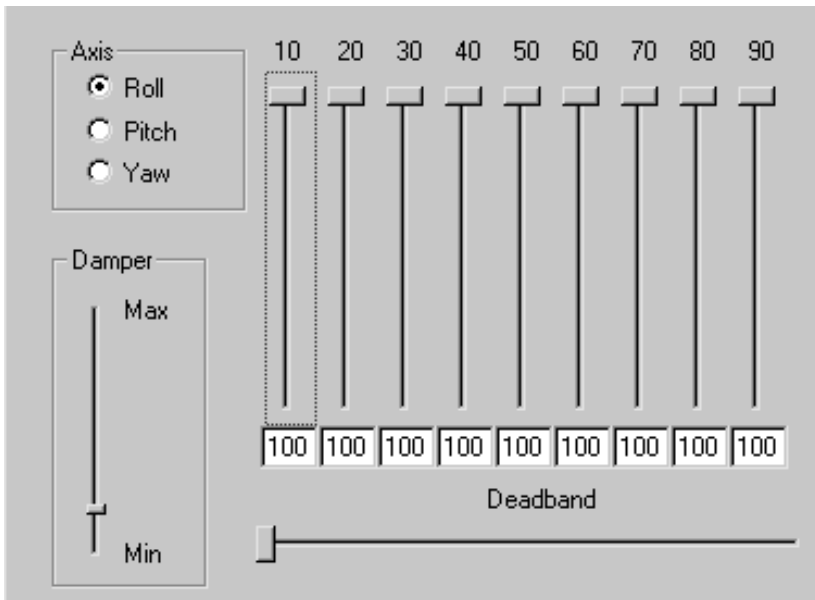
(Fairly technical stuff...)

Most people won't want to bother with this. The Windows 95 configuration process "[Joystick Configuration](#)" on page 18) is all they ever need. If, however, you have a top-of-the-range joystick—one of the new "force feedback" models, for instance—advanced configuration may help you get the last ounce of control from the instrument.

Some players, as they become more expert in the game, may wish to exercise this option simply because it personalizes to a finer degree the response your aircraft makes to the movements it senses from your joystick. Some pilots swear that this fine-tuning gives them an edge in combat.

This is how to do it:

1. From the Control Tower, click *Setup*.
2. Select *Stick*.



Stick Screen

3. Select *Roll*, *Pitch* or *Yaw* then adjust the slider bars. This customizes the joystick control response of your *WarBirds* planes to suit either your hardware or your personal flying style.

The default values work well enough for most players, but with a bit of experimentation you may find settings you prefer.

4. Adjust the *Deadband* slider and the *Damper*.

A plane makes three basic movements in the air (other than straight ahead, of course):

Roll: The circular movement of your wing tips around your fuselage, caused by the ailerons, which are controlled by the side to side movement of the joystick.

Pitch: The up or down movement of the nose caused by the elevator, which is controlled by the forward and backward movement of the joystick.

Yaw: The left and right sideways movement of your nose caused by the rudder, which is controlled by rudder pedals, if you have them, and by the **A**, **S**, and **D** keys.

Each of the sliding scalers represents a portion of joystick movement, and the slider settings control the response when the stick is moved “that far” through its range of travel. Thus, if you have the “50” slider set at “50”, moving the joystick half-way from center gives you 50 percent, or a total response of 25 percent because your plane’s control surface moves 25 percent of its total movement. By setting the “90” slider to “100”, you will obtain a full 90 percent response when the stick is moved that far from center. If you prefer, you can enter numerical values for the slider-bar tunings by typing a percentage value in the small field at the bottom of each slider

Deadband: Beneath the vertical sliders is a horizontal slider labeled *Deadband*. This controls the amount of dead space (no feedback to or from the joystick) when its pitch, roll, and yaw controls are in neutral—when you are exerting no pressure on the stick on any axis. Again, the default setting should work fine, but some sticks are especially sensitive in their neutral positions, and others do not center as precisely as you might wish. Increasing the deadband along any bothersome axis may correct this little problem.

Damper: The *Damper* setting mutes those occasional spikes of over-eager response, when the joystick tells the plane to move a bit more abruptly than you would like. The *Damper* setting samples those spikes and averages them out, giving a smoother ride with joysticks that seem to jump.

Whether you use these advanced settings or the one-size-fits-all configuration provided through Windows, always remember to press **F12** before take-off to center your joystick according to the settings you have made.

Customizing Your Gun Sights

(Really, really, technical stuff!)

Some pilots believe that mastering tricky deflection shots gives them an edge in combat, and customizing your gun sight can improve accuracy with this.

It also allows you to add range-marks to your sight's horizontal bars. If you set those tic-marks for, say, 200 yards, and you close on an enemy plane until its wingspan fills the distance between those marks on your sight, you know you are about 200 yards away. This is important in some special events, where enemy planes are displayed—for maximum realism—with limited range data on the screen. Some players also use this process to establish torpedo-range marks on the outer edge of their screen, and use them as the default sighting device whenever they plan to fly a mission against enemy ships.

This is how you do it:

You need to specify a custom sight for each type of aircraft you plan to fly; otherwise, they game defaults to the standard cross-hair reticule.

Custom gun sights are defined as text files which are named with the same convention used to identify each plane's art files, using a .gst extension (for gun sight). Thus, a file labeled P381.gst identifies a customized P-38 gun sight in a graphic resolution of 640, while a file labeled p383.gst identifies a customized P-38 sight in 1024 resolution.

By placing in your directory files labeled P381.gst or p383.gst, you are creating custom gun sights at resolutions of 640 and 1024, respectively. All planes that do not have specific custom gun sight files attached to them use the defaults: the ordinary cross-hair reticule.

Definition of File Syntax

The gun sight file is an ordinary text file. The first line of data in a Gun sight file specifies the total number of line segments to be defined. Each line of numbers thereafter defines a segment along the X and Y coordinates, with (0,0) being the center of your screen.

NOTE: You cannot define line-segments of zero length. If you want to define a single pixel dot, you must define a segment one unit in length. For example, to make a reticule consisting of one pixel dot centered in the sight, define the line as: (0,0,0,1) or (0,0,1,0).

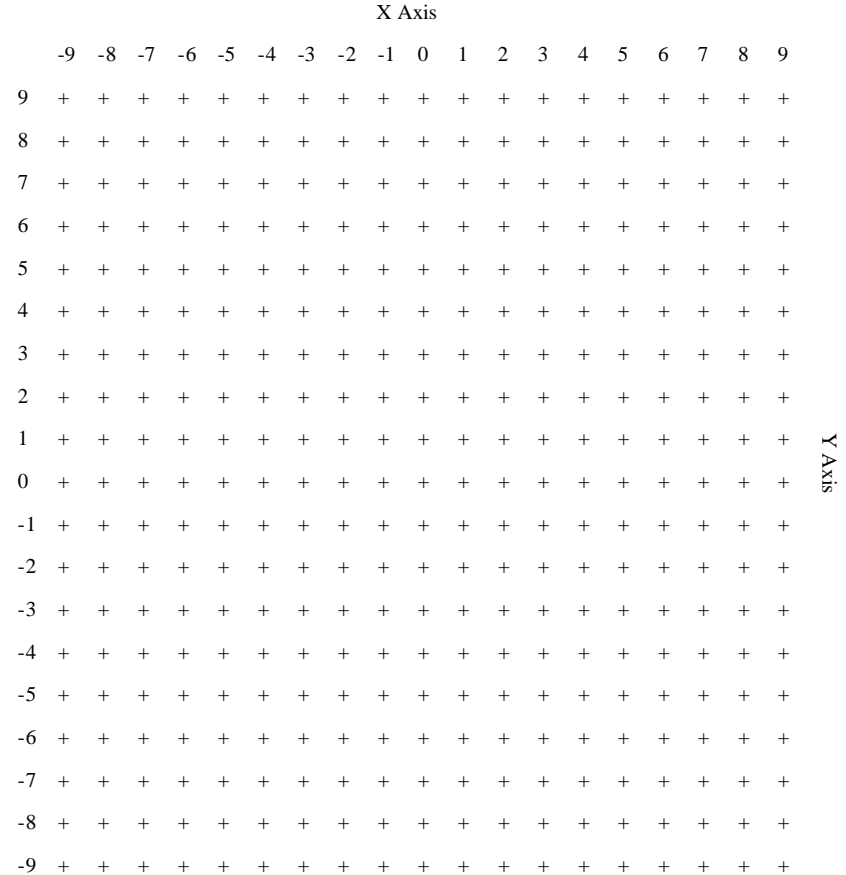
The first line in your gun sight file specifies the number of line-segment definitions in that file. For example, if you customize a gun sight to add those extra 200 yard range marks we spoke of. The first line of numbers specifies that the reticule is composed of six line-segments; the next four lines define the cross-hairs; the last two lines define the small vertical tic-marks.

This particular gun sight file would look like this:

6
4, 0, 18, 0
-17, 0, -3, 0
0, 4, 0, 18
0, -17, 0, -3
12, 2, 12, -1
-12, 2, -12, -1

To see this reticule in action, copy these lines into a text file, and save it as defgst1.gst or defgst3.gst, depending on the graphic resolution you are running, then move the file into your *WarBirds* directory.

The grid you are using to find the (X,Y) coordinates that you want to use for the lines that define your gun sight looks like this:



NOTE: 9 or -9 is not the limit of how far you can draw a line from (0,0). The actual limit is determined by your screen resolution setting. For example, with a resolution setting of 640 x 480, you could go up to 240 pixels, or down to -240 pixels, as you move away from (0,0).

Let us illustrate this by looking at the default gun sight that comes with every plane in the game. Think of each coordinate as a pixel address where the lines begin and end:

4
0, 5, 0, 18
0, -5, 0, -18
-18, 0, -5, 0
5, 0, 18, 0

Line by line, the data breaks down as follows:

- 4 Number of lines of coordinates which need to be read.
- 0, 5, 0, 18 Coordinates in (X,Y) where (0,5) are the starting coordinates and (0,18) are the ending coordinates of the top line.
- 0, -5, 0, -18 Coordinates in (X,Y) where (0,-5) are the starting coordinates and (0,-18) are the ending coordinates of the bottom line.
- -18, 0, -5, 0 Coordinates in (X,Y) where (18,0) are the starting coordinates and (-5, 0) are the ending coordinates of the left line.
- 5, 0, 18, 0 Coordinates in (X,Y) where (5,0) are the starting coordinates and (18,0) are the ending coordinates of the right line.

You can take this process as far as you want, even out to the edge of the screen to create some of those customized torpedo-aiming marks.

Voice Communications

Hardware Requirements:

The only additional hardware required to use voice comms is a microphone configured for use with Windows 95.

Using Voice Comms in the *WarBirds Online* Arenas



Using the Voice window:

Type the callsigns of the players you wish to talk to in the blank fields at the top of the window. Up to 3 may be entered. Click *Apply* to accept the current callsigns without closing the Voice window; click *Cancel* to cancel any selections and close the Voice window; click *OK* to accept the current callsigns and close the Voice window.

The bottom part of the window is used when another player requests voice comms with you. Their callsign is displayed in the box. Click *Accept* to accept or *Squelch* to decline.

Select *Manual* to stop the window opening each time someone requests voice comms with you. If someone requests voice comms while in *Manual* is lit, the *Voice* indicator blinks and a message appears in the radio display.

Press and hold *Insert* to transmit.

Comm List

Keyboard Controls

Engine Controls

Engine Start/Stop	E
Select all Engines	Shift-E
Select Engine 1	Shift-1
Select Engine 2	Shift-2
Select Engine 3	Shift-3
Select Engine 4	Shift-4
Kill/Start Engine 1	Alt-1
Kill/Start Engine 2	Alt-2
Kill/Start Engine 3	Alt-3
Kill/Start Engine 4	Alt-4
Throttle Up	=
Throttle Down	-
Full Throttle	0 (zero)
War Emergency Power (WEP)	F10
Engine Idle	1

Aircraft Controls

Left Rudder	A
Right Rudder	D
Center Rudder	S
Center Joystick	F12
Gear up/down	G
Wheel Brakes	Spacebar

Flaps Down 1 notch.....	Q
Flaps Full Down	Shift-Q
Flaps Up 1 notch	W
Flaps Full Up.....	Shift-W
Dive Brakes toggle (if applicable).....	V
Autotrim Level	X
Autotrim Speed	Shift-X
Autotrim Angle	Ctrl-X
Elevator trim up.....	K
Elevator trim down	I
Rudder trim left.....	J
Rudder trim right.....	L
Aileron trim right	,
Aileron trim left.....	M
Eject.....	Enter Enter Enter (quickly)

View Keys (keypad)

Forward	8
Left	4
Right	6
Back.....	2
Up	5
Forward/Right.....	.9 or 8-6
Forward/Left7 or 8-4
Forward/Up	8-5
Right/Up	6-5
Left/Up	4-5
Right/Rear3 or 6-2
Left/Rear1 or 4-2
Rear/Up	5-2

Miscellaneous

External View toggle (uncrewed bombers only)	Alt-V
Map View toggle	F1
Zoom In (map/external view)	[
Zoom Out (map/external view)]
Icon Toggle	F2
Expand or Shrink text Window	Tab
Move Text Window	F3
Ground Clutter on or off	F11
View Range cycle	Alt-R
Show or Hide aircraft debris	Alt-N
Take Screenshots)	Alt-S.
Show Frame Rate	Alt-P
Switch to Mouse Control	Alt-M
Toggle Sky texture (D3D only)	Alt-K
Toggle Horizon texture (D3D only)	Alt-H

Gunner Keys

Jump to Observer position:	1
Jump to Tail Gun position:	2
Jump to Nose Gun position:	3
Jump to Left Gun position:	4
Jump to Right Gun position:	5
Jump to Top Gun position:	6
Jump to Bottom Gun position:	7

Level Bombing Commands and Keys

Open/Close Bomb bay	O
Bombardier	Y
Bombsight(keypad) 2
Drop Bombs	B
Pickle toggle	F9
Bombsight increase magnification	[
Bombsight decrease magnification]

Host Commands

All host commands are preceded by a "." (period). Some host commands can be issued in flight via the radio, others can only be issued when on the ground, in the Control Tower.

If the radio entry bar (light grey) is not visible at the bottom of the screen, press / once to activate it before issuing a host command.

.help	Shows a listing of available host commands.
.roster	Shows a listing of players currently online.
.fields	Shows a listing of the available fields and current ownership.
.score xxxxxx	Shows a players score. Replace xxxxxx with the player's callsign.
.rank	Displays the top 100 pilots (updated daily).
.clear	Resets your score.
.squad callsign	Info about a squadron.
.fuel xxx	Sets fuel level for your plane. Replace xxxwith percentage of full load preferred.
.conv xxx	Sets gun convergence distance. Replace xxx with preferred distance in yards.
.ord [0-3]	Loads ordnance set 0, 1, 2, or 3 typing the <.ord> command without a number lists the available loadouts for the currently selected plane.

- .move [f,b,g] XX Move to the field, briefing room, or general room of your choice. You can only move to fields owned by your country. XX can be any valid field number, or 1-7 for general and briefing rooms. <.move hq> moves to headquarters.
- .country [1-4] Choose a country.
- .fly To the runway...
- .e Exit plane (must be on ground and stopped when online).
- .exit Leave the *WarBirds* arena, or quit the program if offline. (must be in tower).
- .invite xxxxxx Invites player with to join your squadron; replace xxxxxx with player's callsign (squad leaders only).
- .jsquad Accepts a squadron invitation.
- .withdraw Withdraw from your squadron.
- .name Names the squadron (squad leaders only).
- .slogan Assigns or changes the squadron motto (squad leaders only).
- .remove xxxxxx Removes a player from your squadron; replace xxxxxx with player's callsign (squad leaders only).
- .disband Disbands the squadron (leaders only).

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