Dawn of Aces Manual

18th November 1999

Questions or Problems

If you have difficulties with this game and cannot find the solution in this manual, please call our Technical Support Line at (919) 461-0948, 9 a.m. to midnight EST Monday through Friday and noon to 3 a.m. at the weekend, and a member of our support staff will assist you. We will be best able to help you if you are at your computer when you call.

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

Email: techsupport@iencentral.com

Web: http://www.iencentral.com/warbirds

Contents

Introduction

Dawn of Aces is a mega multiplayer simulation of WWI air combat based on iEN's successful *WarBirds* game engine.

In 1914, merely 11 years after the Wright brothers made their first flight at Kittyhawk, the world plunged into war. As the conflict in Europe ground towards a year-long stalemate in the trenches, aviation became one of the primary means of seeing beyond the enemy's front and of carrying the battle past the desolation of No Man's Land.

The task of these early pilots was to scout enemy positions, spot for artillery, carry out light bombing, and to deny the use of the air to the enemy for those same purposes.

At the start of the war, unarmed planes simply carried a pilot and an observer aloft on scouting flights. When enemy aircraft passed each other nothing more than a wave was exchanged. However, it was not long before pilots started bringing rifles to fire at enemy aircraft. These evolved into machine gun mounts for the observer, and then to single seat planes with machine guns mounted above or to the side of the propeller and, finally, to synchronized machine guns firing through the propeller of the ever more advanced aircraft designs. The fighter plane was born.

WWI has been called the first modern war, because of the introduction of weapons such as the machine gun, tank, and airplane. The pace of technology, especially in the air, was often the deciding factor in battle. First one side and then the other attained a superior level of technology with which to overpower the enemy.

The average life span of a pilot at the front was woefully short. The aircraft were fragile, often experimental, and the pilots lacked useful devices such as parachutes. Although many accounts recall the chivalry of the air, the war for the skies was a brutal and unforgiving business. Surviving and succeeding called for skill, daring, and no small measure of luck.

The combatants were strict in awarding credit for downing an enemy plane. Such a kill had to have been seen or confirmed by an independent observer. Obviously, such confirmations were lacking if the victory happened to take place over enemy territory. A pilot who managed to down five enemy aircraft came to be known as an Ace. These men were famous on both sides of the lines, and celebrated as heroes.

In *Dawn of Aces*, you can fly both the Allied and Central powers aircraft, and your mission is to actively seek out and shoot the enemy from the sky. If successful, you gain awards, rank, and perhaps fame in the international community of pilots in this mega multiplayer game.

If you fail...well...you have an advantage over famous Aces such as Richthofen, Lufbery, Fonck, Ball, Udet, Mannock, Voss, and Rickenbacker...because you can just hit *Fly* again.

Enjoy!

Welcome to Online Flying

It is Easy to Get Started

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.
- 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.

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. 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. However, as more and more non-techie individuals have become

comfortable with the Internet, with email, with large commercial services and their user-friendly procedures, every aspect of online gaming has become 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 iEN, understand any hesitations, but we are so convinced that you will *love* playing *Dawn of Aces* online, that we are dedicated to making your initiation as easy and hassle free as possible.

We Never Close

Always bear in mind that 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. Almost everybody needs advice from time to time, especially if you are a newbie (newcomer).

Dawn of Aces is supported by a large, well-trained staff of expert support personnel. They are always glad to answer any questions you may have.

Help is available in several languages and from several sources.

- **iEN's Technical Support:** Dial (919) 461-0948. 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.
- **iEN's Web Site:** Reach iEN's Web page at <http://www.iencentral.com/warbirds> by selecting *Web Page* from the Main menu. There is a lot of additional information accessible from there.
- **By Email:** Send email inquiries to <techsupport@iencentral.com>. It is very easy to send a question, and you usually receive an authoritative answer very quickly.
- **Documentation:** *Dawn of Aces* has a detailed reference guide, laid out for easy access to whatever information you are looking for. Simply click *Help* whenever you are in the Tower to display the help documentation.

Dawn of Aces fans are an 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 fliers are comrades at heart.

Getting Started

For all its rich texture and vast scope, *Dawn of Aces* 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 quite modest.

System Requirements

Minimum Requirements

- Microsoft Windows 95 or above with 100% compatible DirectX drivers.
- A Pentium 133 or faster (Pentium 200 if playing with a D3D compatible 3D accelerator card).
- 16 MB RAM (32MB for the accelerated graphics version)
- 55 MB free space on your hard drive (123 MB if using the highest graphic resolution—1024 x 768).
- A joystick (you can use a mouse to fly, but it is not recommended).
- A Windows compatible sound card and drivers.
- DirectX video card with 1 MB for 640 x 480 play, with 2MB if playing with a D3D compatible 3D accelerator card, and at least 3 MB for 1024 x 768 play with a D3D compatible 3D accelerator card.
- A modem with 19200 bauds. (Only necessary for network play.)
- An Internet connection and ISP account. (Only necessary for playing online.)

Recommended Requirements for Added Enhancement

- For accelerated 3D graphics, we recommend Voodoo 1 and 2 chip sets. Riva 128 (Nvidia), Permedia 2 and Intel I-740 are also supported.
- A "virtual cockpit" rig. A fancy joystick with lots of programmable buttons, a throttle controller and foot pedals to control the rudder. This dramatically increases the illusion of being in a real cockpit.
- A hi-fi speaker system (or headset). Another aid to greater realism, especially if it has a subwoofer, so you can feel the engine's roar in the pit of your stomach.
- A "force feedback" joystick. The joystick senses the force and inertia of any move made, and transmits feelings of weight, torque, and G-force that simulate what you would feel at the controls of a real plane. Lots of players swear by them, but just as many swear *at* them.
- A Windows 95 or above configured microphone for voice communications using MEGAvoice.

Macintosh System Requirement

- PowerPC based Macintosh or compatible computer.
- Apple's MacOS version 7.5.3 or higher.
- 32 MB physical RAM.
- Monitor capable of displaying Thousands of Colors at 640 / 480.
- Mouse and keyboard.
- A flight control system consisting of a joystick, throttle, and rudder pedals is recommended.
- OpenTransport configuration of the Mac (network play only).
- An Internet connection and ISP account. (Only necessary for playing online).

Installation

Before installing *Dawn of Aces*, please close all other applications that may be running. After installation is complete, restart the computer so that all the new settings can take effect.

Download *Dawn of Aces* from the iEN Web site.

1. Go to <http://www.iencentral.com/warbirds> and select the *Downloads* option in the Getting Started section.
2. Select *For Windows* or *For the Mac*, as appropriate for your operating system.
3. Select *.*.* *Full xx MB*, where *.*.* is the version number, and xx is the size of the file.
4. The Save As... dialog box is displayed. Save the file onto your computer.
5. Locate the file, double-click on it, and then follow the onscreen instructions. All the components you need to play are installed, including DirectX.

If you only need to update *Dawn of Aces*, select *.*.* *Patch xx MB* in step 3.

Run *Dawn of Aces* by selecting the *Start menu*, then *Programs*, then *iEntertainment Network*, then *Dawn of Aces* and, finally, click on *Dawn of Aces*.

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

The first time the game is launched, select a display driver from the list that is displayed. If you have a 2D or AGP card, select *Primary Display device*. If you have 3D on separate cards, select that 3D card.

iLZ

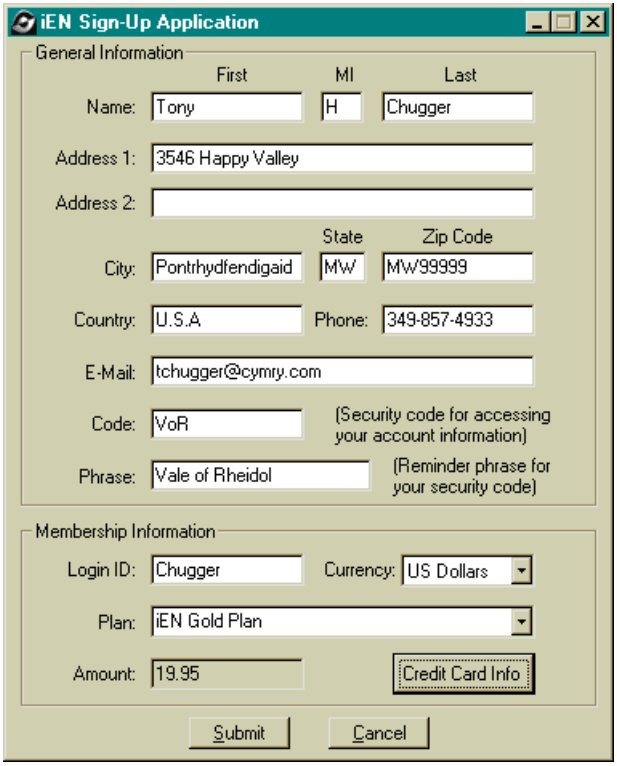
The iLZ kernel, which is the lobby where *Dawn of Aces* players enter the online arenas to fly against others over the Internet, is installed along with the *Dawn of Aces* application.

However, should you have problems running iLZ or connecting via iLZ, download and install the latest version from <http://www.iencentral.com>. Select *Downloads* from the iEN Web site, and then select *Download* in the iLZ section. You should uninstall the old software before installing the new.

Sign-Up for iEN

You need to have an account with iEN to fly online. Creating an account with iEN is easy. Hours are charged at the assigned monthly or hourly rates, listed on the iEN Web site at <http:\\www.iencentral.com>. Select *Join Now* and then *Price Plans* to view the current rates.

Select *Start*, *Programs*, *iEntertainment Network*, and then *iEN Sign-Up*. The iEN Sign-Up Application screen is displayed.



Complete the form then click *Submit*. The form is electronically sent and approved within minutes, usually seconds. The registration requests, among other things, that you assign a *Login ID* and a *Password* to your account. Keep a note of these, as when you access a game online, you need to enter them.

Other Ways of Creating an Account

On the Web: Go to <http://www.iencentral.com> by selecting *Web Page* from the *Dawn of Aces* Main menu, and then select *Join Now*, and then select *Premium Account*.

By Phone: Open an account by calling iEN. Just dial (919) 461-0948.

Plans

There are four possible plans to sign-up for when joining iEN, but only silver, gold and platinum give access to the *Dawn of Aces* server.

Free: This plan lets you enjoy all the Web/Java based games (*Bingo, Blackjack, Video Slots, Video Poker* and *Roulette*), in addition to many titles such as *Empire Builder, Minion Hunter, Backgammon, Checkers, Chess,* IPX based games and many others.

Silver: $9.95 (£6.25) per month gives you access to all iEN games, including unlimited access to the premium versions of the *Kingdom of Drakkar,* and *WarBirds Air Combat* and *Dawn of Aces*. The hourly rate for *WarBirds* is $2.00 (£1.25), regardless of hours played. $9.95 (£6.25) is applied to your account as a credit toward hourly charged play of *WarBirds*.

Gold: $19.95 (£12.50) per month gives you access to all iEN games, including unlimited access to the premium versions of the *Kingdom of Drakkar, WarBirds Air Combat,* and *Dawn of Aces*. The hourly rate for *WarBirds* is $1.75 (£1.10), regardless of hours played. $19.95 (£12.50) is applied to your account as a credit toward hourly charged play of *WarBirds*.

Platinum: $29.95 (£18.75) per month gives you access to all iEN games, including unlimited access to the premium versions of the *Kingdom of Drakkar, WarBirds Air Combat,* and *Dawn of Aces.* The hourly rate for *WarBirds* is $1.50 (£0.95), regardless of hours played. $29.95 (£18.75) is applied to your account as a credit toward hourly charged play of *WarBirds.*

NOTE: Prices are correct at the time of going to press but are subject to change.

AT&T WorldNet Service Customers

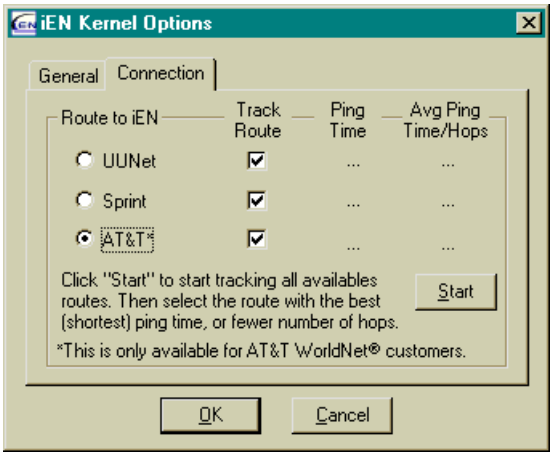
AT&T WorldNet Service customers receive a special deal when they sign-up for the Silver Premium Package.

Silver Premium Package: $4.95 per month. This gives access to all iEN games, including unlimited access to the premium versions of the *Kingdom of Drakkar, WarBirds Air Combat,* and *Dawn of Aces*. The hourly rate for fee paying games is $2.00, regardless of hours played. $9.95 ($4.95 fee + $5.00 credit) is applied to your account as a credit toward hourly charged play of *WarBirds.*

AT&T WorldNet Service

AT& T WorldNet Service customers have their own access to the servers. To establish the connection for *Dawn of Aces*, you must ensure that the iEN Kernel has AT&T selected.

1. Initiate the iEN Kernel by selecting *Start*, *Programs*, *iEntertainment Network*, and then *iEN Log-In*.
2. Right-click on the iEN Kernel icon at the right of the Windows taskbar, next to the clock.
3. Select *Options* from the pop-up menu, and then the Connection tab. The Connection dialog box is displayed.
4. Make sure that AT&T is selected, and click *OK*.
5. Exit the Log In screen, and then start *Dawn of Aces*.



6. Select *Setup* from the Main menu, and then select *Network*.
7. Check the AT&T option, and then click *Apply*.

NOTE: The AT&T connection option is now available to all players, not just AT&T customers.

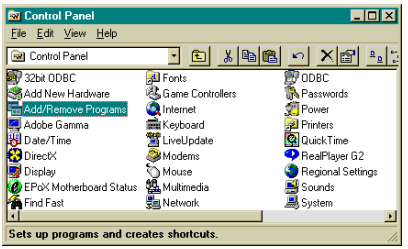
Setting up a Windows Dialup Connection

To play multiplayer games via modem, your modem needs to be installed properly, and then configured to certain optional settings for optimum performance. If necessary, connect and configure your modem following the manufacturer's instructions or the Windows documentation.

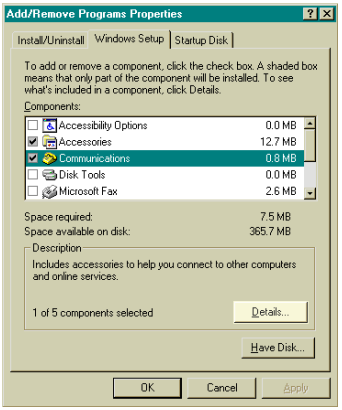
The following steps ensure that you are set up correctly, but check with your Internet Service Provider first, as these are generic settings and may not work with your ISP.

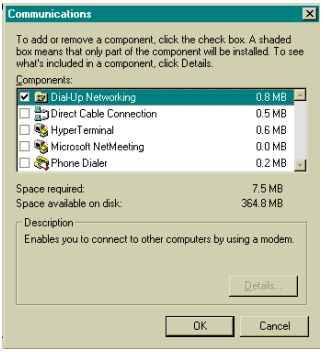
1. Verify that Dial-up Networking is installed.

a. Select the Windows *Start* menu, then select *Settings*, and then *Control Panel*, to open the Control Panel dialog box.



b. Double-click on *Add/remove Programs*. Select the *Windows Setup* tab, then highlight *Communications* and press *Details*.... The Communications dialog box is displayed.





c. Make sure that the *Dial-Up Networking* option has a check in the box to the left of it. If it is, go on to step 2.

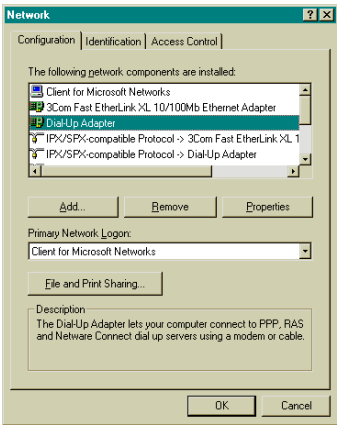
d. If it is not check the box to the left of *Dial-Up Networking* and click *OK*.

e. Select *Have Disc*. You need the modem setup disc or discs for this step—select the appropriate drive, and then follow the onscreen instructions.

f. From the Add/Remove Programs dialog box, click *OK*. This takes you back to the Control Panel dialog box.

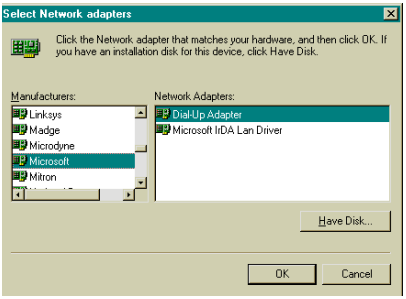
2. Verify that the Dial-Up Adapter and TCP/IP are installed.

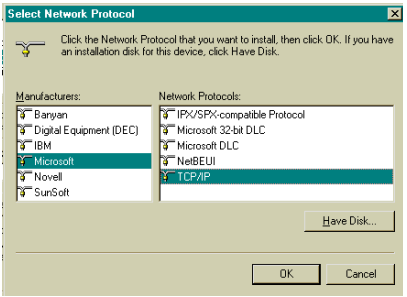
a. Go to the Control Panel dialog box and double-click *Network*. The Network dialog box is displayed.



b. Both *Dial-Up Adapter* and *TCP/IP* should be present under the Configuration tab. If they both are, then proceed to step 3.

c. **If Dial-Up Adapter is not present:** Select *Add...* and then double-click *Adapter*. The Select Network Adapters dialog box is displayed. Scroll down the Manufacturers list and select *Microsoft*. From the Network Adapters list, select *Dial-up Adapter* and click *OK*. Follow the onscreen instructions.





d. **If TCP/IP is not present:** Select *Add...* and double-click *Protocol*. The Select Network Protocol dialog box is displayed. Select *Microsoft* from the Manufacturers list. From the Network Protocols list select *TCP/IP*, and then click *OK*. Follow the onscreen instructions.

e. Now your Network dialog box should list both *Dial-Up Adapter* and *TCP/IP*.

f. Select *Dial-Up Adapter* and click *Properties...* Select *Bindings*, and make sure *TCP/IP* is checked. You are now ready to proceed to step 3.

g. When the System Settings Change dialog box appears, select *Yes* to restart the computer and allow the changes to occur.

3. Create the connection.

a. Double-click on the *My Computer* on the Windows desktop and then double-click *Dial-Up Networking.*

b. Double-click *Make New Connection*.

c. Type your Internet Service Provider's name in the *name for the computer you are dialing* field. Click *Configure*.

d. Under the General section, set the speed to the 19200 baud rate. Do *not* check *Only Connect at This Speed*. Your modem should have been automatically configured by Windows.

e. Under the Connection section, set the preferences to:

- Data Bits: 8
- Parity: none
- Stop bits: 1

f. Under the Options section, uncheck *Display Modem Status*.

g. Click *OK* and then click *Next>*. Enter the phone number that you use to dial in to your ISP. If you have call waiting add ***70,** (including the comma) to the beginning. This temporarily disables call waiting.

h. Click *Next>*, and then *Finish.* The new *Dial-Up* icon is created.

i. Right-click on this *Dial-Up* icon, and then select *Properties*. Click *Server Type*, and then set *Type of Dial-Up Server* to *PPP, Windows 95, Windows NT, 3.5, Internet*.

j. Under the Advanced Options section, only *Log on to Network* should be checked.

k. Under the Allowed Protocols section, only *TCP/IP* should be checked.

l. Contact your Internet Service Provider for the proper TCP/IP settings and DNS numbers.

m. Click *OK* to return to the Windows desktop, and you are now ready to connect.

NOTE: You should always contact your Internet Service Provider for settings specific to their service.

Optimize your Connection

To get the best PPP connection to iEN, you need to change some of the default settings that Windows Dial-Up Networking selects. Windows sets up the Dial-Up connection's properties to optimize high speed file transfers and web browsing—applications which stress bandwidth and data transfer rate.

Dawn of Aces communications do not require a huge bandwidth, but rely more upon quickness of response and lower data rates.

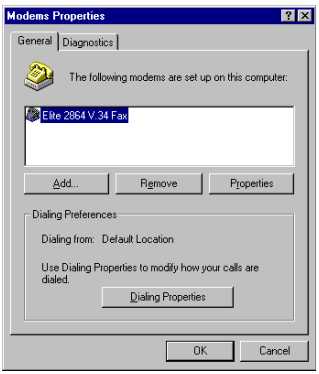
We recommend making a separate Dial-Up connection for *Dawn of Aces* use, rather than adjusting the properties of your existing connection every time you want to play.

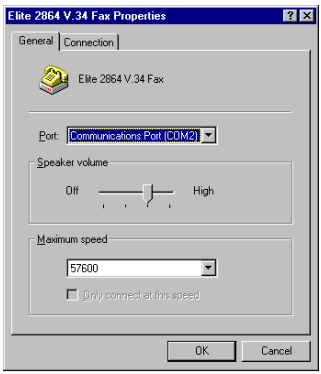
Create a New Dial-Up Connection

1. Double-click on the *My Computer* on the Windows desktop and then double-click *Dial-Up Networking.*
2. Double-click *Make New Connection*.
3. Follow the prompts to create the connection, then once it's made, copy all of your TCP/IP settings to it from your existing Dial Up connection. For details see "Setting up a Windows Dialup Connection" on page 17.

Optimize the New Connection

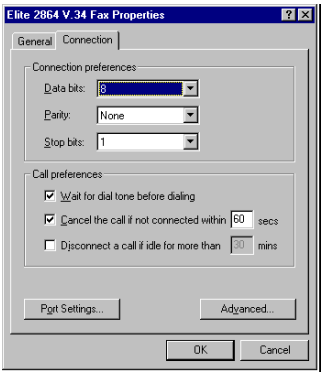
1. Open the Control Panel by clicking the Windows *Start* menu, then select *Settings*, and then *Control Panel.*
2. Double-click *Modems* to display the Modem Properties window.

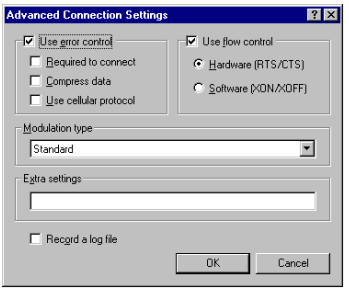




3. Select the modem whose settings you want to change.

4. Select *Properties*, the Properties window for the selected modem is displayed. Lower the maximum speed to 38400 or 19200—try it both ways as results can vary.
5. Next, select *Connection*, and then *Port Settings...* Make sure that *Use FIFO Buffers* is checked, then move both sliders one or two notches to the left from their default positions. Again, results may vary. iEN currently recommends setting both sliders to the one notch to the right from the left. Click *OK*.





6. Select *Advanced*.
7. Make sure that *Use flow control* is checked, and that *Hardware (RTS-CTS)* is selected.
8. Make sure that *Use error control* is *unchecked*. 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) *Compress Data*.
9. Select *OK* to return to the Properties window and apply the new settings, and then select *OK*.
10. Next, select *Server Types*. All three of the *Advanced Options* should be *unchecked*. TCP/IP should be the only *Allowed Protocol* checked. Select *TCP/IP settings*, and check that your DNS numbers are correct. (Check the existing settings or contact your Internet Service Provider.)
11. Make sure that *IP header compression* and *Default Gateway* are both checked. Click *OK* and then *OK* again. Your connection should be ready to go!

NOTE: If you still experience problems with these recommended settings, please contact iEN's tech support at (919) 461-0948, 9 am to midnight EST Monday through Friday, and noon to 3 am at the weekend, or via email to techsupport@iencentral.com

Joystick Configuration

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

Quick and Easy Joystick Configuration

1. From the Windows desktop, click *Start.*
2. Highlight *Settings*, then click *Control Panel*.
3. Double-click on *Game Controllers*.
4. Your joystick is listed (assuming it is connected and the software that came with it has been loaded...), and highlighted.
5. Click *Properties.* If you have foot pedals that control the rudder, check the box next to that option; otherwise leave it blank.
6. 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.
7. 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 mission release all controls, and then press **F12** to center the joystick and ensure precise control.

Complex Joystick Configuration

For most players, the Windows 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 played for a lot of hours, 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. Change the joystick settings using the Stick screen (see page 101), the Stick Force screen (see page 106), and the Joystick Mapper screen (see page 107).

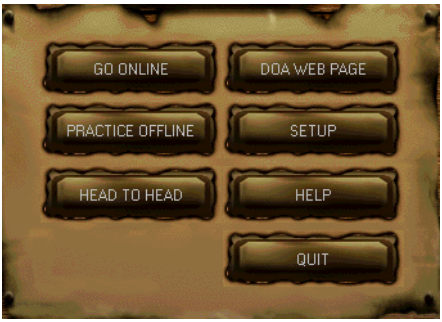
Beginning a Game

Welcome to an amazing flight simulation set in WWI. You can fly one of the practice missions—there are up to three settings of difficulty in each one, so a newbie can practice shooting sitting ducks, and the experienced pilots can have a far greater challenge at Ace level—or experience the thrill of flying online against other players.

Learn to rely on your wits, flying ability, and gunnery skills. As it was during the world wars, there are no aids such as radar for spotting your foes, all that stands between you and destruction is a wing and a prayer.

To begin a game, from the Windows desktop select *Start*, then *Programs*, then *iEntertainment Network*, then *Dawn of Aces*, then choose to play the 2D version by selecting *Dawn of Aces*, or the 3D version by selecting *Dawn of Aces (Direct 3D)*.

Exit the rolling credits screen by pressing **Esc** or clicking. The Main menu is displayed.



Main Menu

Going Online

To go online you need an Internet connection and an Internet service provider, such as AT&T Network Services (see page 15).

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 already done so, create an account with iEN (see "Sign-Up for iEN" on page 14).

To fly online:

1. Start *Dawn of Aces*.
2. Click *Go Online*. The iEN Log-In menu is displayed.
3. Enter your *Login ID* and *Password*, and then click *Log In*.

   If you have checked Save Password, you do not need to enter the password each time you login. If you have checked Auto-Login on this screen, login occurs automatically.

4. The iLZ lobby opens, with the Arenas for the game listed, as applicable.
5. View the current occupants of an Arena by selecting the plus button to the left of the Arena name.
6. To enter into the fray, double-click on the Arena name.
7. The first time you play online, you are asked to enter your six-character callsign—this is the label by which you are identified within the game. To change your callsign at a later date, contact iEN staff, see page 10.
8. From the Tower, select a plane, a country and an airfield (see page 29). When selecting an airfield, look at the map and make a mental note of where most of the action is.
9. Once you are airborne (and assuming there is not a dogfight going on directly over the air base), set a course for the action. When you arrive there, scan the skies as a real pilot would, in order to spot both friend and foe.

Remember: Each plane you spot has a label identifying it and a range number telling you its distance away in hundreds of yards.

10. 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 in the Radio Bar. 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. 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 84).
11. 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 squadron. *Dawn of Aces* is entirely open-ended—once you start flying, your actions are yours to determine.

NOTE: If you have loaded the GameHub software, it is possible that you will be taken to the GameHub center. If this happens, exit that application and when you reach step 2, right-click on the iEN Kernel icon on the Taskbar and select *Options*. Ensure that the iEN Launch Zone option is selected, then click *OK*, and then proceed to step 3.

NOTE: The iLZ and *Dawn of Aces* software updates automatically if the version you are running is out of date. However, if you have problems running or downloading either iLZ or *Dawn of Aces*, go to <http://www.iencentral.com> and download the software from the Download page.

A Note on Netiquette

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). However, human nature being what it is you may sometimes encounter someone who gloats over your defeats, brags about their prowess, or broadcasts insulting remarks. If this pattern of ill-mannered behavior persists, the Host admonishes the offender, and the more civilized pilots shun them.

Finally, you do not have to worry about an enemy pilot joining and posing as a "friendly" and then suddenly turning on you. There is an ingenious safe-guard against such treachery—any attempts to fire on a friendly plane, are deflected back to the offender's aircraft, so they shoot themselves.

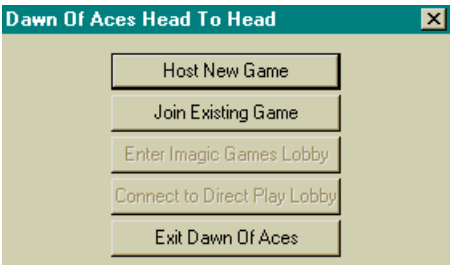
Practice Offline

Practicing offline allows you to evaluate the various plane types in a variety of missions, with up to three levels of difficulty each. Choose whether to practice take off and landing, whether to become embroiled in a dogfight or to follow a formation and pick enemies off one by one.

Select *Practice Offline* from the Main menu to open the Mission screen in the Tower. See page 47 for full details of the offline options.

Head to Head

Head to head play allows you to experience the thrill of pitting your wits against a human player without the crowds that you meet online. Head to head play also has the added bonus of costing nothing.



1. Select *Head to Head* from the Main menu, the Head to Head menu is displayed.
2. Choose whether to *Host New Game*, or if you have arranged to join another game, *Join Existing Game*.
3. The *Select Connection* dialog box is displayed. Select *TCP/IP* to play via an Internet connection. Select *Direct Play* to play using IPX, Modem, or a direct serial connection. Follow the onscreen instructions.
4. When all selections have been made, the socket opens and the Tower screen is displayed with the beacon lit, indicating a connection is open, if green or closed if red.
5. The host can change the game play setting by making selections from the H2H screen (see page 104). Both players should enter a callsign on this screen.

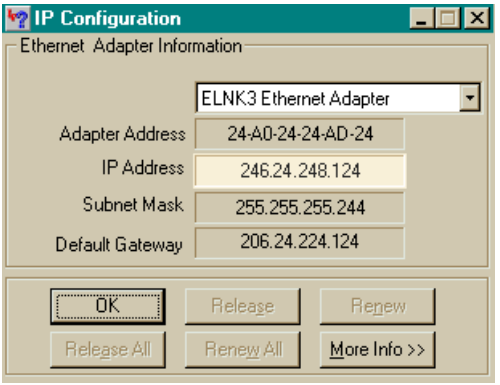
NOTE: Settings for easy flight and blackouts on the H2H screen override settings for the same parameters in the Flight screen.

TCP/IP

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

Determining Your IP Address: The host needs to determine the IP address that their service provider has assigned.

1. From the Windows desktop, click on the Windows *Start* button and select *Run*.
2. Type **winipcfg** in the *Open:* field.
3. Press the **Enter** key, or click *OK*. The IP address is displayed as four numbers separated by periods.
4. Email the IP address to the other player (who should be waiting for this information).



NOTE: If there is no address displayed in the IP Configuration box, contact your Internet service provider to find out what it is.

Direct Play

IPX

Selecting IPX searches your LAN for a hosting machine to which it connects, or if there is no hosting machine, it creates a socket.

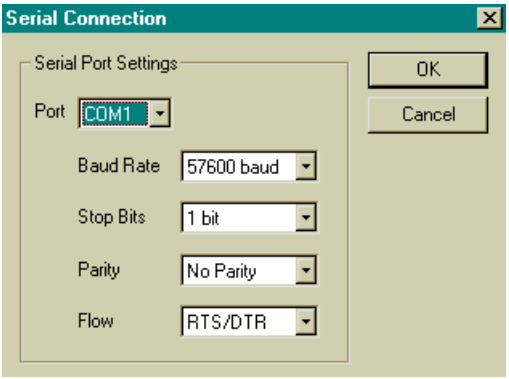
Modem

Modem play requires the client to enter the phone number of the host to connect via modem. See also "Optimize your Connection" on page 20.

Direct Serial Link

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

When the Serial Connection screen is displayed, make the appropriate selections, and then select *OK*.



Web Page

iEN has a *Dawn of Aces* and *WarBirds* Web site. Select *DOA Web Page* from the Main menu.

The Web site gives access to updates to the program, and links to additional information regarding the game.

Any special events or competitions are posted here and the Newsgroup provides an environment for sharing ideas, arranging times for playing and for bragging about your victories—if you think you can get away with it!

Setup

Use the setup screens to set the game options by selecting *Setup*. For full details regarding the Setup screens see page 101. A few of the screens—Stick, Flight, Sound, H2H, and Colors—are also accessible from the Tower.

All the screens have *OK*, *Cancel* and *Apply* buttons at the bottom.

- *OK* saves any changes and returns the display to the Main menu.
- *Cancel* returns the settings to what they were when you opened the screen, or to when *Apply* was last selected.
- *Apply* saves the selections made.

Help

Select *Help* from the Main menu to view the in-depth help file, which provides additional information regarding the game.

Flight Preparation

In the Tower

Whether you choose to fly online, offline, or head to head the first place you go is the Tower. This is the opening screen for every *Dawn of Aces* session. Observe the buttons at the top left of the screen. These access functions that allow you to set up a session, to choose which plane you are going to fly, and for which country.

Tower

Fly: When you have chosen your flying preferences, it is time to hit the runway. Select *Fly* to jump into the cockpit and prepare for a magnificent fight (or to die like a dog—your choice).

Select: Click on *Select* to open the selection screens.

- Plane screen, see page 31.
- Field screen, see page 32.
- Squads screen (online only), see page 33.
- Gunner screen (online only), see page 34.
- Score screen (online only), see page 35.
- Game screen (offline only), see page 49.

Setup: Click on *Setup* to access the four setup screens that are available from the Tower.

- Stick screen, see page 101.
- Flight screen, see page 102.
- Sound screen, see page 104.
- H2H screen, see page 104.
- Colors screen, see page 105.

Help: Select to open the *Dawn of Aces* help file.

Quit: Select to exit *Dawn of Aces* and return to the Main menu.

Radio Bar Buttons

Radio: Select *Radio* to open the Radio bar (see page 84).

Voice: Select *Voice* to open the Voice Comms screen (see page 88).

Exit Plane: Select *Exit Plane* to return to the Tower. This is only possible when playing offline, or after landing when playing online.

Key Help: Open the Keyboard reference charts (see also page 95).

Room: Select to display a list of the pilots in the room with you when online. Certain communication channels allow only those in one particular room to hear each other (see "Radio Procedures and Protocols" on page 84).

Roster: Select to display a list of all the pilots online, their callsigns, handles, and current locations.

Page Trainer (online only**):** This button notifies an online trainer that you want assistance, and tunes Radio four to that trainer. Use **Alt** + / and then type in a message to speak to the trainer.

NOTE: You only need to press *Page Trainer* once. If you do not get an immediate response they are probably busy killing somebody. Wait a while to give them a chance to respond.

Selection Screens

From the Tower, click *Select* to open the selection screens. This is where plane types can be studied, the field of battle chosen, scores checked and groups joined together to form squadrons to go enemy hunting en masse.

When playing offline, there are several missions for practice available (see "Missions" on page 49), and only three screens—*Score*, *Gunner,* and *Pilot*—are available.

Plane Screen

The Plane screen is where you select a plane for your next flight. From the Tower, click *Select*, and then select *Plane* to access the Plane screen.

Plane Screen

Planes: There is a drop-down list of the planes that can be flown. Scroll through the list to view the inventory of planes available, and read the brief description about each.

Select the plane you want to fly—the Albatross is particularly forgiving to novices. For a description of each plane select *More Info*.

Fighter: This is the most frequently selected option for aircraft. Indeed for many aircraft it is the only option available.

Bomber: Certain aircraft, such as the LZ30 (Zeppelin) and the Bristol F2B are able to carry bombs. Select the Bomber option to change the loadout to include bombs.

Scout: When available, the Scout selection provides the aircraft with a lighter than usual supply of ammunition, enabling it to be more maneuverable and fast, but without so much fire power. When flying, press **B** to drop Cooper bombs and grenades.

Balloon Hunt: Loading your aircraft with incendiary bullets is an excellent way to prepare for destroying Zeppelins. Incendiaries are designed to light up that big bag of gas.

Fuel: Click on *F* on the fuel gauge to load your aircraft with a full tank of gas, or select the fuel level preferred. An aircraft handles better when carrying less fuel because it is lighter.

Field Screen

The Field screen is where you select the country and starting airfield for your flight.

From the Tower click *Select*, and then select *Field* to access the Field screen, showing a map of the mythical continent over which *Dawn of Aces* campaigns are fought.

Field Screen

Location: In the location drop-down list are all the airfields you can start from. Highlight one of the fields listed to start on that airfield. There are also General rooms, Briefing rooms and your HQ listed. Select one to enter that room.

Select Side: There are three sides to fight for, Red, Purple or Gold. Click on the country to select it. After playing for a while, players normally develop

loyalty to a certain country, until then sign up for any of them. You can only switch country once per ten minutes. Purple is not available when playing online.

Map: The map has a "You Are Here" indicator that moves as you select different airfields. Click on the map to select the airfield nearest to that point. Online, planes already in flight are displayed as colored dots.

NOTE: Once that you have chosen a plane to fly, and a field to takeoff from, you are ready to fly. Select *Fly* from the Tower to go to the airstrip.

Squads Screen

The Squads screen is where Squad Leaders manage their squad, and where players can see who is a member of each squad.

Squads Screen

Forming a Squad

1. Enter a name in the Squad Name field.
2. Enter a motto in the Squad Motto field.
3. Select *Send an Invitation* in the Available Commands list.
4. Type the handle of the player you want to invite in the Player ID field and then click *Invite*.
5. Repeat for each player to be invited.

When the invited player opens the Squads screen, they see the Squad Leader's handle displayed in the Outstanding Invitations list.

Accepting an Invitation

To view any invitations you have been sent, select *Outstanding Invitations* in the Available Commands list. Highlight an invitation, and then select *Accept*. You are now part of that Squad.

Roster

To view the roster of a squad, enter the ID of the Squad Leader in the Squad Lookup field, and then select *Lookup*. Any players in the squad are listed, and the motto is displayed in the Squad Motto field.

The host command <.squad xxxxxx> can also be used to access a Squad's roster, where xxxxxx is the ID of the Squad Leader.

Gunner Screen

The Halberstadt C1 II, Bristol F2B, and LZ30 are the only aircraft that can carry gunners. When flying either of the planes solo, move to the rear gunner position by putting the plane on autotrim **(**X**)**, and then pressing **2**. For details regarding the LZ30, see "Piloting a Zeppelin" on page 53.

The pilot and all gunners and observers must be at the same airfield to join and fly together. Any plane can have another player joining as an observer, but only those with gunner positions can have players join as gunners.

From the Tower, click *Select*, and then select *Gunner*. The Gunner screen is displayed.

Gunner Screen

Players: Select one of the players from the drop-down menu. Only those in the same room as you are listed, and are therefore eligible to join you as a gunner or observer.

Open Gunner Positions: The positions that have not yet been filled are listed.

Requesting to Join: To request to join a plane in a particular position, select that position in this list.

Crew Aboard: The occupant of each position is listed. If a player accepts your invitation, or if you accept their request, they are listed in the *Crew Aboard* list.

Scores Screen

The Scores screen lets you view any player's score, ranking and any medals that have been awarded. Tours last three weeks and at the end of each tour, the scores are cleared. Access the Score screen by clicking *Select* from the Tower, and then selecting *Scores*.

Scores Details

There are several commands available in the Choose Command drop-down list.

Check Pilot Scores: You can view your own, or any other pilot's score, as long as you know their callsign. Enter a callsign in the Pilot ID field, and then select *Scores*. A detailed list of the pilot's statistics is displayed.

Check Squad Scores: To look at the score of a Squad, enter the callsign of the Squad Leader. The numbers are the combined scores of all the members of the squad. Use the *Squad Rankings* command to view the names of the top ten squads.

Check Pilot Medals: View a list of the medals you have been awarded. To view another pilot's medals, enter their callsign and then select *Check pilot medals*. Clicking on a medal displays details regarding the dates that this medal has been awarded—medals are awarded multiple times.

Medals

Show Pilot Rankings: View the top one hundred pilots and their statistics.

Show Squad Rankings: View the top one hundred squads and their statistics.

Show Milestones: Each medal is awarded when a pilot has achieved particular goals.

Scoring

Online, ranks are based on your standing in the overall pilot scores list. Each rank is progressively harder to attain, but you are never demoted. Promotions are awarded at the end of a tour of duty, and are based on scores. A pilot can only be promoted one rank per tour of duty.

Offline, the score box is displayed in the top right corner of your screen. When you are flying, it 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, and for destroying a target. Every round of ammo you use is deducted from your score.

Above and beyond the score modifiers, you have points deducted every time you are hit by enemy fire, so watch out, and avoid being hit! You also receive points for landing successfully, but not so many if you damage your plane on landing. Ditches occurring in enemy territory result in capture.

The current tour is reset and the score cleared once every 3 weeks.

The ranks and medals in *Dawn of Aces* are generic and are not based on a specific country.

Squadron scoring includes both bomber and fighter scoring.

Whenever you fly a plane it counts as a sortie. Any damage done to ground targets goes towards your score.

Scoring: Points are awarded based on kills, assists, and damage done to enemy planes. Each object has its own point value for being destroyed. Attacking a worthless target is pointless. Points are modified according to how your sortie ends. You are captured if you jump and survive, or ditch over enemy territory, and that influences the scoring system. If you land your sortie, you receive full credit. A successful ditch results in two-thirds credit. If you manage to survive jumping out of the aircraft, you receive a half credit. Being captured results in one-third credit, and being killed nets you a quarter credit. Your point total for a sortie is then modified by your kill streak. The longer a kill streak becomes, the more points you are awarded. Streaks end when you are killed or captured. Ditches over friendly territory do not end streaks.

Ranks and Medals

Ranks and medals are awarded to pilots, when they achieve particular milestones. Your rank, medals, and the milestones can be viewed from the Scores screen.

Medals are awarded when the appropriate milestone is reached. Ranks are awarded based on your relative standing within the overall player base, and are awarded at the end of a tour only.

Only one rank can be gained each tour. Once you have gained a rank, you do not lose it, even if your standing falls below the level required to gain it.

Medals

Allied Medal Names	**Central Powers Medal Names**	**Kill Streak**	**Kills per Tour**	**Career Kills**	**Kills per Sortie**
Victoria Cross	*Grand Cross*	150	1000	10000	N/A
Distinguished Flying Cross	*Blue Max*	90	750	7500	12
Military Medal	*Knights Cross*	50	500	5000	10
Military Cross	*Iron Cross 1st Class*	20	250	2500	7
Distinguished Service Cross	*Iron Cross 2nd Class*	10	100	1000	5
Distinguished Service Order	*Pilot's Badge*	5	5	100	3

Ranks

Allied Rank Names	**Central Powers Rank Names**	**Pilot Position**
Colonel	*Oberst*	1
Lieutenant Colonel	*Oberst Leutnant*	5
Major	*Major*	10
Captain	*Hauptmann*	20
Lieutenant	*Oberleutnant*	50
2nd Lieutenant	*Leutnant*	100
Sergeant	*Feldweber*	500
Corporal	*Unteroffizier*	Entry level

Flying and Fighting

You may be in for a surprise when you first jump into the cockpit of an aircraft in *Dawn of Aces*. All of the forces acting on an aircraft are modeled to provide an experience that is much closer to flying an actual aircraft than you might expect. While most pilots of full-scale aircraft will feel right at home in the virtual skies of *Dawn of Aces*, the rest of us can expect to go through a brief period of acclimation. While a thorough explanation of the physics of flight is beyond the scope of this manual, a few easily understood concepts should make the transition from ordinary flight sims to *Dawn of Aces* as painless as possible.

Takeoff and Landing

Once you have made all the game selections you want (see "Beginning a Game" on page 23) and selected an aircraft, a country and an airfield (see "Flight Preparation" on page 29), it is time to hit the runway.

Taking Off

1. From the Tower screen, click *Fly.* (If you are practicing offline, select the Open Arena mission.)
2. You are seated in the cockpit at the end of the airstrip.
3. Release all the controls and press **F12** to center the joystick.
4. Press **E** to start your engine.
5. Rev up the engine to about 75% of its full power—this gives enough power to taxi (if you need a better line up on the airstrip) but not so much that you might lose control. Use a throttle control should you have one, or the = key if you do not.
6. If the plane starts yawing (veering) to one side or the other use the rudder to steer. Use pedal or joystick controls, or press **A (**steer left), **S**

(center), or **D** (steer right) on the keyboard. Use these controls 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. To bypass this effect, press **X** to engage the autotrim.

7. When you are lined up and ready to go, increase the engine power to full by increasing the throttle. The plane starts rolling along the grass, picking up speed. When your airspeed indicator shows 60-70 mph, ease back on the joystick. The plane lifts off.
8. Try to move the stick as gently as possible until you have gained some airspeed and altitude, or your flight will be a short one. Neutralize the rudder by pressing **S**.

Landing

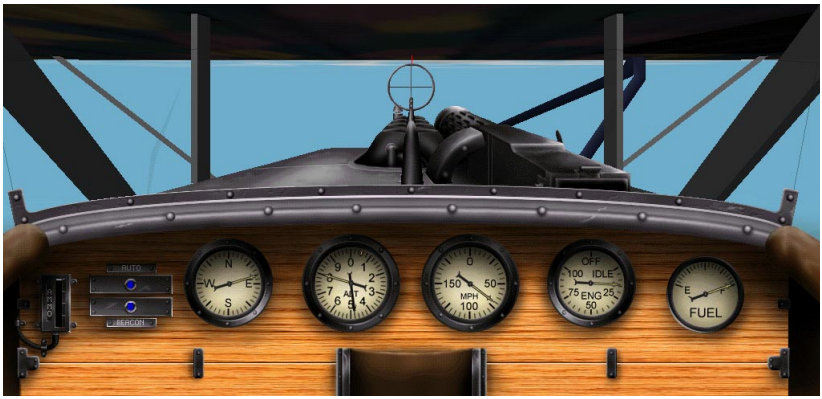
When you have flown around for a while and you are out of bullets or low on fuel it is time to head for home. If you are offline and do not want to practice a realistic landing, press *Exit Plane* at the bottom right of the screen. You are transported back to the Tower. When online, *Exit Plane* only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

To execute a realistic landing:

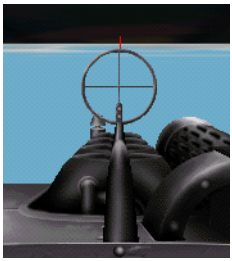
1. Achieve a good approach. That is, find your airfield on the Map (**F1**) and line up your plane with the airfield while you are still several miles away. Your altitude should be between 750 and 1000 feet.
2. Throttle back to an airspeed of about 70 mph. More than that is too fast for a safe landing and less than that you risk stalling and falling out of the sky before reaching the airfield.
3. Approach the airfield in a shallow descent, using the throttle (- and =) and joystick to control your speed and rate of descent. Ideally, you should pass over the beginning of the airfield at an altitude of less than 75 feet, and at a speed of just under 60 mph.
4. Just before touchdown, gently pull back on the joystick, raising the nose just enough for you to see the horizon below your gun sight.
5. When the plane comes to a complete stop, click *Exit Plane* to return to the Tower.

Cockpit Controls

There are several aircraft available in *Dawn of Aces*, each of which has a unique cockpit layout. The same instruments are present in each cockpit, with a few exceptions. When trying out a new aircraft, try performing various maneuvers and observe which instrument changes.



Halberstadt CII Cockpit



Gun Sight

The gun sight is a standard fixed gun sight, without any computing abilities. The center of the sight represents the theoretical line that your gun rounds pass through when your aircraft is under a 1 G load at a range of 300 yards.

The colored dot at the top is the same color as the country you are flying for.

Ammo

The ammo scale indicates the amount of ammunition you have fired and have remaining.

Indicator Lights

There are two indicators present on every aircraft.

Auto: When the autopilot is engaged, this light is lit.

Beacon: The beacon indicates that you are still connected to the iEN server, or to the network when playing head to head.

Compass

The compass, shows the direction in which you are flying. The cardinal directions are indicated with the appropriate letter.

Altimeter

The altimeter displays the altitude above mean sea level (not the height above the ground). The small hand indicates thousands of feet, the long hand hundreds of feet.

Air Speed Indicator

The airspeed indicator displays the aircraft's indicated airspeed.

Tachometer

The tachometer reflects the power setting of the engines. Idle indicates the engine is at flight idle, and 100 percent indicates full power.

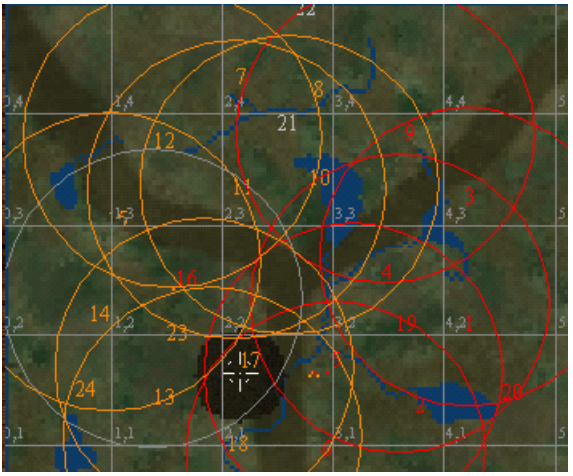
Fuel Gauge

The fuel gauge indicates the percentage of fuel remaining, with F being 100 percent and E being 0 percent.

Finding & Attacking Targets

In combat sessions, you need to refer to the map in the Field screen to locate the action.

1. From the Tower, click *Select*, and then select *Field*.



2. Planes that are in flight are displayed as colored dots. Select an airfield near to the action, and make a mental note of the direction you need to fly in to join in.
3. Select *Fly*, takeoff, and then head in the general direction of the enemy aircraft.
4. When a target comes into view, it is labeled with either a callsign (if friendly) or the plane type (if the enemy). The number beneath the label tells you how far away the target is in hundreds of yards. A good range for firing is 250 yards. 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.
5. When the target is in your sights at 300 yards or less, lead it just a little...now hit the trigger on your joystick and watch the bullets fly. The target flashes. A hit! Good, isn't it?

The Front

Press **F1** to open the map while flying. There is a dark irregular line stretching across it. This is the Front, with its trenches and no-man's land. The front is a dangerous place, with antiaircraft guns and trigger happy soldiers scattered along its length. Fly at higher altitudes when passing over the Front.

Balloons

Near each airfield, there are observation balloons. These act as spotters, providing information on the whereabouts of enemy planes in their area. Destroy the balloons at enemy airfields by firing at the gondola hanging beneath it, or by using incendiary bullets to explode that big bag of gas. Try to avoid being hit be the antiaircraft fire protecting them.

Autopilot Settings

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

Speed mode: Press **Shift** + **X** to put the autopilot in speed mode. The autopilot attempts to maintain the speed of the plane, by climbing or descending, as necessary.

Angle mode: Press **Ctrl** + **X** to instruct the autopilot to maintain the climb or descent angle of the plane at the moment it was engaged. If necessary, the plane descends to gain the speed to maintain an angle of ascent.

Be careful if your plane 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 on occasion seeming to pop up out of nowhere, it is a good idea to look in all directions at regular intervals. To do this, use the View keys.

Press **4** and **6** on the numeric keypad to look left and right respectively. Press **2** to look behind you. Press **5** to 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 **5** *and* **1**, the view is that of taking a quick glance up over your left shoulder. Try out different key combinations to become familiar with looking around. Ideally, it needs to be intuitive as this can mean the difference between victory and defeat.

NOTE: If your joystick has hat switches, use them to look around.

Use the **F2** to toggle the icons labeling the other planes:

- *Arena Default*—Shows the distance in hundreds of yards, and the pilot's callsign if friendly, the plane type if an enemy.
- *Plane Type*—Shows the distance and plane type.
- *Range Only*—Shows only the distance.
- *Off*—Shows no icon at all.

Structural Limits

Keep in mind the effect of structural limits on the air frames. There are two effects here.

Overspeeding

Diving the plane too fast causes it to lose parts as they are torn off by the heavy vibration or wind force. At around 200 mph (the airspeed indicator is pegged when you are going this fast), you experience shuddering and the plane becomes harder to control. To avoid overspeeding, when you begin to feel the plane not responding or shuddering violently, gently pull out of the dive, or throttle back.

Overstressing

Structural failure also occurs when the plane is overstressed by pulling too many Gs. The amount of stress an aircraft can take varies between plane types. Listen out for the sound of metal or fabric straining and bending. This informs you that you are over stressing the plane. Ease up on your controls and throttle to avoid losing important parts of the plane...such as the wings.

NOTE: Practicing offline gives you a good idea as to what the limits are for each plane.

Spin Recovery

Spins happen when one wing stalls and pulls the plane towards the stalled wing. It normally happens when the nose has been pulled or pushed too hard at slow speeds. As this happens, the plane begins to “mush,” and unless you ease up the plane rolls and the nose drops and a fully fledged spin develops. The airspeed drops to below stall speed and the plane rotates quickly along the yaw axis.

Follow these steps until the airspeed picks up again, and the rotation slows down:

1. Full rudder in the opposite direction of the spin by using rudder controls or by pressing **A** (left) or **D** (right).
2. Push (or pull if inverted) the nose towards the ground, to build up speed.
3. If at full throttle, ease off. If at idle, ease power on.

4. Move the stick back and forth to develop a rhythmic swing. The nose moves up and down until it becomes more stable and you can keep it pointed to the ground.
5. If all else fails, crash.

Spins are a lot more dangerous at low altitudes as it takes time to recover. Fly a little less aggressively at very low altitudes to avoid ending up in a spin.

If you recover from a spin too quickly, you can overcorrect and end up in a secondary spin in the other direction. Avoid this by easing up and neutralizing the controls as the plane begins to recover.

If the plane is inverted when you recover, gently correct it. Yanking the controls is a sure recipe for a secondary spin.

Bailing Out

One of the reasons that there was such a high casualty rate among WWI pilots was that there were no parachutes, but if things become too hot in your cockpit, you can jump out of the plane by pressing **Enter** three times. If you are flying low and slowly enough, you may survive the fall. Good luck!

SE5a Lewis Gun

The SE5a has a Lewis Gun mounted above the pilot on the center wing spar.

It has 2 modes:

- Forward firing
- “Up 45”

As a forward firing gun it fires on a trajectory with the fuselage mounted Vickers gun. In “up 45” mode the gun slides back in its track to fire.

Toggle between forward and up 45 modes . . . . . \

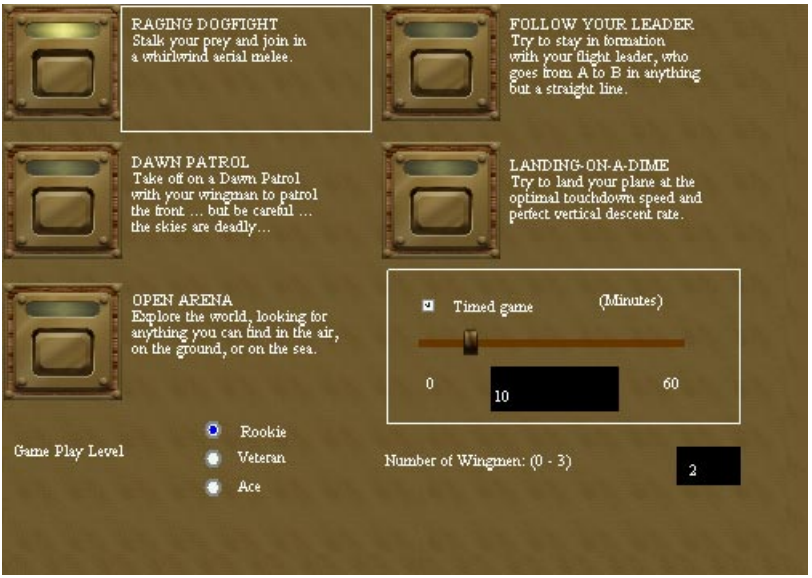
Fire Lewis Gun or drop Cooper bombs . . . . . B

Toggle between Lewis Gun and bombs. . . . . Backspace

Switching between these modes quickly and with minimal disorientation is the key to mastering the SE5a in air to air combat. The pilot of the SE5a carried only two drums of ammo for the Lewis Gun. It is best used against close range targets, when you are sure of your mark so as not to waste valuable ammo.

Practice Offline

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



Game Screen

There are five simple missions available for practice: *Raging Dogfight*, *Dawn Patrol*, *Open Arena*, *Follow Your Leader*, and *Landing-on-a-Dime.* There is also an option for flying the missions with a time limit.

There are up to three levels of difficulty for each mission. Generally, when you select a higher level of difficulty, your plane becomes easier to shoot down, the enemy's becomes harder to shoot down and the enemy becomes more cunning. Up to three wingmen can be chosen to accompany you.

To fly a mission, select the one you want, then choose your plane from the Plane screen, the airfield from the Field screen, and then click *Fly* from the Tower screen (see "Flight Preparation" on page 29).

While in flight, your score is displayed in the top right corner of the screen letting you know how you are doing. In some planes the cockpit art obscures the score display. If you cannot read the score, change the view so that the cockpit frame does not block the display.

Timed Games

There is an 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 slider bar, or type the time in the box.

The mission countdown time is shown under the score counter in the top right corner of the screen, in minutes:seconds. When only ten seconds are left, a message is displayed to warn you.

Becoming good at missions within a time limit helps you play successfully online. If you find a single enemy plane ripe for attack, you need to shoot them down quickly, because you do not know how quickly their friends will show up to help them out.

Options for Offline Play

From the 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).

If the selected mission predefines a setting, it cannot be changed. For example entering a starting altitude of 0 when flying *Raging Dogfight* does not start you on the runway, because the mission starts you in the melee.

For details regarding the offline play selections see "Flight Screen" on page 102.

Offline Missions Compared to the Online Game

The offline missions are excellent for practicing the basics of *Dawn of Aces*, but the actual online game is very different. You can ambush formations over and over offline, and become proficient at hitting the planes, but until you go online you have not experienced the true excitement of *Dawn of Aces*. Online, the fighters are not drones but are piloted by real people. Whereas your self-determined mission in the game might be to shoot them down, their mission is to shoot you down and they are not going to make it easy for you!

Missions

Raging Dogfight

Select how many wingmen you want to accompany you in this scrap.

The fighting begins immediately with a whirligig of enemy and friendly planes all trying to destroy each other. Join in. Have fun!

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 your knowing. When this happens take defensive action, keeping an eye on both the enemy behind you, and the target. After you shake off the enemy, go back and attack the original target.

Fly above the mass of planes, or just above one particular plane, and learn to determine the direction of travel and altitude of your target. Taking a few moments to work this out improves your chances of making a successful attack. Online, diving down onto an enemy plane when you do not know its direction of travel and probable intentions, may put you at a disadvantage in the final showdown. If a plane is coming towards you when you attack, you may end up in a head-on confrontation where your target is approaching fast, and firing. It is no fun to have bullets coming straight at you, not to mention those destructive collisions. Dead pilots cannot brag.

Dawn Patrol

Select how many wingmen you want to accompany you on this patrolling flight.

The fun begins immediately with a diamond formation of drones flying ahead of you.

Try to line up on a drone and shoot it down. Depending on the level of difficulty selected before you started flying, shooting at the drones may have one of three effects:

- They stay in formation and seem to be happy for you to take pot shots.
- They break formation and start evasive maneuvers.
- They engage you and your wingmen in air combat.

Once you have shot down one of the drones, go after another. When all four have been destroyed, the formation reappears in one piece elsewhere.

Use **F2** to switch the icons off or to range only, and try to identify the type of planes around you visually. Practice judging ranges without using the icon. In certain special events online, some icons are unavailable to give a historical feel to the game play.

A drone can still fly with control surfaces shot off, whereas online a plane normally starts to go down with such 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, whereas online the planes do not usually explode, but start spinning and spiraling, diving to the ground.

Open Arena

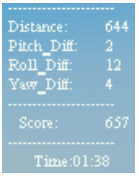
This is the mission for basic flight and reconnaissance practice. Use the arena to test fly new planes and new maneuvers. Learn the flight characteristics of many different types of planes as this knowledge can help you in a dogfight. Try to destroy balloons and ground targets.

When you first fly in *Dawn of Aces*, you will probably become attached to one particular type of aircraft. Try to become familiar with the full range—if only to educate yourself as to what the limits of the enemy craft are. In the Plane screen, see page 31, there is a brief description of the selected plane and additional information available.

Follow the Leader

This mission presents the seemingly simple task of following another plane of the same type. Different planes have different abilities, therefore each has its own "training" mission.

The mission begins with HITECH just in front of you. Now try to follow him, performing every movement he does. The score display in the top right corner reflects how well you are doing.



Landing-on-a-Dime

Beginners find that takeoff and landing are difficult tasks in themselves. This mission allows you to practice these basic procedures uninterrupted. Takeoff and climb to over 200 feet (at which point you receive a radio message telling you that you are above minimum height), and then attempt to land. See "Taking Off" on page 39 and "Landing" on page 40 for details regarding takeoff and landing.

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 instance, that is just not true, so try not to smash your engine, break your landing gear, or snap off a wing when you land.

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.

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 plane down to the airstrip. Using only altitude and maneuver, control your speed and make a safe landing.

Online, you may *have* to do this sometime, unless you want to just jump out. Also, try ditching somewhere other than on an airstrip. Learn which terrain is easiest to land on. You never know when you may be forced down far away from a friendly base.

Piloting a Zeppelin

The Zeppelin gained world-wide fame when the Hindenburg crashed after WWI. Many people do not realize that the Hindenburg's lineage was born from a design as a combat airship.

The LZ30 in *Dawn of Aces* was the mainstay Zeppelin of 1917 and operated with relative impunity from fighter attack because of the rate of ascent it could achieve by dropping ballast.

Near the end of the war, the faster and better climbing scouts of the day began to threaten the big Zeppelins, and they were eventually retired from frontline and deep strike duty.

In *Dawn of Aces*, the Zeppelin is quite a handful, and does not fly even remotely like a plane...it is an entirely different beast. It is advisable to read up on its operation before venturing out in this lighter-than-air ship.

Its bombload is massive and with the ability to call artillery strikes as well, it can be seen as nothing less than an evil menace to its enemies.

Flying these enormous airships takes a different mind-set. These are *not* airplanes!

They are relatively slow, with a maximum cruising speed somewhere around 65 mph. The greatest speeds are reached when the ship is pointed in the direction it is moving, presenting the smallest cross section to the flow of air. Being perfectly aligned this way is being at a zero angle of attack.

With sufficient airspeed, the Zeppelin can change altitudes by simply "driving" up or down using dynamic lift. The control surfaces require sufficient airflow (about 20-25 mph) over them to have an effect. The climb and dive rates generated by dynamic lift are somewhat slow, however, and there is a point at which the airflow over the body of the ship cannot counteract its weight or buoyancy. If a Zeppelin is too heavy or too light, no amount of elevator will help.

Of course, the great WW1 airships used hydrogen gas for most of their lift, and water ballast (along with everything else aboard, including bombs) to counteract that lift. Venting the hydrogen allowed them to descend, while jettisoning weight allowed them to ascend. The climb and descent rates generated in this way were much greater than those provided by dynamic lift.

To take off, simply start the engines, drop some water ballast and you have lift off. As the Zeppelin ascends, it automatically vents hydrogen to keep the skin from bursting as pressure outside decreases. Unfortunately there is no way to replenish this gas.

The Zeppelin also has an emergency one-use only ballast system kept in reserve to brake a descent if no other ballast is available. When activated, all the remaining gunner ammunition, the guns, any remaining bombs, and all but 5% of the fuel are dropped. Press **Shift** + **numpad +** three times to drop emergency ballast.

When the airship ascends, it is constantly losing hydrogen, and thus lift as the gas is vented. At maximum altitude (somewhere around 13,000 ft) the Zeppelin can no longer climb, having vented too much hydrogen to lift itself further. This is fine if you do not mind a one way trip. You can stay up there forever, using the control surfaces for altitude adjustments.

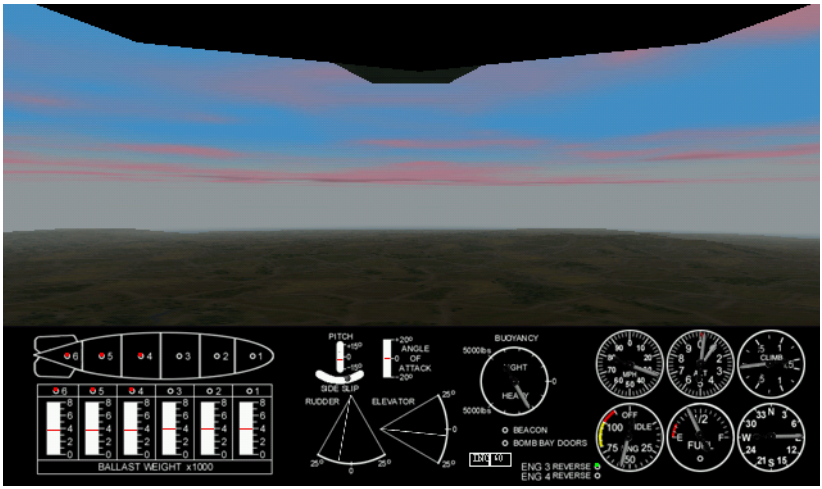
However, coming back down quickly (or even reasonably slowly) means venting even more hydrogen. Once you begin this descent, there are only two ways to stop descending. One way is to lose weight, the other is to "fly" with dynamic lift. If you have kept ballast or bombs aboard, losing weight is no big problem. If you have already used all your water ballast and dropped all your bombs...well...just hope that you have not already dropped that emergency ballast.

If you can keep your speed up, you can also use dynamic lift to slow your descent by “flying” the ship. Zeppelins do not do this very well though, and should you lose a couple engines or run out of fuel, it is hard to maintain sufficient speed to generate any lift at all.

If you find yourself in a Zeppelin at 13,000 feet with no ballast or bombs, it generally means you are stuck there. Any method for getting down will be VERY slow, (since you cannot afford to vent any more hydrogen) and if you miscalculate, you will not stop till the big crash at the bottom.

Zeppelin Controls

You have a huge bag of explosive hydrogen, 30,000 - 35,000 lbs of water ballast and fuel, 4 engines, a 10,000 lb bombload, and 6 gun positions with loads of ammo. WHY on Earth are you trying to fly this thing? Because it is there, of course! And the spectacular fireball that streams to earth when a Zeppelin is hit in the wrong place is truly a great sight to behold.



Zeppelin Cockpit

The Zeppelin has six cells, numbered 1 through 6 forward to aft. Each contains its own hydrogen gas and water ballast.

Select or Deselect an individual cell by pressing **Control** + **1**-**6**. Select all cells by pressing **numpad 0**. Deselect all cells by pressing **numpad Del**.

Vent gas from the selected cell(s) by pressing **numpad -**, and drop ballast from the selected cell(s) by pressing **numpad +**. Stop venting gas or drop-

ping ballast from the selected cell(s) by pressing **numpad ***. Drop emergency ballast by pressing **Shift** + **numpad +** three times.

NOTE: You can use differential ballasting or venting to tilt the ship. Drop water from the #1 cell, and the nose rises. Vent gas from number 6, and the tail drops, and so forth.

The Zeppelin has four engines, numbered as follows:

1 = forward

2 = aft

3 = port center

4 = starboard center

Engines 3 and 4 are reversible. Engines 1 and 2 run ahead only.

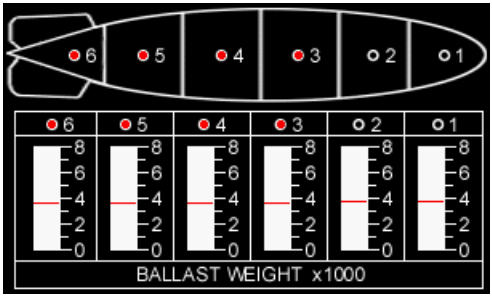
Select all engines by pressing **Shift** + **E**. Select an individual engine by pressing **Shift** + **1**-**4**. Select and start all engines by pressing **E**. Start or stop Engines 1-4 individually by pressing **Alt** + **1**-**4**.

To reverse engines 3 and 4, press **Alt** + **3** and **Alt** + **4** again. These engines cycle through stopped, running ahead, and running in reverse.

Running engines 3 or 4 in reverse greatly increases turn rates. Running them both in reverse helps slow you down when it looks like you are likely to overshoot a position.

The Zeppelin's tail incorporates rudder and elevator surfaces. Move the rudder with the side to side movement of the joystick, and the elevator with the forward and back movement of the joystick.

Instruments



Cells

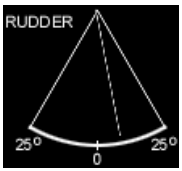
The selected cell or cells are indicated by red dots. The ballast weight in each cell is shown underneath. Use **Control** + **1-6** to select or deselect cell numbers 1-6. Dropping ballast lightens the selected cells. Venting hydrogen makes them heavier.

Pitch & Sideslip Indicators

The pitch indicator shows the fore to aft pitch relative to the horizon. The slip indicator indicates the horizontal angle of attack in other words, the angle between the horizontal direction of travel and the way the ship is pointing.

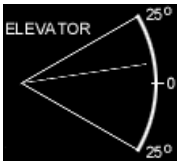
Angle of Attack

The angle of attack indicates the vertical angle of attack. That is the angle of the aircraft with respect to the air flow.



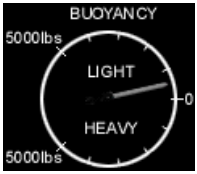
Rudder

The rudder indicator shows the angle at which the rudder is set. To move the rudder, push the joystick from side to side. Once the rudder has been moved to a position it stays there until moved again.



Elevator

The elevator indicator shows the angle at which the elevator is set. To move the elevator, push the joystick forwards and backwards. Once the elevator has been moved to a position it stays there until moved again.



Buoyancy

As the Zeppelin changes elevation, vents hydrogen, or drops ballast its weight changes. The buoyancy indicator shows whether it is lighter or heavier than the air at the current elevation.

Indicator Lights

Beacon: The beacon indicates that you are still connected to the iEN server, or to the network when playing head to head.

Bomb Bay Doors: When the bomb bay doors are open, the indicator is green. When closed, it is red.

Ordnance Counter

There are several secondary weapons (bombs) on a Zeppelin. Press **backspace** to change the selected secondary weapon, and view how much ammo is remaining.

Reverse Indicators

Engines 3 and 4 can be running forwards, stopped, or running in reverse. Press **Alt** + **3** or **4** to toggle through the settings for each engine.

Air Speed Indicator

The air speed indicator displays the LZ30's indicated airspeed. This is not the same as true airspeed, as the indicated airspeed for the same true airspeed reduces with altitude.

Altimeter

The altimeter displays the altitude above mean sea level (not the height above the ground). The small hand indicates thousands of feet, the long hand hundreds of feet, and the red mark tens of thousands of feet.

Vertical Speed Indicator

The vertical speed indicator displays the current rate of climb or descent. The units are in thousands of feet per minute.

Tachometer

The tachometer reflects the power setting of the engines. Idle indicates the engine is at flight idle, and 100 indicates 100 percent of power is selected.

Fuel Gauge

The fuel gauge indicates the percentage of fuel remaining, with F being 100 percent and E being 0 percent. When fuel reaches a critically low level, a red low fuel light illuminates.

Compass

The cardinal directions are indicated with the appropriate letter. Every 30 degrees is indicated by a number (3 is 30 degrees, 6 is 60 degrees, and so on).

Bombing

There are two bomb bays. **O** opens and closes both doors. The LZ30 carries three types of bombs:

- 60 x 25 lb incendiary bombs
- 40 x 128 lb bombs
- 4 x 660 lb bombs

Cycle through the bomb types with the **Backspace** key.

Move to the Bombardier's view by pressing **Y**, and aim the bombs by leading the center of the LZ30's shadow. If you are sitting still, you are in the ideal position. Drop the bombs by pressing **B**. See "The Zen of Bombing" on page 75 for additional details regarding bombing.

Gunners

There are 6 gunner positions aboard. You can occupy them yourself or bring other people along to man them for you. Press the appropriate key to jump to that position. See "The Joys of Gunnery" on page 79 for additional details regarding gunnery.

- 1 = Pilot/observer
- 2 = Upper tail
- 3 = Front gondola
- 4 = Left engine car
- 5 = Right engine car
- 6 = Top
- 7 = Aft gondola

Artillery Spotting

Zeppelins carried a lot of bombs, but were even better as artillery spotting platforms. All rounds have some deviation to them, which means they tend to fall in a pattern around the spot you aim them at.

The artillery batteries have a maximum range of 15 miles (1.5 sectors). It takes about 60 seconds for a round to land from the time it is fired at maximum range. Your artillery battery is located at the field you took off from.

Firing Artillery

1. Position the LZ30 over the target.
2. Fire a spotting round using the <.spot> command. This round is aimed at the center of your shadow on the ground...give or take a little.
3. Adjust fire from spotting round impact with the <.correct xxx yyy> command, where xxx is the compass bearing from the previous impact in degrees (from north, *not* from your heading) and yyy is the range from previous impact in yards up to a maximum of 500.
4. Continue adjusting <.correct xxx yyy> after each impact, as necessary.
5. Call in a 20 round barrage on the last impact with the <.barrage> command.

Firing a barrage clears all spotting and adjustment targeting. Firing a spotting round clears all spotting and adjustments. If you become confused during adjustment, simply fire another spotting round <.spot> and begin adjusting from there.

NOTE: The LZ30's shadow is roughly 400 yards long.

Incendiary Bullets

The LZ30's nemeses in the air are those planes carrying incendiary bullets. While normally armed planes can bring the LZ30 down, it takes several planeloads of bullets to do it. They have to poke a lot of holes in a big object. Incendiaries, however, are designed to light up that big bag of flammable gas that you are riding under. Even then, the attacking pilot must put several rounds into you. Hydrogen needs to mix with oxygen before it burns, and that means the attacker needs to poke enough holes to allow enough gas to escape and mix with oxygen near the bag to create an explosive mixture. Once that happens...KABOOM!

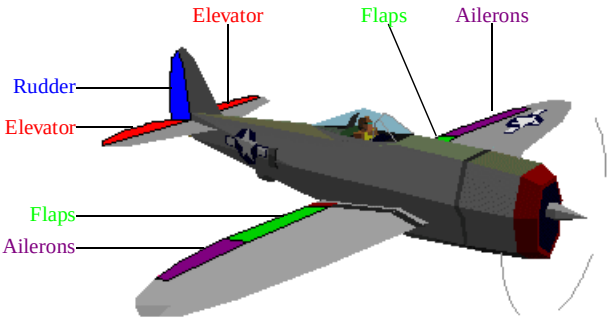
Of course, there are other parts of the LZ30 that do not take kindly to bullets of any type—things like engines, controls, and guns.

Maneuvering

Control Surfaces

There are three dimensions within which the aircraft moves, and there is a simple control to change the direction of movement in each of those three dimensions:

- Ailerons control Roll
- Rudder controls Yaw
- Elevators control Pitch



Control Surfaces

Roll

The ailerons, located on the outer part of the trailing edge of the wings, control the roll or bank of the airplane. The two ailerons (one on each wing) work in opposite directions to each other. When the left one is raised, the right one is lowered. The side to side movement of the joystick controls the roll or bank of the aircraft.

Pitch

The pitch is the up or down angle of the aircraft, controlled by the elevator. It is located on the trailing edge of the horizontal tail assembly and is controlled by the forward and backward movement of the joystick. Pulling the joystick back moves the elevator up, causing the nose of the aircraft to point up. Pushing the joystick forward moves the elevator down, pitching the nose down.

Yaw

On the trailing edge of the vertical stabilizer on the tail is the rudder. This controls the yaw, or the left and right turning movement of the aircraft. On a real aircraft the foot pedals control this. For those who do not have pedals, the rudder can be manipulated using **A** (left), **S** (center), and **D** (right), or a 3D joystick.

Flaps

The flaps are located on the inside of the trailing edge of the wings, inboard of the ailerons. When this set of control surfaces is lowered the cross-sectional shape (airfoil) of the wing changes. Lowering the flaps creates a greater surface area, increasing lift and drag. Flaps are most commonly used for landing.

Trim

As a plane flies at a particular altitude, weight, and speed, it flies straight and level with the stick perfectly centered. As speed increases the nose tends to rise, and the plane tends to yaw and roll to the right. As speed decreases the nose tends to lower, and the plane tends to yaw and roll to the left.

To control a plane at a wide range of speeds, there are trim tabs that are adjusted to allow the plane to fly straight and level for many different sets of conditions. When a plane is “in trim” it is trimmed for straight and level flight with the joystick centered at that airspeed and condition. When a plane

is “out of trim” its joystick center is far from the center of its travel, which means that input is needed to make the plane fly straight and level.

This creates two problems. Firstly, since the joystick center is not the same as the physical force center it makes flying straight and level tricky, making small, gentle adjustments all but impossible. Movements tend to be jerky and really inaccurate, which causes problems when lining up guns on enemy planes. Gunnery is much easier and smoother when the plane is in trim.

Secondly, if the center of force is too far from the joystick center, you simply run out of stick. If you have to have the stick 3/4 of the way back to maintain level flight there is only 1/4 of normal movement remaining to be used for maneuvering. In this instance, you would barely be able to maneuver at all.

The solution is to trim the plane for a speed close to that at which you are fighting.

Autotrim

To take the tedium out of making constant adjustments to the trim manually, there are the autotrim keys. When autotrim is engaged, it takes a few moments for the plane to get in trim. The plane can be left flying on autotrim, or you can take over the controls once again, simply by moving the joystick.

Ideally, the plane should be trimmed for the speed it will be fighting at, so that the joystick is centered when you really need it to be. Take the type of plane being flown into consideration when deciding on the best speed to have the plane in trim.

There are three autotrim modes:

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

Speed mode: Press **Shift** + **X** to instruct the autotrim to maintain a specific airspeed. Set the speed you want to maintain by typing </.speed xxx>. Depending on your throttle setting, the aircraft may climb or descend—

experimenting with these settings allows you to achieve the preferred climb rate.

Angle mode: Press **Ctrl** + **X** to instruct the autotrim 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.

Maneuvers

Barrel Roll

The Barrel Roll is a complete roll, revolving once around the fuselage.

To perform a Barrel roll, move the joystick to the right or left and hold it there until the plane is upright once again. Straighten out and press **X** to return to straight and level flight.

Break Turn

The Break turn is the standard evasion against attack from astern. You turn as hard as possible in the direction of the attacker, to increase deflection quickly, and make your plane harder to hit. It is best to execute a break turn when level or lower than the attacker. Never break above your opponent, as you lose speed and your size as a target increases.

To perform a Break turn, move the joystick to the right or left, and then pull back on the joystick to tighten the turn. Straighten out and press **X** to return to straight and level flight.

Chandelle

The Chandelle, in very simple terms, is a climbing turn. The turn can range from 90 to 180 degrees. It is a low-G move, and aims to conserve as much energy as possible. The Chandelle allows you to remain near the fight, and to keep visibility on the fight or target as you look down and back over the wing, while gaining altitude.

To perform the Chandelle, move the joystick to the right or left, then pull the stick back gently to climb while you are turning. Once you have finished the turn, you are at a higher altitude, and on a different heading. Center the stick and return to straight and level flight by pressing **X**.

Immelmann Turn

The Immelmann turn is a simple yet very effective maneuver under the proper tactical circumstances. The name is derived from its inventor, Max Immelmann, a WWI German Ace who devised the method. In reality, the version most people are familiar with today from air shows is not the one that Max Immelmann found so successful.

To perform the air show version, from flying level with good energy, pull back on the joystick, bringing the aircraft into a steep climb. Maintain the climb until the aircraft passes through the vertical and completes a half loop. At the top of the loop, the plane is inverted. Roll it back to the upright position. It is now at a higher altitude and is travelling in the opposite direction.

This air show version can be flown in different ways. If your opponent has enough energy to follow you into the loop, there is a moment of inertia where your speed is low, and you are a sitting target. The reversal can be aggressive, limiting the altitude gain in exchange for maintaining additional speed after completion, or it can be very gradual, with completion at a higher than normal altitude, but with the aircraft at near stall speed.

Max Immelmann's actual combat Immelmann is also known as a version of “Boom and Zoom” (BnZ). He would make a high energy pass at his opponent, pulling up into an efficient vertical climb until he was sure he was out of the range of his enemy. Then he would use a rudder reversal to drop back down from a position of advantage and repeat his attack.

Loop

The Loop is a full 360 degree rotation in pitch, in other words a vertical circle.

Perform the Loop by pulling back on the joystick and maintain back pressure as the aircraft climbs, inverts, dives and then returns to level flight, with the wings level at all times. At the top of the loop, the torque effect from the engine begins to corkscrew the aircraft counterclockwise. Add right rudder

and roll to counter the torque effects. When completed, center the joystick and press **X** to recover straight and level flight.

Scissors

The Scissors is a series of turns designed to force an attacker on your six to give up their angle advantage.

This is a very aggressive move. If you try to use it, it is important that you think aggressively. You are trying to force an overshoot—a total reversal, putting you on the attacker's six.

The steps to perform the Scissors are fairly simple, but it takes practice. The following steps assume that the attacker is on your six and at a range of 6 or 7. It they are further away, use short turns to bring them in, but do not let them get a good tracking shot at you.

It is important to fly this fight entirely in the rear view, switching from rear to top/rear, always keeping the attacker in sight, so that you can react quickly.

1. Begin with a fairly hard turn, held long enough that they have to roll and turn to keep you in their sights.
2. Once they enter the turn, roll your aircraft in the opposite direction, and then turn hard that way, keeping the nose low to conserve energy.
3. When you see their wings start to roll in answer to your turn, quickly roll back in the opposite direction, and turn that way with the nose low.
4. The attacker tries to follow, and again when they start to turn, you turn back the other way.
5. Usually, after two or three turns, they have lost their angle advantage, and are starting to wonder what has happened. This is the critical point of the fight.
6. When they are more in the top view than in the rear view, they have lost their angle, and now is your chance to attack them.

- You have got to be aggressive to do this move successfully, and be fast on the reversals.
- Try to practice this by letting someone get on your six and then shake them. Do this again and again, until you have a mental image of where

they should be when you reverse. Find the right moment to make the turns for each plane you fly.

- The first left or right break is held longer than the rest—that is the one that hooks the attacker. The rest are short and fast, dictated by how long it takes the opponent to react and reverse.

Skid

The Skid is a lateral slide with a gradual loss of altitude, and is commonly used as a defensive maneuver to throw off an attacker's aim. It can be performed without incurring a large increase in speed or change of direction, while trading in only a small amount of altitude.

Perform a Skid by dipping one wing and then applying opposite rudder. The aircraft skids in the direction of the dipped wing.

While in this maneuver, the aircraft sinks and loses altitude. Because your actual direction of travel is different to the direction that the aircraft is heading, it throws off the attacker’s gunnery. However, it does not take long for an attacker to adjust their aim, so do not hold the maneuver for too long.

Split-Ess

The Split-Ess is a half roll, followed by a half loop, to return to straight and level flight. It is primarily a defensive move, unless you are attacking with considerable altitude and are meeting the target nose to nose—you would then let them pass beneath you, and then perform the Split-Ess to arrive at their six.

To perform the Split-Ess, roll the plane until it is inverted and in level flight, and then pull back on the joystick. Maintain back pressure as the plane dives and then returns to normal flight.

- Practice the Split-Ess over a runway, so that you can check your heading visually.
- A variation is to perform an additional roll when you pass the 90 degree mark of the half loop. A roll effected while you are pointed straight down is a very effective escape maneuver.

Wing Over

The Wing Over is a common maneuver for altitude and position recovery after a diving attack—especially after a diving attack on a ground target.

To perform the Wing Over, pull back on the joystick to enter a climb. Close to the top of the maneuver, the aircraft should be just above its stall speed (but not stalling), apply full rudder to yaw the plane over until the nose is pointing down in the opposite direction of the original climb. Try to ensure it does not roll over onto its back when in the yaw motion. Once the nose is pointed down, center the rudder, and enter back into a dive.

- A tricky maneuver that is handy after a diving attack, setting you up for a second run.
- A very common maneuver with the “Boom and Zoom” (BnZ) flyers, especially with the fast planes.
- Performed by an experienced flyer, this maneuver can surprise a pursuer by quickly reversing on them.
- If you have a distance lead in a chase, use this to convert from a defensive posture to an offensive one. The trick is not to be shot up when reversing.

Capturing Enemy Airfields

Whenever one country loses all of its airfields, the war is over. Victory goes to the side that controls the most 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 their defenses, a capture can be a quick and clean affair. On the other hand, if the enemy is waiting for you with a CAP (Combat Air Patrol) shielding the field, and lots of antiaircraft guns manned and ready, it can be a costly action indeed.

There are three phases to a successful capture operation: the attack, the capture and the defense.

The Attack

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

Hangars and other buildings are considered destroyed if their roofs are blown off. It is not necessary to destroy the walls, although if you do so it increases the time it takes to repair those structures.

Each airfield has an observation balloon, which must also be destroyed. If you destroy the gondola hanging beneath the balloon, the balloon is deemed destroyed.

Ordnance-Loadout: Ordnance or loadout is the number of bombs and rockets your aircraft can carry. 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. It is possible to do the job with massed gunfire, but it takes a lot of time and effort and your chances of success are low. The amount of ord-

nance 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 bombardier. 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 airfield, you should notice colored streaks appearing in the sky around your plane. These are tracers being fired at you by the antiaircraft crews defending the base.

Flak Suppression: Antiaircraft emplacements are easy to knock out. A single bomb, or a well-aimed machine gun burst usually does the job. However, they are very small targets and unlike hangars, they shoot back. To capture an enemy field, you need to knock out all the emplacements.

The Capture

Once all the gun emplacements and the observation balloon have been destroyed, to capture an airfield simply land on it.

NOTE: If you land before everything has been destroyed, it is you that is captured!

Putting up CAP (Combat Air Patrol)

Taking possession of an enemy airfield usually causes a reaction on the part of the opposing country. It is not unlike jabbing a stick into a hornet's nest. Planes from any surviving enemy airfields swarm in your direction and attempt to recapture their lost asset.

Therefore, as soon as you capture a base put up an orbiting umbrella of friendly aircraft. This aerial screen is your CAP (Combat Air Patrol), and the stronger it is, the better your chances are of keeping control of the base you have just taken.

The Zen of Bombing

While solo combat is the most glamorous form of online flying, a lot of 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 or more players select Bristol F2Bs or LZ30s to fly. The pilot of a bomber controls takeoff, navigation, and acts as bombardier when the time comes.

The pilot's friends then choose whether to man a gunner position on the aircraft, or whether they want to give air support with a fighter.

The biggest bomber in *Dawn of Aces* is the LZ30 (Zeppelin). See "Piloting a Zeppelin" on page 53 for details regarding flying and fighting with this aircraft.

Setting Up a Bombing Mission

Choose the Bristol F2B from the Plane screen (See page 31), and select the Bomber version to equip it with bombs.

Some 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. A bomber cannot drop more bombs than it carries—it is no use setting up a salvo for 5 bombs for the Bristol F2B, as it only carries 2.

Customize a drop-pattern using the host commands:

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

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

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

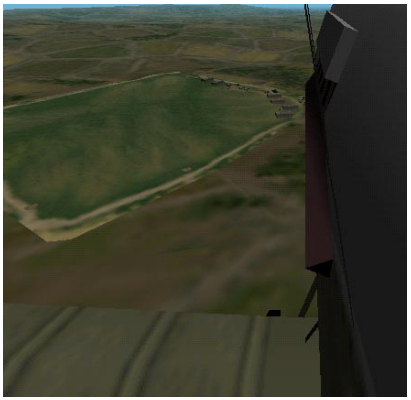
Executing a Bomb Run

You are flying in pilot mode, and your gunners (if you are in a Zeppelin), you hope, are keeping enemy interceptors at bay. Observe the situation around you by using the keyboard controls.

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.

Put the plane on autopilot by pressing **X**, and open the map by pressing **F1**. Each sector on the *Dawn of Aces* map is 10 miles across, representing 100 square miles. As soon as your bomber enters the sector where your target is located, make your approach turn—ideally at a distance of 5 to 10 miles.

Press **Y** to assume the bombardier's role. The Bombardier's view opens.



Bristol F2B Bombardier's View

In *Dawn of Aces*, there is no bomber sight, just someone looking down. To drop a bomb press **B** when over the target, allowing for some forward movement. The exception is when you are flying the LZ30, which can be brought to a halt. You can then float over the target dropping bombs—although the opposition is not likely to allow you to do this with impunity!

Getting Home in One Piece

After the bombs are dropped, the aircraft suddenly becomes lighter, faster, and 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. Channel 111 is the bomber intercom.

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

The Joys of Gunnery

Newcomers to *Dawn of Aces* 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 you can gain valuable skills in leading targets and deflection shots—that is figuring the angles between the trajectory of your bullets and the target's movement, so that the bullets intercept the plane.

How to Sign-On as a Gunner

Click *Gunner* from the Select screen in the 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 is bottom, top, left, right, tail, nose, and observer. The observer's position is usually the same as the pilot's, in the cockpit.

Select a pilot from the drop-down menu. Any open positions on their aircraft are listed. If you see an open slot for a position that appeals to you, select that position from the Join As drop-down menu, and then select *Join*.

If the pilot accepts you, a message says so. 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 they know and expect to show up online.

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

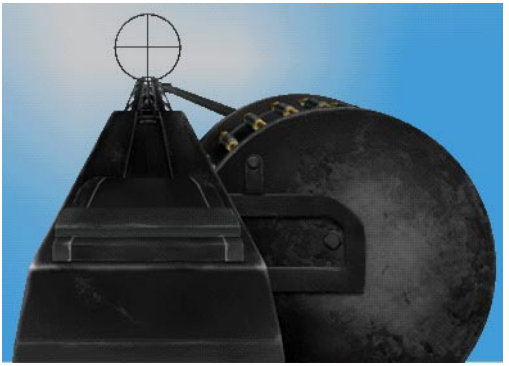
Jump: A gunner can jump from their original slot to another one. This is useful if a bomber takes off short-handed and one gunner has to move position, depending on the direction that the enemy threat is coming from. To jump to another gun, use appropriate key.

1	Observer/Cockpit	4	Left	7	Bottom
2	Tail	5	Right		
3	Nose	6	Top		

Controlling your Chosen Gun

Guns are attached to flexible mounts, so that the gunner physically controls the aiming process. The joystick is the default tool for aiming and firing guns, but if you prefer to use a mouse, press **Alt** + **M** while in position.

Bristol F2B Gun Mount



LZ30 Gun Mount

Communications

Chatting using the keyboard is the preferred method of communication in *Dawn of Aces*, as everyone has access to it. English is the language employed by most pilots, but pilots from other countries are known to fly.

Take patience with these players, English is not their first language, and they are probably asking for help. Help them if you can, or ask others to do so.

There are voice communications in the game, but this is limited to up to three contacts per person. Few players have microphones, so if repeated requests for a voice channel with another player go ignored, assume they have no voice communication ability.

If a player you are trying to chat with does not reply immediately, assume that they are in the middle of combat and too busy to type.

It is possible to set up one of the Radio channels to communicate with one particular player. Open the radio and then type the callsign of the player into a tuning slot. When you send a message on this radio only that player receives it, and the message is displayed in bright white text, allowing you to have a private chat.

To chat to everyone, set Radio Two to channel 100. When flying most people use this channel to taunt the opposition—if they can spare the time.

Players in a Squad can chat to each other on channel 110, as this is the designated squad channel. Other squadrons do not hear your communications, nor players in your own country who are not in your squad.

Click on an aircraft in flight to tune Radio Four to the callsign of the pilot of that aircraft.

The designers, producers, programmers, but most of all the players who frequently play *Dawn of Aces* have repeatedly expressed disapproval in the use of profanity.

A text filter and a player message blocker can be used.

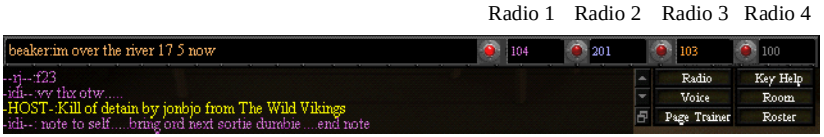
To employ the blocker, press a Radio key: /, **Shift** + /, **Control** + / or **Alt** + /, and then type <.ignore xxxxxx> where xxxxxx is the handle of the pilot you are ignoring.

To reestablish communications with an ignored pilot, press a Radio key: /, **Shift** + /, **Control** + / or **Alt** + /, and then type <.listen xxxxxx> where xxxxxx is the handle of the pilot. Type <.listenall> to reestablish communications with all ignored pilots.

If you leave the game, all ignored players are defaulted to listen mode again. Any Radio channels you had access to in the previous game are retained in your next session.

Radio Procedures and Protocols

The Radios provide the means to socialize with other players. There are also messages giving vital tactical information and situation updates.



Radio Bar

The up and down arrows next to the incoming messages display area allow you to scroll through recent messages. The Expand Window button below them toggles the display between 25 and 5 lines of incoming messages. Pressing **Tab** on the keyboard also toggles this display.

F3 moves the radio bar from the bottom to the top of the screen, or vice versa.

To open the typing buffer to type and send a message, click *Radio* or press /, **Shift** + /, **Control** + / or **Alt** + /, depending on the channel to be opened.

Radio Tuning

Tune a radio by clicking in the radio slot, and then typing the number. There are 106 different channels, any of which can be used. The channels serve different purposes and reach different ears, so depending on what you need to say and to whom, use the appropriate channel.

The host command <.radio X YYY>, where X is the radio and YYY is the channel, can also be used to tune the radio.

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

To communicate with players in flight, use one of the squadron, country or private channels, as shown below:

Who Receives	Channel Number	Message Color
Everybody	Channel 100	Gray
Red	Channel 101	Red
Purple	Channel 102	Purple
Gold	Channel 103	Gold
Members of the same squadron	Squad Channel 110	White
Crew members of the same plane	Intercom 111	Dark Green
Individual players	Player callsign	Bright White
Individuals in a country who are tuned in	Channels 1-50	Dull Yellow
Any individual who is tuned in	Channels 51-99	Dull Yellow
Everyone	Messages from host	Yellow

Everyone	Messages from Game Managers	Blue

NOTE: Only Radio One can be tuned to channels 1-99.

When you first enter the arena, Radio One is tuned to your country channel and Radio Two is tuned to everyone (100).

Your radios do not reset to the default tuning every time you enter an arena. Once you have tuned your radios, the settings are retained. The only exception is that Radio One defaults to your country channel whenever you enter the arena.

Click on an aircraft in flight to tune Radio Four to that pilot.

Enter the command <.radio> to display a summary of your currently tuned channels.

Transmitting a Message

To quickly send a message on a particular radio channel, use the appropriate key to open that channel, then type your message and press **Enter**.

Radio	*Key Press*	*Radio*	*Key Press*
One	**/**	Three	**Ctrl** + **/**
Two	**Shift** + **/**	Four	**Alt** + **/**

Example: If you are flying for Red and you leave Radio One tuned to 101, and Radio Two to 100, in flight press **Shift** + **/** before typing the message to transmit to everyone, and press **/** before typing the message to transmit to Red players only.

When in a squadron, tune Radio Three to 110, and communicate with other members of the squadron by pressing **Ctrl** + **/** before typing the message.

Right-click on a fellow countryman to send a “6” call to that pilot (or **Ctrl** + click if you are a one-buttoned mouse Mac user).

Receiving Messages

You receive messages from other players if they are sent on a channel you

can listen to. These are color coded according to the channel on which they are sent.

There is also an ignore command for filtering out those players who just seem to have a little too much to say. Type <.ignore xxxxxx> where xxxxxx is the callsign of the player in question, and radio messages from that player cease to be seen by you.

To cancel the ignore command, type <.listen xxxxxx>.

Game Managers

Game Managers' names are always in capital letters, and always in blue. These personnel are on the development team, and are logged onto the server side of the game. Their presence is for testing and diagnosing problems within the game environment, and in some cases troublesome players.

They have absolute authority.

Voice Communications

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

Access the Comm List by clicking on the Voice button in the radio bar.

Using Voice Comms

Type the callsigns of the players you wish to talk to in the blank fields at the top of the window. Up to three 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 communications 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 communications with you. If someone requests voice communications while *Manual* is lit, the Voice indicator blinks and a message appears in the radio display.

Press and hold **Insert** on the keyboard to transmit.

Keep the following in mind when using voice communications:

- Speak clearly and in short sentences.
- Do not crowd the microphone. Experiment by tuning into yourself and listen to how you sound.
- Do not shout.

- When transmitting, first say who you are speaking to, then who you are, then your message and finally “Over” to let others know you have finished speaking.

Radio Terms and the Phonetic Alphabet

Radio Terms

Affirmative	Acknowledged
Angels	Altitude in thousands of feet
Bandit	An enemy aircraft
Bogey	An unidentified aircraft
Negative	No. No way.
Niner	Phonetic pronunciation of nine.
O'clock	Position relative to your facing in increments of a clock face.
Out	End radio contact, or exiting the fight.
Over	End radio transmission.
Roger	Acknowledged
Say again	I did not understand, repeat your last transmission.
Six	An enemy is directly behind you, at 6 O'clock.
Standby	I’m busy. Wait a few minutes.
Stepped on	Transmission is interrupted by another.
Unreadable	I can’t understand you. Say again or check your radio.
Wilco	Will comply. Yes.

Phonetic Alphabet

A	Alpha	*H*	Hotel	*O*	Oscar	*V*	Victor
B	Bravo	*I*	India	*P*	Papa	*W*	Whiskey
C	Charlie	*J*	Juliet	*Q*	Quebec	*X*	X-ray
D	Delta	*K*	Kilo (kee-low)	*R*	Romeo	*Y*	Yankee
E	Echo	*L*	Lima (lee-ma)	*S*	Sierra	*Z*	Zulu
F	Foxtrot	*M*	Mike	*T*	Tango		
G	Gulf	*N*	November	*U*	Uniform		

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 Tower.

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

.barrage	Fire an artillery burst on the last spotting position (LZ30s only).
.clear	Resets your score.
.correct xxx xxxx	Sends a corrected spotting round, where xxx is the heading from the spotting round position, and xxxx is the distance from it in yards (LZ30s only).
.country [1-3]	Choose a country.
.delay xxx	Sets the delay in milliseconds between each bomb in the salvo (value range 50 to 1000 milliseconds).
.disband	Disbands the squadron (leaders only).
.e	Exit plane (must be on ground and stopped when online).
.exit	Leave the arena, or quit the program if offline (must be in tower).
.fields	Shows a listing of the available fields, their current ownership and status.
.fly	To the runway.

.fuel xxx	Sets fuel level for your plane. Replace xxx with percentage of load preferred.

.gaccept all	Accept all outstanding requests.
.gaccept xxxxxx	Accept an outstanding request from xxxxxx.
.gclear	Clear all previously accepted gunners from plane, or clear your crew position.
.greject xxxxxx	Reject a request from xxxxxx.
.gun xxxxxx [position]	Request a ride in the position specified with player xxxxxx. Gun positions are numbered as follows, when available: 1-Pilot, 2-Tail, 3-Nose, 4-Left waist, 5-Right waist, 6-Top, 7-Belly.
.handle xxxx	Change your handle to xxxx where xxxx can be up to 20 characters long.
.help	Shows a listing of available host commands.
.ignore	List all ignored players.
.ignore xxxxxx	Stop receiving messages from player xxxxxx. Up to 32 players can be ignored this way.
.invite xxxxxx	Invites player to join your squadron. Replace xxxxxx with player's callsign (squad leaders only).
.jsquad	Accepts a squadron invitation.
.jump [position]	Allows a gunner to move around from one position to another. Gun positions are numbered as follows: 1-Pilot, 2-Tail, 3-Nose, 4-Left waist, 5-Right waist, 6-Top, 7-Belly.

.listen all	Start receiving messages from all ignored players.
.listen xxxxxx	Start receiving messages from ignored player xxxxxx.
.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 through 7 for general and briefing rooms.
.move hq	Move to headquarters.
.name xxxx	Name the squadron (squad leaders only).
.ord	Lists the available loadouts for the currently selected plane.
.ord [0-3]	Loads ordnance set 0, 1, 2, or 3.
.radio	Display currently tuned channels.
.radio X YYY	Tunes Radio X to channel YYY.
.rank	Displays the top 100 pilots (updated daily).
.remove xxxxxx	Removes a player from your squadron. Replace xxxxxx with player’s callsign (squad leaders only).
.roster	Shows a listing of players currently online.
.salvo xx	Sets number of bombs to drop with each key press when in “pickle” mode.
.score xxxxxx	Shows a player’s score. Replace xxxxxx with the player's callsign.

.slogan	Assigns or changes the squadron motto (squad leaders only).
.speed xxx	Sets the autotrim to speed xxx mph
.spot	Send a spotting round to your position (LZ30s only).
.squad xxxxxx	Info about a squadron.
.status xxxxxx	Displays the status of the pilot and plane (open slots, filled slots and so on).
.withdraw	Withdraw from your squadron.

Keyboard Commands

When playing the game, use the Key Help button to open the key charts.

Aircraft Controls

Center Joystick F12

Left Rudder. . . . . A
Right Rudder . . . . . D
Center Rudder. . . . . S

Autotrim Level X
Autotrim Speed. . . . . Shift + X
Autotrim Angle. . . . . Ctrl + X

Eject . . . . . Enter Enter Enter (quickly)

Toggle Weapon . . . . . Backspace

Engine Controls

Start/Kill Selected Engine . . . . . E
Select & Start all Engines. . . . . Shift + E

Select Engine 1. . . . . Shift + 1
Select Engine 2. . . . . Shift + 2

Kill/Start Engine 1 . . . . . Alt + 1
Kill/Start Engine 2 . . . . . Alt + 2

Throttle Up 5 Percent . . . . . =
Throttle Down 5 Percent. . . . . -
Full Throttle . . . . . 0 (zero)
Engine Idle 1

Zeppelin Controls

Kill/Start Engine 1 . . . . . Alt + 1

Kill/Start Engine 2 . . . . . Alt + 2
Kill/Start/Reverse Engine 3 . . . . . Alt + 3
Kill/Start/Reverse Engine 4 . . . . . Alt + 4
Select & Start all Engines. . . . . Shift + E

Select Cell 1-6 . . . . . Control + 1-6
Select all Cells . . . . . Numpad 0
Deselect all Cells . . . . . Numpad Del
Vent Gas in Selected Cells . . . . . Numpad -
Drop Ballast in Selected Cells . . . . . Numpad +
Drop Emergency Ballast. . . . . Shift + Numpad +
Stop Venting or Dropping Ballast. . . . . Numpad *

Landing View . . . . . U

Radio Key

Radio 1 . . . . . /
Radio 2 . . . . . Shift + /
Radio 3 . . . . . Ctrl + /
Radio 4 . . . . . Alt + /
Microphone on . . . . . Insert

View Keys

Forward. . . . . Numpad 8
Left . . . . . Numpad 4
Right . . . . . Numpad 6
Back . . . . . Numpad 2

Up . . . . . Numpad 5

Forward/Right. . . . . Numpad 9 or 8 + 6
Forward/Left. . . . . Numpad 7 or 8 + 4

Forward/Up. . . . . Numpad 8 + 5
Right/Up . . . . . Numpad 6 + 5
Left/Up . . . . . Numpad 4 + 5

Right/Rear. . . . . Numpad 3 or 6 + 2
Left/Rear. . . . . Numpad 1 or 4 + 2
Rear/Up. . . . . Numpad 5 + 2

Gunnery Keys

Fire Guns . . . . . F

Fire Secondary Gun . . . . . B

Jump to Observer Position . . . . . Space
Jump to Cockpit 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

Toggle Lewis Gun Mode (SE5a only) . . . . . \

Bombing Keys

Open/Close Bomb Bay . . . . . O
Drop Bombs . . . . . B
Salvo Toggle F9

Bombardier . . . . . Y

Interface Keys

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
View Range Cycle . . . . . Alt + R

Ground Clutter On or Off F11
Show or Hide Aircraft Debris . . . . . Alt + N

Toggle Sky Texture (D3D only) . . . . . Alt + K
Toggle Horizon Texture (D3D only) . . . . . Alt + H

Expand or Shrink Text Window . . . . . .Tab
Move Text Window F3

Take Screenshots . . . . . .Alt + S

Show Frame Rate . . . . . .Alt + P

Switch to Mouse Control . . . . . Alt + M

Key Help. F4

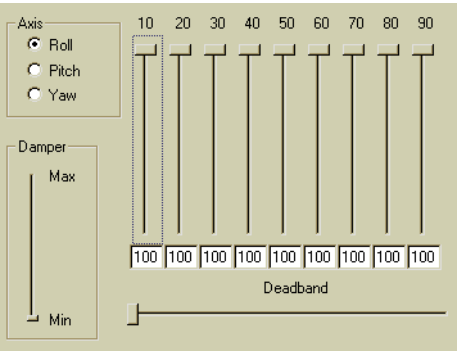
Setup Screens

Use the setup screens to set the game options. When accessed from the Main menu, all the screens have *OK*, *Cancel* and *Apply* buttons at the bottom.

- *OK* saves any changes and returns the display to the Main menu.
- *Cancel* returns the settings to what they were when you opened the screen, or to when *Apply* was last selected.
- *Apply* saves the selections made.

Stick Screen

Changing the selections on the Stick screen personalizes the response your plane makes to the movements it senses from your joystick. Some pilots swear this fine tuning gives them an edge in combat.



Stick Screen

1. From the Tower, click *Setup*.
2. Select *Stick.*
3. Select *Roll*, *Pitch* or *Yaw* then adjust the slider bars. This customizes the joystick control response of your 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, or a 3D joystick.

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 halfway 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 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 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.

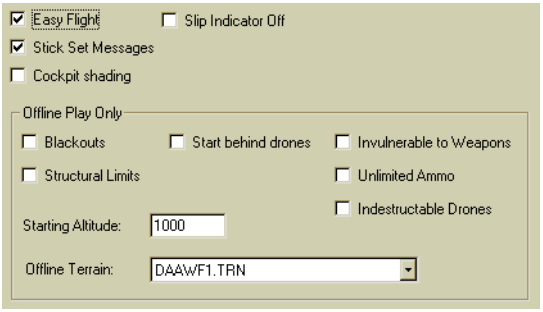
Damper: The *Damper* setting mutes those occasional spikes of overeager response, when the joystick tells the plane to move a bit more abruptly than is advisable. The *Damper* setting takes those spikes and averages them out, giving a smoother ride with joysticks that seem to overreact.

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

Flight Screen

The Flight screen lets you set basic flight options.

Easy Flight: When checked, easy flight makes the plane easier to control and minimizes the differences between the handling characteristics of certain planes.



Flight Screen

Easy flight is not enabled in all the arenas.

Stick Set Messages: When checked, and when you are using multiple stick sets, swapping stick sets generates a message notifying you of the change.

Cockpit Shading: When checked, the cockpit has more realistic lighting but the frame rate may drop.

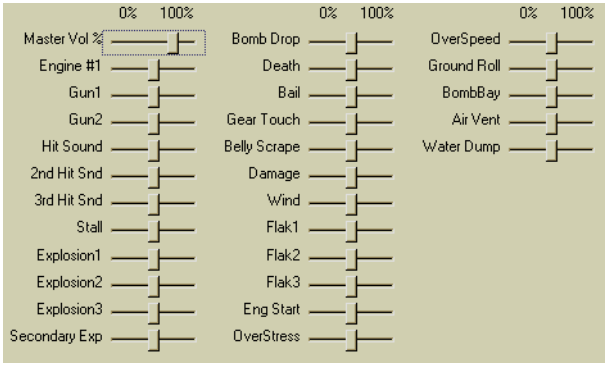
Slip Indicator Off: The slip indicator gives a visual guide as to the angle at which the plane is flying.

Offline Play: There are several options available when playing offline, which are set by the server when playing online.

- *Blackouts*—Select to experience blackouts and redouts when pulling so many Gs that the blood supply to the brain is affected.
- *Structural Limits*—Select to have the plane break up when being pushed beyond its limits.
- *Start Behind Drones*—Start in the air behind a sitting duck target.
- *Invulnerable to Weapons*—If you find you are being shot down before you have a chance to fire at the drones, select this option.
- *Unlimited Ammo*—If you find that you constantly run out of ammo while practicing, select this option to be able to continue shooting down drones until either you are shot down, crash, or run out of fuel.
- *Indestructible Drones*—Targets cannot be destroyed.
- *Starting Altitude*—Leave the altitude at zero if you want to takeoff. Enter a height if you want to begin in the air.
- *Offline Terrain*—Select the terrain to be flown over.

NOTE: Certain offline missions override any settings made here. For example, if you select *Raging Dogfight*, you always start in the air, even if the altitude is set at 0.

Sound Screen

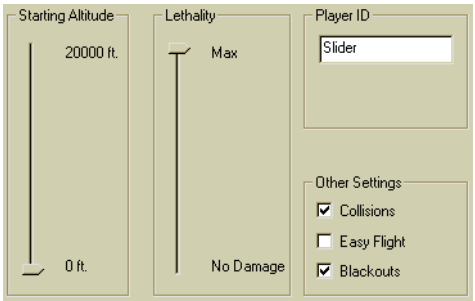


Sound Screen

The Sound screen allows you to vary the volume of individual sounds. For example, if the sound of your engine is too loud and drowns out everything else it can be turned down.

Move a slider to the right to increase the volume and to the left to decrease it.

HTH Screen



HTH Screen

The in-flight head to head options can be set on the Head to Head screen, and they only affect head to head sessions.

Setting Easy Flight and Blackouts here overrides the settings made in the Flight screen.

*__Starting Altitude:__ Set the altitude at which both planes are to begin their flight. Setting this at zero means you both have to take off.

Lethality: Having weapons giving no damage allows a trainer to be shot at by the pilot in training without the session being stopped by the plane being shot down.

When dueling on a one to one basis each hit should count, so have the maximum damage level selected.

Player ID: Type in your six character callsign.

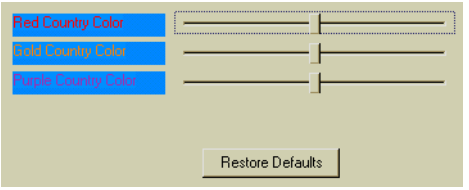
Other Settings:

- **Collisions*—When checked planes may collide in midair.

- **Easy Flight*—Tones down the differences between the handling of planes and makes them easier to control.
- **Blackouts*—When checked, pilots experience redouts and blackouts due to the G-forces affecting the flow of blood to the brain.

*These settings can only be selected by the host player.

Colors Screen

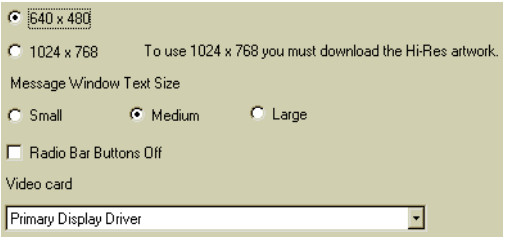


Color Screen

Country Colors: Use the color sliders to change the shade of the icons displayed while flying.

Message Box Transparency (3D only)**:** The message box transparency can also be changed by moving the *Msg Box Transparency* slider.

Video Screen



Video Screen

Factors which affect the appearance of the game are set here.

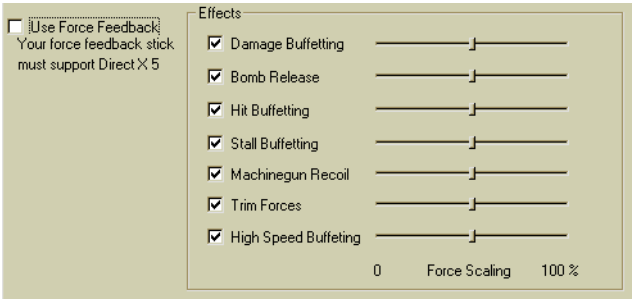
Screen Resolution: Select whether to have the screen displayed as 640 by 480, or 1024 by 768.

Message Window Text Size: Select whether to have the text in the message box displayed as *Small*, *Medium*, or *Large*.

Radio Bar Buttons Off: Select to have the buttons on the right of the Radio Bar turned off (see page 84).

Video Card (D3D version only)**:** Choose which video card you want to use in the game. Always make sure you have the latest drivers for your card.

Stick Force Screen

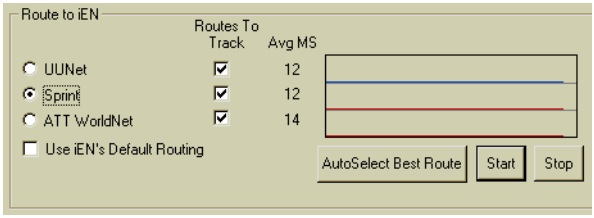


Stick Force Screen

For those with a force feedback joystick, which supports Direct X5, these settings can be customized to your personal preferences.

Check the box to use the force feedback abilities of the joystick and change the sliders to reflect how much feedback you want for a particular effect.

Network Screen



Network Screen

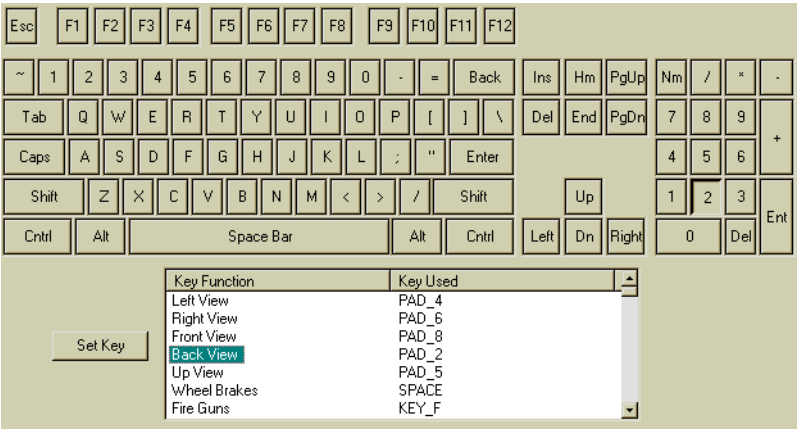
The network connection route to iEN can be set from this screen. Normally selecting *Use iEN's Default Routing* is adequate but if you are experiencing a bad connection try switching to one of the others. If this does not solve the problem, contact tech support on (919) 461-0948.

The tracking function records the ping rate for each connection service provider.

NOTE: If you can log onto iEN's site, but are unable to join an Arena, it is possible that your ISP is receiving, but not sending packets of information. Log on to your ISP using a different dial up number, if possible.

Keyboard Settings Screen

The Keyboard settings have defaults which are also listed in "Keyboard Commands" on page 95. To change a setting, highlight the action in the Key Function list, and then select *Set Key.* Then either press the preferred key on the keyboard, or select the key on the screen with the cursor. Take care not to select the same key for two functions.

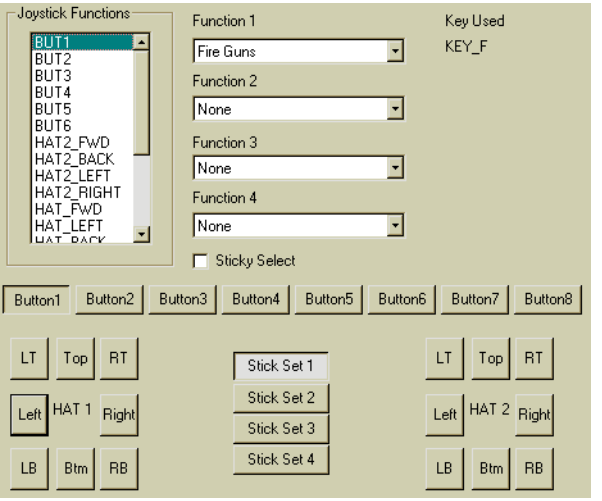


Keyboard Settings Screen

Joystick Mapper Screen

Use this screen to customize which commands are sent by each button or hat on your joystick.

To set a function for the joystick, first ensure that your joystick sends button or hat presses. Press the fire button (trigger). *BUT1* highlights in the Joystick function list, Function1



Joystick Mapper Screen

lists *Fire Guns* and the key used is KEY_F. This means that the first function of this button on the joystick is to fire your guns.

Press each button on the joystick in turn, and then move the hat (if you have one). Each button or hat movement has its function and key press displayed, if there is one.

Change or add a function by selecting a control on the stick, and then choosing a function from the drop-down list.

Additional functions can be set to a particular stick button or hat position by selecting a function in the Function 2, Function 3, and Function 4 lists.

For multiple stick sets, select the next set with the stick set 1, 2, 3, or 4 button and select functions for the buttons and hats in that stick set. During the game the stick set is selected by using **F5** for set 1, **F6** for set 2, **F7** for set 3, and **F8** for set 4.

When all the changes or additions that you want to make have been done, click *Apply.*

NOTE: If the joystick was not set up correctly when added to your Game Controllers, you may not be able to use all the functions associated with it. For example, if Windows has not been told that there is a hat function associated with this controller, the hat controls will not work in any application.

Credits

Producer	Jay “DIVINE” Littman
Game Designer	Dan “HOTSEAT” Neault
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Artist	Marco “CAVEMAN” Garcia
Senior Network Engineer	Tracy “ITIGGR” McQuillen
Command Center	Karl “SPOOK” Stahl, Kent “ICEMAN” East, Clint “-FOOK-” Richards, John “GIMLI-” Ewan
Web Ops	Rod “HERRHU” Harper, Rob “GUPPY” Shandroff, Jennifer “WEBWLF” Russell, Tony “-BIG-T” Miranda,
Documentation	Sara “slider” Ley
Special Thanks to	Krod, Fletchman, Hoof, Worr and the other *WarBirds* and *Dawn of Aces* Trainers
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Aircraft Data Supplied by	FCI Associates

Original Game By	Dale “hitech” Addink
Original Producer	Doug “pyro” Balmos
Additional Programming, Art, & Support	Jerry “klink” Comandante, Michelle “frau” Cook, Michael “Bludvl” Dean Mike “pison” Dickheiser, Brian “stick” Duelm, Joe “quiz” Enzminger, Steve “caligula” Evans, John “monkey” Guytan, Rodney “hatch” Hodge, Jonathan “hoof” Hoof, Neil “corn” Huntley, Scott “gringo” Inglis, Scott “potty-” Jacobs, Mark “mkix” Kaiser, Roger “fryingtiger” Long, Troy “rampage” Lowe, John “kango” Lundy John “killer” MacQueen, Bill “stealth” Maier, Nathan “natedog” Mathieu, Mike “boomer” McCoy, Jim “maypol” Mesteller, Russel “hoss” Mirabelli, Stacy “Moon” Mooney, Rod Moorehead, Dave “oscar” Murray, Veronica “postal” Newman, Bob “mandrake” Piper, Mark “snail” Pribe, Nathan “squirm” Revis, Chris “froggy” Roby, Steward “sudz” St John, Robert “gunjam” Salinas, Chris “mo” Sherland, Trey “yert” Taylor, Kristi “tweeti” Ware, Stephen “random” Wilkinson, David “duc” Womack,

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