

The Unofficial **ACES** of the **DEEP** Online Manual

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Quick Reference Card

Front and back

With the manual we're happy to share the Quick reference card as well. This contain very important shortcuts and more, to make you a successful u-boat commander!

Click the thumbnails for larger images.



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ACES of the DEEP™ Quick Reference

Game Commands

Abort Mission	CTRL+D
Options Menu	CTRL+O
Pause	CTRL+P
Music On/Off	CTRL+M
Music Up or Down	ALT+] or ALT+[
Sound Up or Down	CTRL+] or CTRL+[
Quit to DOS (confirm first)	CTRL+Q or ALT+X
Quit to DOS (don't confirm)	CTRL+ALT+DEL

View Commands

Select/Deselect Target	SPACEBAR
Identify Target	I
View Left	<
View Right	>
Set View to Heading	V
Set Heading to View	H
Raise/Lower Scope (in chart)	ALT+P
Zoom Periscope Mag.	Z
Torpedo Camera	F10
Padlock View	ALT+F2

Additional Commands

Man/Unman AA Gun	A
Man/Unman Deck Gun	D
Check Battery Level	B
Check Fuel Level	F
Check Remaining Oxygen	O
Launch BOLD	CTRL+R
Increase Time Compression	+
Decrease Time Compression	-
Reset Time to 1/1	ENTER
Repeat Last Message	BACKSPACE

Command Screens

Control Room	F1
Periscope	F2
Binoculars	F3
Bridge	F4
Charts	F5
Torpedoes	F6
Damage Report	F7
Radio Room	F8
Captain's Log	F9

Maneuvering

Dive Planes Up	↑
Left Rudder	←
Straight and Level	Keypad 5
Right Rudder	→
Dive Planes Down	↓
Engine Speed	1...6
Crash Dive	C
Periscope Depth	P
Surface Boat	S

Torpedo Firing

Open TDC	T
Fire Tube	CTRL+1...CTRL+6
Stopwatch	W

Courtesy United States Naval Institute



Voice Tube

Note: Some selections have quick key equivalents.

Chief Engineer

Periscope Depth [P]
Crash Dive [C]
Blow All Tanks
Surface [S]
Damage Report
Oxygen Remaining [O]
Deploy/Stow Snorkel

All Stations

Abandon Ship

Engine Room

Battery Level [B]
Fuel Level [F]

Sound Room

Report Contacts
Depth Under Keel
Record Player

Radio Room

Torpedo Room

Report
Launch BOLD [Ctrl]+[R]

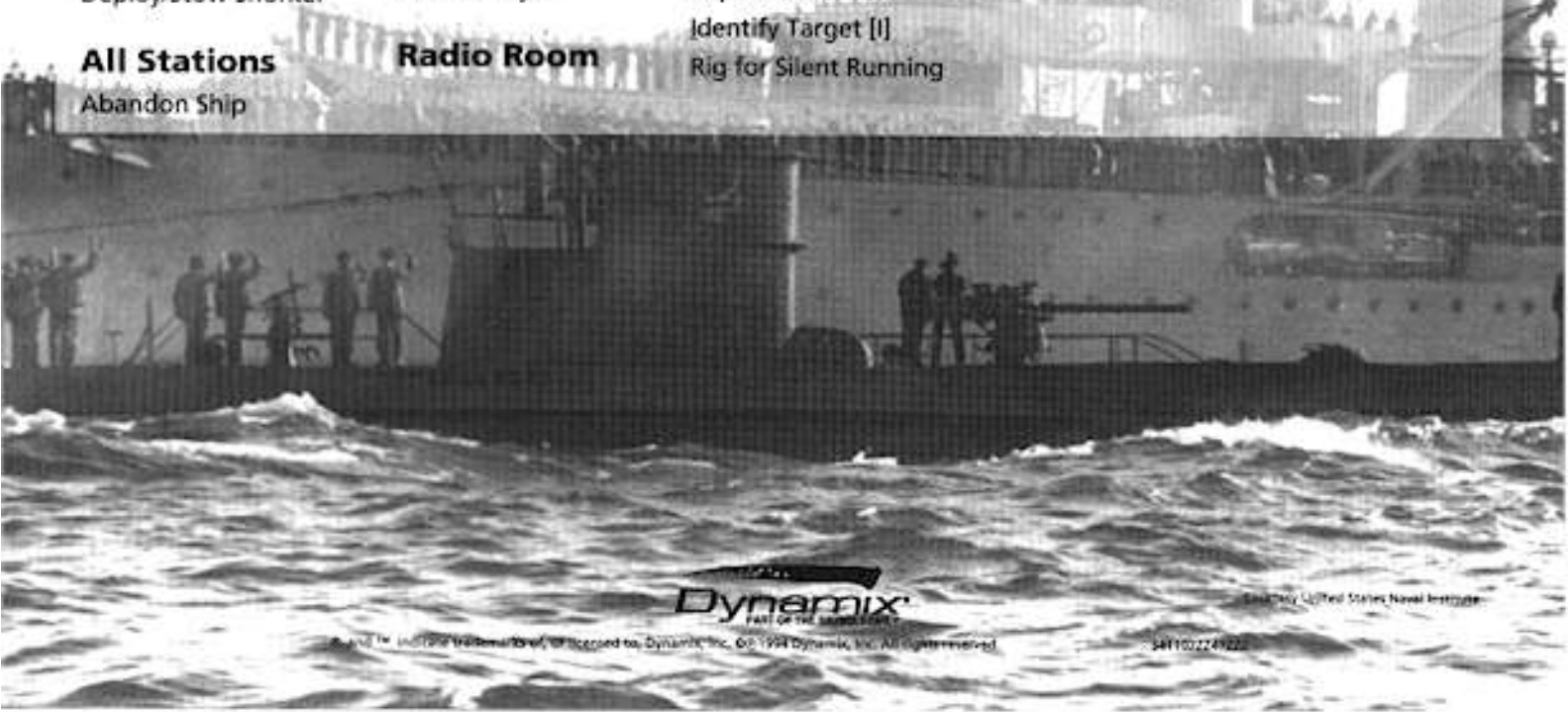
Watch Officer

Man/Unman ΔA Gun [A]
Man/Unman Deck Gun [D]
Report Contacts
Identify Target [I]
Rig for Silent Running



Radio Messages

Status Report
Request Orders
Contact Report
Battle Results
+SOS+
Request Escort



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Developed by United States Naval Institute

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ACES of the DEEP

Cover of AOD box

Front and back

As a few haven't seen the box (just a jewel box/CD-casing) below have a look at the real box of Aces of the Deep!

Click the thumbnails for larger images.



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1939-1945
GRIPPING U-BOAT
COMBAT IN THE
ICY NORTH
ATLANTIC



ACES of the DEEP



S I E R R A[®]

PC 3^{1/2}

Requires Modem 5.0 or better, 386 DX 33
4 meg ram, HD, Mouse, VGA
Supports Soundblaster, Pro Audio Spectrum
Roland MT-32, General MIDI



THE MOST DESPERATE BATTLE OF W.W.II IS ABOUT TO BEGIN

Between September 1939 and May 1945 Germany launched over 1,000 U-boats into combat against the Allies. These submersible war machines prowled the stormy seas, striking without warning as deadly phantoms of the deep.

As the commander of a U-boat you stalk the enemy in the icy waves of the North Atlantic in a battle where the hunter quickly becomes the hunted. Attempt to strangle shipping lanes and outmaneuver convoy escorts. React as technological advances, such as sonar and radar, wreak havoc with the mission of your submersible torpedo boat. Dive deep to avoid attacks from the sky. Measure your success in tonnage sunk. As the sounds of depth charges and twisting metal explode in your ears you will discover why the creators of Red Baron and Aces Over Europe* consider this their best simulation ever.*



FEATURES

- CDROM ❖ Exclusive video interviews with six leading German U-boat Aces including Otto Kretschmer, Esch Topp and Reinhardt Hardegen. Listen carefully as they divulge their strategies on how to successfully command a U-boat.
- CDROM ❖ Digitized speech available in English or German - a simple toggle allows you to move between languages.
- CDROM ❖ Extensively detailed on-line manual complete with historical overview, WWII video library, submarine capabilities and tactics, U-boat user, convoy tactics, historical battle maps and authentic articles and photography.
 - ❖ Ground shaded only and ships in a fantastical 3D environment with rolling waves, whitecaps, fog, clouds and weather effects.
 - ❖ Authentic special effects including depth charge explosions, burning ships, dramatic sinkings, and sounds like twisting metal and creaking hulls.
 - ❖ Evolving technology and tactics used by each side, such as new weapons, detection systems and counter measures.
 - ❖ Highly sophisticated artificial intelligence provides realistic enemy behavior, such as creeping attacks and planer attacks.
 - ❖ Choose from 25 historical missions or generate your own. Single Mission, Training and Campaign modes of play available with adjustable realism settings.
 - ❖ Multi-language text included: Install the game in English, German or French.



SOFTWARE AND INSTRUCTION MANUAL IN ENGLISH



ACES of the DEEP

Disclaimer

The outstanding U-boat simulation Aces of the Deep is a product of Sierra, who has all rights to its contents. This, the Unofficial Online Manual, is no act of piracy. On the contrary! By having an online version of the Manual, there's no excuse for buying a later release of AOD - even if it does not contain the sought for printed manual!

Always fight piracy! Never accept unauthorized copies!

The intentions with this Light, online version of the manual is to help support those who have lost their (six years old) manual and to provide a manual to those who **purchased** the game without printed matter what-so-ever.

This online version also indirect serves the purpose of keeping the interest for the game alive. Keeping the gamers happy and longing for to purchase next version, or another product from Sierra's great number of excellent titles.

This online version is also a tribute to Sierra and especially the people who made Aces of the Deep. At "Credits" (page 200) they are to be found!

If still not a proud AOD-gamer, you better order Aces of the Deep now!
Available, as usual at a nice price, from: www.sierra.com

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Getting Started

Using this manual

This manual helps you get the most out of Aces of the Deep quickly:

Getting Started shows you how to install and start the game.

The **Historical Overview** describes the U-boat's role in the Battle of the Atlantic, and highlights the dramatic incidents and shift in technology that took place as the war progressed.

The **Reference** section provides important background information on the vessels, weapons, and tactics you'll need to know to succeed.

Game Play provides a Tutorial of a convoy attack mission, and a complete screen-by-screen reference of the game's set-up menus and simulation controls.

The **Appendices** offer troubleshooting and memory configuration...

The Aces of the Deep Online manual

- This digital manual is easy to use and to navigate and it follows the original, printed manual page by page. However pages containing a single photo only are left out (such as 10 and 123) and some double pages are presented onto a single HTML-page (like 58-61).
- The intention with this digital manual is basically to support all the owners of later delivered games - that did not include any printed matter such as the manual, quick reference card, tactical chart, etc. Also it might suitably serve as an easy to reach manual for any legal gamer of AOD / Command AOD.
- The content of Aces of the Deep Online Manual is based upon the printed manual, and other printed matter delivered with disk based AOD, but will serve perfectly for CD-based version and for Command AOD as well.
- Any additions or comments made to the original AOD manual will be kept in blue color, just like this.

Changes to the manual

Any changes made to the Aces of the Deep after the manual was printed will be outlined in the README file. To view the file, simply change to the drive and directory where the game is installed, type README, and press [Enter].

System Requirements

Minimum

To run Aces of the Deep, you will need the following minimum software and hardware:

- IBM' PC' compatible computer with an 80386 DX33 , or better processor, and at least 4 megabytes (MB) of random access memory (RAM).
[Today we've learned that you should have at least an intel 486DX40 with no less than 8MB RAM. However you might also run "too fast" as modern PC's by far outline the specifications of those days. Moving to far up in the Pentium hierarchy will certainly give you trouble (up to P133 is tested and secured though) and the same goes for utilities such as graphics, sound cards and such. Later 3D graphics cards and later "mega" sound could cause AOD and even CAOD to malfunction or even not to start. The most devoted gamers have taken their old PC's out of the closets again - or for cheap money bought older machines just to have and run AOD/CAOD on them .]
- Microsoft MS-DOS version 5.0 or above.
[However MS DOS 6.x would be more suitable. With Command AOD you need to have Windows 95 as the Command version of AOD where created for that platform only.]
- Extended memory manager (EMM386 included with MS-DOS 5.0 and above, QEMM-386, or equivalent).
- Hard disk. Aces of the Deep takes about 10 megabytes (MB) of space on your hard drive. If your system uses some type of disk compression utility, such as 'stacker', you will need approximately double the indicated hard drive space (since the game files will not compress as much as your compression software will estimate).
[Try get rid of any disk compression solution. Run safe - get a larger hard drive or have something deleted to make plenty of room for the game.]
- VGA graphics card and VGA color monitor.
[At least, that is.]
- Microsoft compatible mouse.
[You wont be able to enjoy the game without a mouse.]
- - 1.44 Mb, 3.5" floppy drive.
[For CD version of AOD and Command AOD you need a CD-ROM drive and a dual spin will do(!)]

Recommended

- Sound Blaster" or 100% compatible sound card. See "Changing Sound Settings" for other sound cards supported.
[This is important as sound is essential to the game! Without sound you'll be a sitting duck when the escorts "ping" you, etc. However be sure to use a sound card like SB-16. It might as well work proper with SB-8 and SB-32.]
- SmartDrive disk caching software (included with Microsoft MS-DOS 5.0 and above), if you have more than the minimum 4 MB of RAM.

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The S.S. F.W. Abrahams goes down off the American east coast, 1942.

Memory Requirements

Even if you have the minimum 4 MB of RAM, Aces of the Deep may not run correctly unless the RAM is configured (set up) correctly for the game. If Aces of the Deep DOES NOT start correctly use the MS DOS MEM command to see if you need to free up some of your computer's memory From MS-DOS, type mem and press [Enter].

You need approximately 3,320 kilobytes (KB) of free memory to run Aces of the Deep. MS-DOS 6.0 or later shows this as "Total Free Memory." If you have MS-DOS 5.0, add "Largest executable program size" (free conventional memory), "bytes free EMS" (free expanded memory) and "bytes available XMS" (free extended memory). Together, they must add upto at least 3,400,000 bytes

(3,320 KB) total free memory. If you do not have enough free memory you probably have resident or , "background" programs and device drivers taking up memory that the game needs.

The simplest way to set up your system's memory correctly is to use the INSTALL program to create a "boot disk". For more information, please see Appendix B, "Configuring Memory".

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In this famous image, the captain of a type VII checks the periscope view while the control room crew looks on. This photo was widely distributed in Germany and was even placed on a postage stamp.

Installing Aces of the Deep

The Aces of the Deep install software automatically optimizes the games settings according to your computer's speed, graphics, sound board, and input devices. You can use Install to specify the game's default location on the hard drive, change preferences, and make a boot disk.

These instructions assume that you are using floppy drive A: and hard drive C:. If not, please substitute as appropriate.

1. After booting your machine, insert the Aces of the Deep Disk #1 into drive A:
2. Type the appropriate drive letter and press [Enter].
3. Type **Install** [Enter]
4. Follow the on-screen instructions.

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Changing Sound Settings

After installation, you can change the sound card or settings the game will use for sound effects and music. Follow these steps:

1. Change the directory in which you installed Aces of the Deep
2. In the Aces of the Deep directory, type **soundset** [Enter]
3. Use the menu selections to change the sound card and settings, save the settings and exit to MS-DOS.

Running Aces of the Deep

1. Change to the directory where you installed Aces of the Deep.
2. To run the game, type **aod** and press [Enter]. To move past the title screen, click the mouse or press [Enter] or [Space].

Controls

All you need to get around in Aces of the Deep is a mouse, although most commands have keyboard shortcuts. Use the mouse to control the pointer, or "cursor", on the screen, and click on buttons, menus, controls and arrows to select items or perform an action.

For most commands, just point to the item and click the left mouse button once, or "click". A few actions require you to "drag" the mouse (hold the left button down while moving the mouse) or use the right mouse button "right-click".

Keys are shown in brackets: [Enter], [F1], [Ctrl]+[X] are examples.

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Introduction

September 3, 1939. The low cry of a lookout brought Oberleutnant (OL) Lemp to the bridge of the U-30, a Type II A Unterseeboot ("undersea boat"), or U-boat, on patrol in the fading light of a late-summer evening 250 miles northwest of Ireland. U-30 had sailed from Germany with other U-boats in the middle of August when the Polish Crisis seemed likely to lead to war with the Western Powers. Only a few hours ago that likelihood had become reality - Germany was now at war with Britain and France. The captain's attention was drawn to the dark shape his lookout had spotted. A blacked-out ship large enough to be a passenger liner was zizagging at high speed across the horizon in front of the submarine.

The U-boats were operating under strict rules about what could and could not be attacked. It was forbidden to attack passenger liners. Passenger liners were not supposed to travel darkened, however, or zigzag as if they were combatant vessels. Lemp decided that the ship was an American Merchant Cruiser, a converted passenger liner fitted with naval guns to guard merchant ships. By 2100 hours, U-30 was in position, and Lemp fired two torpedoes into the target. Explosions lit the nighttime sky, and the ship went down with a hiss of overheated steel. Unfortunately, the ship turned out to be the 13,851-ton passenger liner Athenia enroute from Liverpool to Montreal, carrying over 1,100 passengers, including several hundred Americans. One hundred and twelve passengers lost their lives.

The sinking of Athenia caused an immediate furor in both Allied and neutral circles. It appeared as if Germany intended to wage the same kind of unrestricted submarine warfare that had come so close to cutting the sea lanes to Britain during the First World War. (In fact, the U-boats were under strict orders to operate according to existing maritime law, and those orders would remain more or less in force until the end of 1939.)

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A type VII U-boat on patrol in the Atlantic, 1942.

Both Germany and the Allies launched immediate propaganda campaigns about the incident. The German naval staff went so far as to falsify the log of U-30 to "prove" that the Athenia had been sunk as part of a British plot to lure the United States into the war. The Allies accused Germany of a deliberate campaign of terror and a complete disregard of civilized law. Only one thing was absolutely clear - Britain would once again have to fight for the sea lanes of the Atlantic.

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How a U-boat Works

A submarine is defined as any vessel that can submerge and navigate underwater using its own power. Unlike nuclear subs - "true" submarines which can stay submerged for months on patrols covering thousands of miles - the U-boat can operate submerged for only brief periods. Even so, it is an incredibly sophisticated piece of machinery.

The U-boat's core is a strong steel cylinder, called the pressure hull, that protects the crew and vital machinery against the tremendous pressures of the ocean depths. The pressure hull is surrounded by a much thinner external hull that streamlines the boat for movement through the water and provides control surfaces for navigation.

On the surface, the U-boat operates much as any other ship does. When driven forward by its engines, it turns using a vertically mounted rudder at the rear of the boat. When the rudder is turned right, for example, onrushing water pushes against it, swinging the stern of the boat to the left, and thus the bow to the right. The boat must be moving to turn, and is subject to the effects of wind, wave, and current like any other surface vessel.

Unlike surface ships, submarines can also adjust their buoyancy, or ability to float, so as to submerge and maneuver beneath the surface. Surface ships float (have positive buoyancy) because the weight of the water displaced by the hull is greater than the weight of the boat. Submarines use a complex system of tanks and valves to take water into the hull as ballast to the point that the boat has neutral or negative buoyancy (is sinking). To rise to the surface again, the ballast water is blown out with compressed air until the boat regains positive buoyancy again. Thus, a sub can sink or rise through the depths solely by manipulating buoyancy with ballast water and compressed air.

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Water streams from beneath the outer hull of a Type VII.

U-boat commanders prefer to keep their boats at neutral buoyancy. This allows the boat to dive quickly and operate submerged without constant dependence on compressed air. With electric motors pushing the sub, it can maneuver through the water in three dimensions using the rudder and the "dive planes" - pairs of wings on the external hull that can lift the boat or push it down. Buoyancy changes with the boat's weight and depth, and has to be carefully monitored and kept in balance, or trim. For example, firing a torpedo instantly creates more than a ton of positive buoyancy that must be offset by ballast quickly to prevent the sub from popping to the surface.

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The Simulation Model

While the basic physics of the submarine may seem simple, controlling them in an ocean-going vessel of war is not. Real U-boats, after all, require hundreds of precision systems, years of training, and a 45-man crew to operate. As a simulation, AOD recreates the challenge and sensation of commanding a U-boat while avoiding the myriad details and complexity. The North Atlantic ocean surface weather may in fact be too realistic for some. Time is modeled accurately: day follow night in a cycle marked by accurate sunrise/sunset times, lunar cycles, and star charts. Crush depth will vary, even between boats of the same type and model. When you raise the periscope, water sheets off of the lens. It takes time to clear the deck and start a dive, regardless of the urgency. Your rate of turn and climb changes with your speed. You may have a crash dive go out of control, taking you to crush depth.

On the less realistic side, the TDC calculates your firing solutions, and the Tactical and Strategic charts can give you an animated sky-eye that actual U-boat commanders would have given their favorite toe for. For the most part, the intricate chore of maintaining trim is handled automatically by the simulation. Many aspects of the model are adjustable to your preferences (see Realism Settings, page 139). If you play Aces of the Deep on the *Expert* level, rest assured that there is no fuller realism available. Enjoy.

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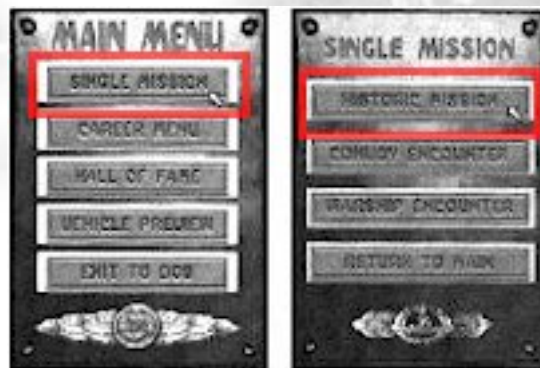
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TUTORIAL

The following "tutorial" section introduces *Aces of the Deep* through *step-by-step orientation tour as you set up and initiate a convoy attack. This is a good way to learn U-boat command procedures. (Actually, you can learn by playing any mission type, but use the easier Encounter Option and Realism settings until you know your way around.)*

For a menu-by-menu description of each mission selection function, see the "Ashore" section beginning on page 132. U-boat controls are described in "At Sea", starting on page 151.

- First install *Aces of the Deep* (AOD) as described on page 8.
- After AOD is installed, go to the directory in which you installed AOD, type *aod* and press [Enter] to start the game. (To skip the title sequence, press [Space]. After the title sequence, you will see the Main Menu.
- To start the tutorial, select *Single Mission*, and then *Historic Mission*.



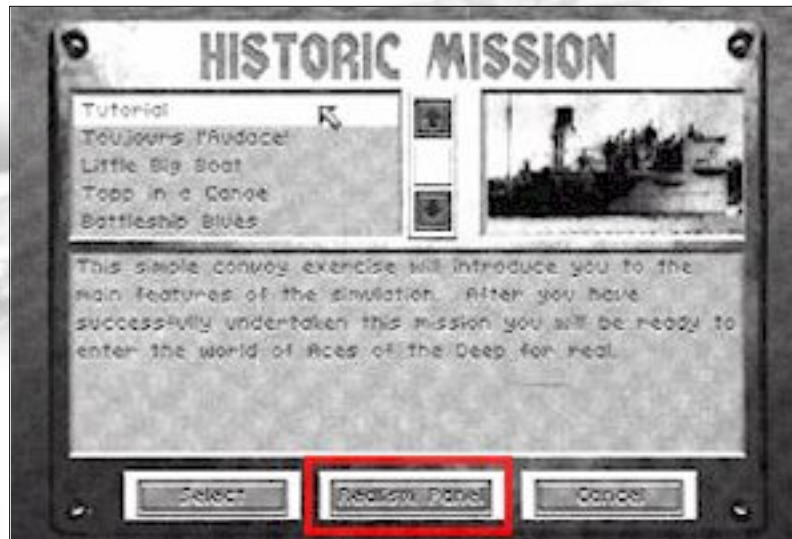
Mission Setup

In the Historic Mission screen, click on the first mission, *Tutorial*, to highlight it and read its descriptive text. As with the Historical and Career missions, the *Tutorial* mission conditions (number of ships, aircraft, weather, etc) are predefined. It is dusk. March 1, 1941, and you are commanding a type VII C U-boat. The allies have yet to deploy effective radar or anti-submarine tactics, so you may conduct a night surface attack.

Your boat is operating alone, and the sea is calm. (In the Convoy and Warship Encounters, you may define these and other mission conditions variables yourself.)

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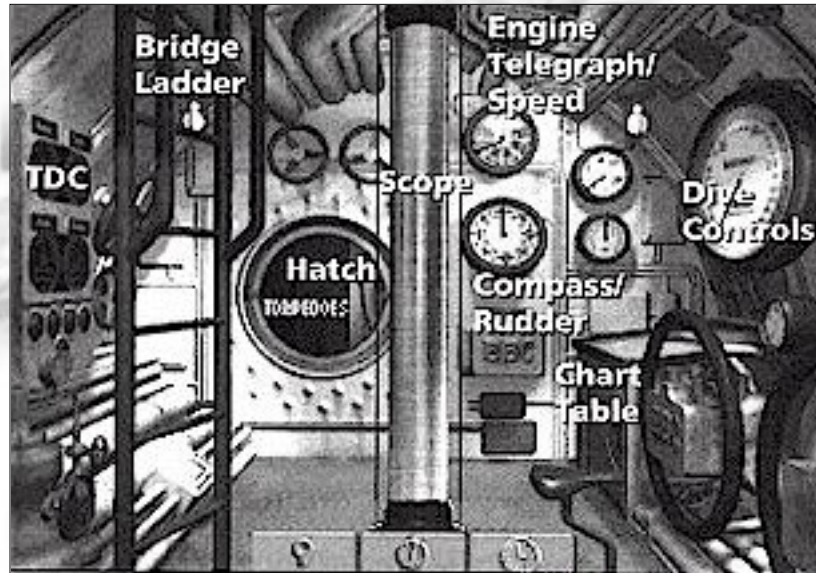
To adjust the realism settings, click on the *Realism* button. The more options you select (X), the more realistic and difficult the mission becomes. For now, use the default settings - press *Done* to return to the Historic Mission screen.



With the *Tutorial* mission highlighted, click the *Select* button. You will then see the Mission Briefing screen, which recaps your mission selection. To continue, click *accept*. After a few seconds, you will see the Control Room of your U-boat.

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Voice Tube Stopwatch Clock

Control Room

For a quick tour, move your mouse cursor through the Control Room from the left. (You can control the entire mission with the mouse, and many controls also have key commands.) You'll see labels appear as you point to the TDC (Torpedo Data Computer), the Bridge ladder, and the hatch leading to the Torpedo Room, Radio, Damage Report and Captain's Log. In the middle is the Scope, and to the right of that are the Engine Telegraph/Speed controls (top) and Compass/Rudder controls (bottom). The large Dive Controls are on the right bulkhead. Just below (on type VII boats) is the Chart table. The command buttons along the bottom provide other controls: the Voice Tube (to give crew commands), Stopwatch (for timing torpedo runs) and the Clock (for time compression). Different buttons appear in other screens.

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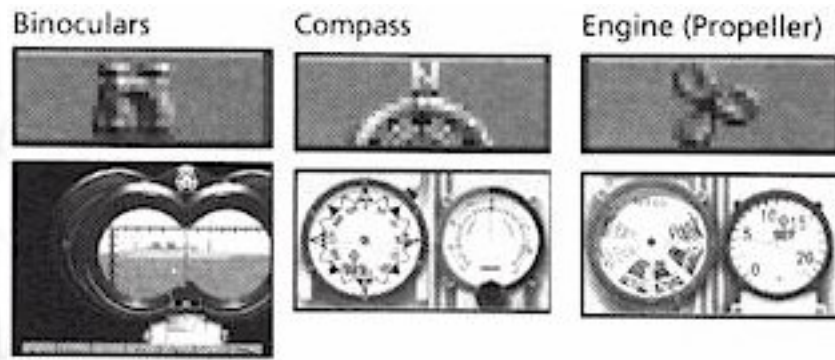
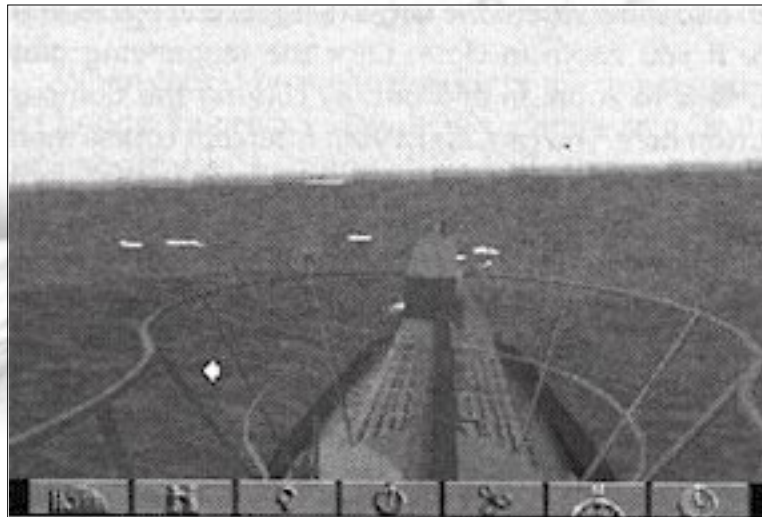
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Bridge

By now, you should have received a contact report from your Watch officer. Click on the ladder to go to the Bridge and investigate. From the Bridge, click the mouse to scan the horizon for ships: click near the middle of the screen (small cursor) to scan slowly, and click near the edge (big cursor) to scan quickly.

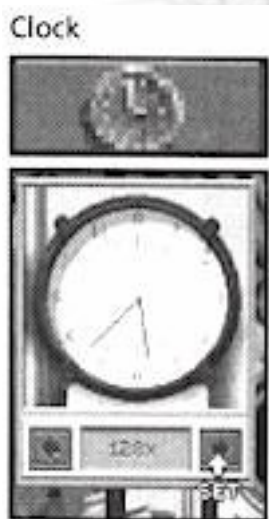
If you see ships, click on the Binoculars button, and scan with the binoculars to locate the ships again - you'll see their relative compass bearing below the eyepiece. Click on the Engine button at the bottom - the engine room telegraph - and click *Ahead Full*. Then click on the Compass button and drag the compass indicator to the target bearing. Your boat will begin to head directly for the target. Right-click to close the Compass and Telegraph display. Click the far left "ladder" button to return to the Bridge view.



Clock

From the Bridge, click on the Clock button. The clock shows the time (in 24-hour notation) and lets you speed time up while getting into position, and slow it down

again when ready to attack. Click the right-hand scroll bar arrows or press the (+) key until the display shows 32x or so. (Each click greatly increases the speed: be careful with time compression, or you may zip right past the convoy.) Press <Enter> to return to 1x time.

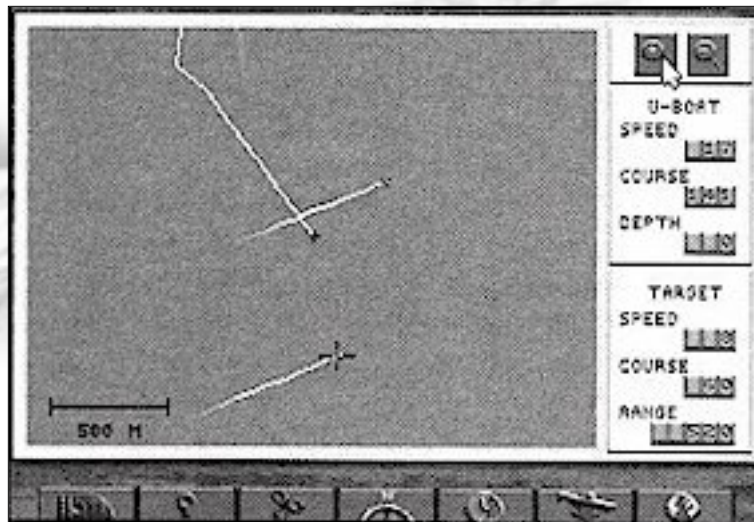


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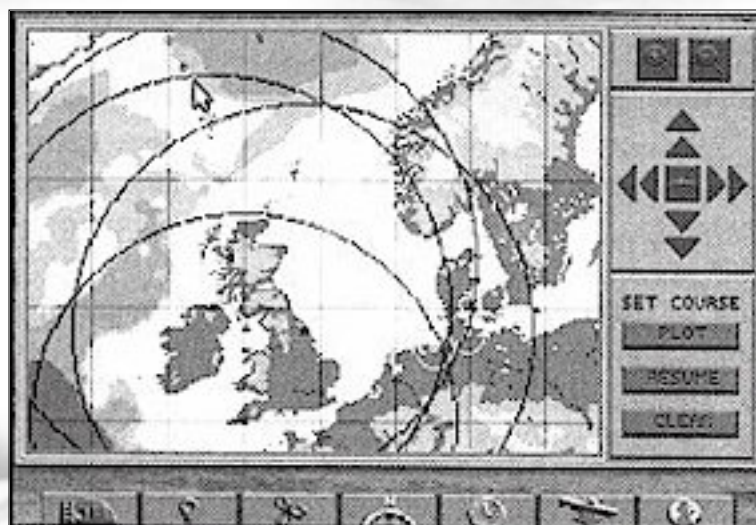
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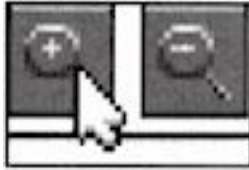
Tactical Chart

To see a "map" view of the convoy as you approach, press [F5] to open the tactical chart. This display helps you see the convoy's zigzags and true course, range and can also show where the largest targets and escort ships are if you zoom in close. Click the magnifying glass buttons to zoom in and out.

By clicking the Compass button here, you can adjust your intercept course more accurately. Now click the Globe button on the far right. This gives you the strategic chart you'll use to navigate to and from base in Career missions. For now, click the Globe button again to return to the tactical chart.



Magnifying Glass buttons



Compass



Globe



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Setting Up the Attack

While stalking the convoy, you can switch directly between the Chart [F5] and the Binoculars [F3] to monitor target course and range. You want to pull even with or ahead of the convoy at a safe distance (5000 meters or so), and then angle in from the side to firing a range (under 1000 meters). Remember, the Binoculars bearing display is relative - a reading of 90 degrees means you are looking 90 degrees starboard of the bow, regardless of your boat's compass heading.

When you start getting close, click on the Clock button to slow down time again to 1x (normal). Keep an eye on the escort - if you see an escort suddenly head for you, your surprise attack is blown. At any time, you can press [Ctrl] + [P] to Pause the game if you need a moment to decide your next move.

Clock



Aiming with the TDC

When your U-boat is to the side of the convoy, go to the bridge Binoculars view [F3]. Locate the ship in the vertical crosshair and press [Spacebar]. This selects the target, distinguishing it with a red crosshair and entering its data into the TDC. Click the Torpedo button to see its TDC data, which includes target bearing (relative to your boat's heading), speed, range, and actual compass heading (if within range). The crosshairs grow brighter the longer the target is selected, showing the increasing accuracy of the firing data. To see your Watch Officer's estimate of the selected target vessel's type and gross tonnage, press [I]. Before firing, you want the U-boat pointed within 20 degrees of the target for best accuracy. (To turn towards a selected target you're currently viewing, press [H] - this turns your heading to the current view.

To change the view to the current heading, press [V]). You want to be between 300 - 1000 meters from the target, and perpendicular to it - check your firing angle using the chart.

Torpedo



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Fire

When the fire conditions are acceptable, click the red fire buttons I and II on the TDC. You can switch to the chart to see the torpedoes' course, and switch back to the Binoculars in time to watch them hit (if your aim was true) or watch them hit using "Victim View" [F10]. Two torpedo hits will sink all but the largest ships.



Evade

Once your first "eel" hits, the escorts will be alerted and will try to attack you quickly. In many night attacks early in the war, you can evade slower escorts on the surface by using your speed and the chart to outmaneuver them. You may be able to line up and sink other targets while the escorts pound the wrong area to a froth. If the escorts are cornering or overtaking you, you should dive before their deck guns hit your boat and prevent you from diving (track them in the TDC to check range). Go to the chart. You should see the escort charging to the point where it saw you last. If you make it safely below, the escort will start "pinging" with ASDIC (sonar) pulses as it tries to box you in with its search patterns. Keep turning your boat end-on to these pulses to reduce..

Diving

If forced to dive, return to the control room [F1]. Click the Voice Tube button, select *Chief Engineer*, and order *Crash Dive*. You may also click the Dive Controls and drag the depth indicator to the desired depth. Below 150 meters, depth charges will have little chance of hitting you (this changes later in the war). Once you reach your depth, go to your Engine ("propeller" button) and reduce speed to Ahead 1/3 - this will reduce your engine noise so the escort hydrophones cannot detect you as readily, but gives you enough headway to turn.

Voice Tube



Engine (Propeller)



- Chief Engineer
- Engine Room
- Sound Room
- Torpedo Room
- Watch Officer
- All Station
- Radio Room



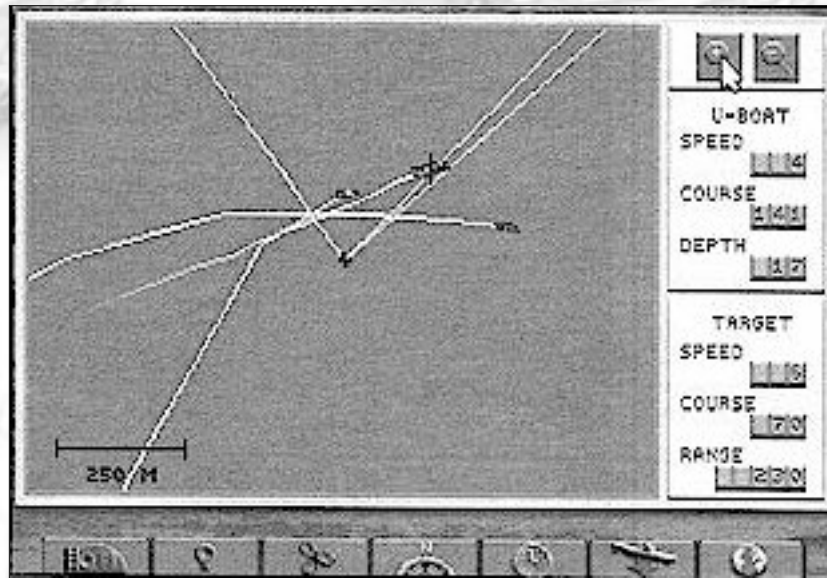
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your echo. You can also use the noise of the merchant ships to cover your sound. Using depth and the chart, and constantly angling away from the escort, you should be able to slip away fairly soon. You may then surface and make another approach on the convoy, or retire from the engagement.



Ending the Mission

Any single mission where you sink a ship and get away is a good one. The mission will continue as long as you maintain contact with the enemy - if you lose contact with the enemy ships or sink them all, the mission ends. (Naturally, the enemy can end your mission by sinking or capturing *you*.)

In Career mode, you end missions (war patrols) by navigating back to a friendly base and radioing for an escort into the harbor.

You can also end missions in progress by selecting *Abort Mission* from the Simulation Options menu ([Ctrl] + [O]), or by pressing [Ctrl] + [D]. If you abort the mission while engaged in combat, however, your mission score will be zero.

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ASHORE

Main Menu Overview

This section introduces the AOD mission setup options, starting with the main menu. Each subscreen is described in detail on the following pages. For a guided tour of the U-boat, try the preceding "Tutorial" section. For a U-boat control reference, see "At sea" starting on page 151.



Single Mission

Launch one U-boat combat mission at a time, selecting all aspects of the mission conditions and setup. Single missions get you into specific convoy, warship, or historic action quickly, and are scored independently. (See page 134 for more).

Career Menu

Undertake a entire career as a German U-boat commander, starting with assignment to your first command. Your career will be composed of patrols, each a series of actions that correspond to the actual circumstances, technology, and events in the Battle of the Atlantic.

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Career scores are cumulative accounting for performance on all missions. (See page 143 for more).



Wolfgang Luth, second highest scoring U-boat ace, and his new bride.

Hall of Fame

Review your highest scoring single missions and careers. You may also view profiles of the most famous historic U-boat aces. (See page 149 for more).

Vehicle Preview

View the ships and planes you will encounter on patrol, and learn to recognize them from any direction or distance. The more familiar you are with appearance and capabilities of the enemy units, the better your chances of surviving your encounters with them. (See page 150 for more).

Exit to DOS

Leave *Aces of the Deep* and return to DOS.

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SINGLE MISSION

The options on this menu let you undertake one combat mission at a time, and give you control of each missions setup. If you select *Convoy Encounter* or *Warship Encounter*, you may select the number of ships, time of day, weather, as well as difficulty and realism levels you will encounter. In *Historic Mission* (including the *Tutorial*), the mission options are predetermined, but you may still adjust the realism settings.



To begin the selected mission using the current Ecounter Options (page 136) and Realism (page 139) settings, click *Select*. This takes you to the mission briefing, which will describe your objectives for the mission. You may cancel from the Mission Briefing and return to your mission menu. If you accept the mission, you will go to sea in your U-boat.

-Note: If you abort a mission (Ctrl + D) while engaged in combat, your mission score will be zero.

Single missions begin with your boat near the enemy and end when you lose contact with the enemy or are killed or captured. When your mission ends, you will see the Patrol Summary screen, which shows the number of ships you sank, their cumulative gross tonnage, and your mission score based on your achievements, mission difficulty and realism factor. Unlike Career missions, you cannot save a Single Mission in progress.

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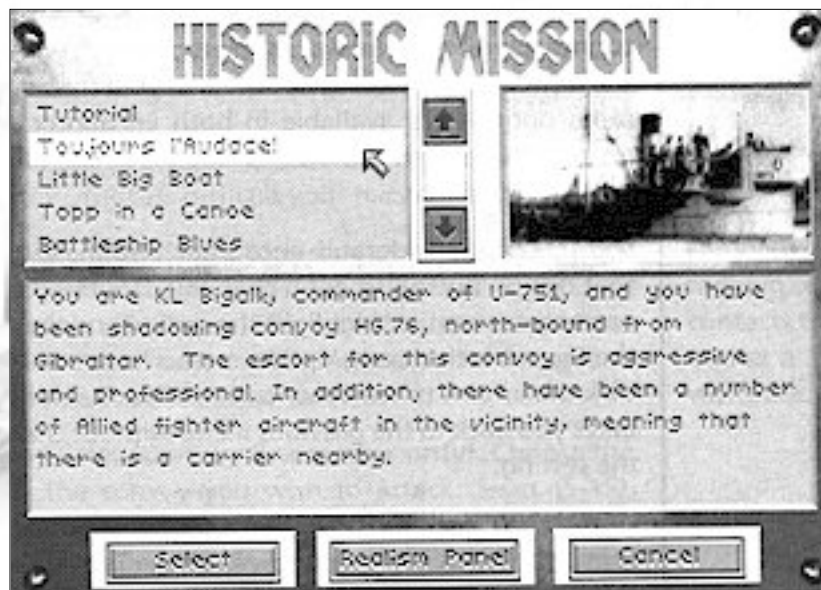
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Mission Types

This section describe the types of missions you will encounter in AOD Single Missions or Careers.

Historic Mission

The screen lets you experience an actual historical U-boat action from the Battle of the Atlantic. The mission conditions and forces will be those of the actual battle, but now you will be commanding the U-boat. Also included is the Tutorial mission, which guides you step by step through an example convoy action. (The "Tutorial" section starts on page 124.)



The menu at the upper left lists the available missions. Click on the mission name to highlight it and see its corresponding description below. To see other missions on the list, click on the scroll bar arrows.

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Convoy Encounter

On this mission type, you will intercept a convoy and attempt an attack.

Warship Encounter

On this mission type, you will intercept and attempt to attack a group of Allied warships. Warships are much faster than convoys - often faster than your U-boat - and are always heavily guarded and risky to attack.

Encounter Options

When you select a Single Mission Convoy or Warship Encounter, you may change the encounter options that, together with the Realism Settings you select, will affect the difficulty and scoring potential of your mission. The same options are available in both Encounter types, except *Warships Type* replaces *Convoy Size* in the Warship Encounter screen.

To change a default encounter option, first click that option button to open its menu. Double-click the option you want, or highlight the option and then Click the *Select* button. Long option menus have scroll bars: click the arrows to see the other options. The *Cancel* button takes you back to the previous menu without changing the setting.

U-boat Type. Choose which type of U-boat you will command for this encounter. Selecting a Type II U-boat will increase the difficulty of this encounter, since the smaller U-boats were not as fast as the larger Type VII and IX boats, and carried fewer torpedoes. See the "U-boats" section (page 78) for details on each type and variant.

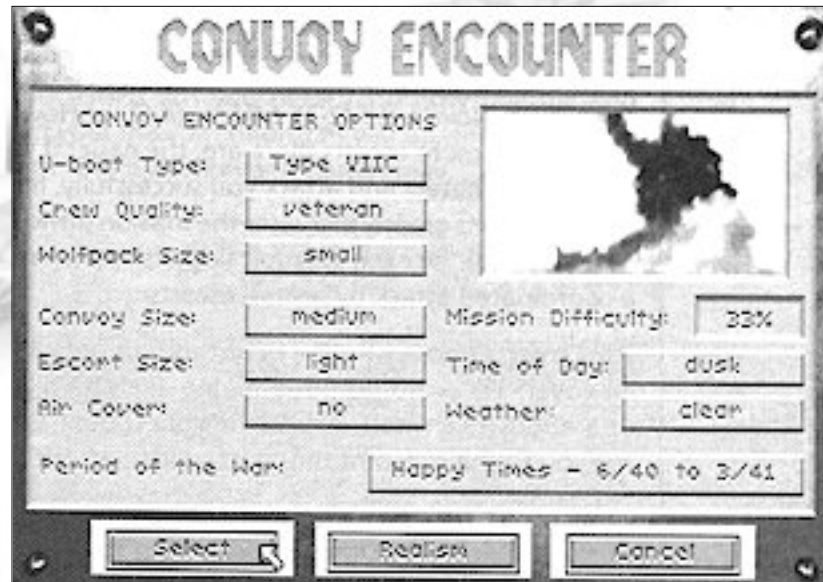
Crew Quality. Choose the quality of the crew of your U-boat. Crews may be *Green*, *Veteran* or *Elite*. Skilled crews are able to crash dive more quickly, reload...

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...torpedoes more rapidly, etc. The more highly skilled your crew, the less difficult your mission will be.

Wolfpack Size. Select the size of the U-boat pack attacking the enemy ships: *None*, *Small* (2-3), *Medium* (4-6) or *Large* (6 or more). The more U-boats there are to gather at the convoy, the less likely it is that the escorts will be able to concentrate on you.

Convoy Size. (Convoy Encounter only). Choose the size of the convoy you wish to attack: *Small* (5-15), *Medium* (20-35), or *Large* (40-60). Larger convoys decrease the mission difficulty since they provide more targets and their escort perimeter is easier to penetrate.

Warship Type. (Warship Encounter only). Select what kind of warship group to attack: *a Cruiser*, *Battleship*, or *Carrier* group. This option defines the main target in the warship group, the one you should try to sink. All warship attacks are difficult. There is no greater glory for a U-boat skipper than to sink one of the enemy's priceless capital ships. However, warship tonnage is not...

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...added to your tonnage list, since your primary mission is to sink merchant shipping.

Escort Size. Select the number of warships escorting the target: *None*, *Light (2-3)*, *Medium (4-6)* or *Heavy (7+)* escorts. The more escorts there are, the easier it will be for them to detect and attack you successfully. Increasing the escorts greatly increases the mission difficulty: it is very difficult for even the most skilled skipper to evade a coordinated attack by several escorts.

Air Cover. Choose whether or not your target will have air cover: *Yes* or *No*. Anti-submarine aircraft will make operations much more difficult for your U-boat, subjecting you to the constant threat of sudden attack.

Mission Difficulty. This displays the relative difficulty of the mission encounter options you have currently selected, indicated as percentage. The tonnage you sink on a given mission is weighted against the Mission Difficulty, Realism Factor and other variables to determine your mission score.

Time of Day. Select what time of day the mission simulation begins; *Dawn*, *Day*, *Dusk* or *Night*. Early in the war, U-boats conducting night attacks on the surface are almost invisible. Later radar makes night approaches much more difficult.

Weather. Select the weather conditions for the mission scenario. You may choose from *Clear*, *Overcast*, *Cloudy* or *Stormy*. Inclement weather reduces visibility, which usually favors the U-boat (but also conceals approaching aircraft).

Period of the war. Choose the time period in which the encounter will take place. Different periods will present different advantages and challenges to the player (see the "Historic Overview" for details). In general, the later in the war, the more difficult the mission will be. Note: You may select Encounter Options that do not correspond historically to the selected period (i.e., selecting a Type VII C in 1939, before they were available).

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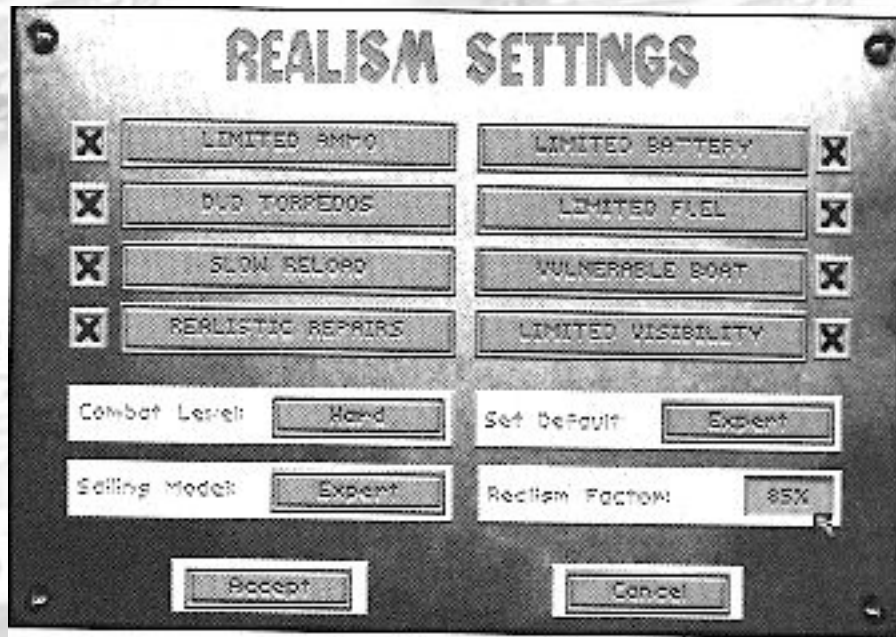
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REALISM SETTINGS

This screen lets you determine how realistic and difficult your mission conditions will be, and is available for both Single Mission and Career play.



You may set the default realism level at *Novice*, *Intermediate* or *Expert* to match your level of experience. You may also turn the specific realism settings on or off, and set general difficulty settings for *Combat* and *Sailing* independently. Once you have defined your Realism settings, press *Accept* to continue with your mission setup using those settings, or press *Cancel* to return with no change in the default setting.

You may switch the following eight specific realism settings on ("X") or off (blank) by clicking on them. Each box selected increases the Realism Factor of your mission, and thus also increases your potential score in proportion to its relative difficulty. Once you begin a mission or war patrol, you cannot change the realism settings until your return.

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Limited Ammo - if selected, this setting limits your submarine to the actual number of torpedoes your U-boat type could carry historically: 14 for a Type VII C, for example. Running out of torpedoes effectively ends your offensive mission, and indicates a good time to return to base. Turning this setting off gives you an unlimited number of torpedoes.

Dud Torpedoes - if selected, this setting subjects you to an historically accurate percentage of "dud" torpedoes: some of your torpedoes will go too deep, explode early, or fail to explode even they hit a target. The percentage of duds on a given mission depends on the period of the war in which the mission takes place. Turning this selection off means your torpedoes always work if you aim and fire them correctly.

Slow Reload - if selected, this setting imposes realistic torpedo reload times on your crew. If you switch it off you can reload torpedoes much more rapidly than was actually possible. On either setting, better crews reload the tubes faster.

Realistic Repairs - if selected, this setting makes damage repairs at sea much more realistic. Some repairs may put you out of action for days - others may force you to surface, or return to base in Career missions. If you switch this option off, you will be able to repair any damage to your U-boat relatively quickly.

Limited Battery - if selected, this setting models the U-boat's consumption of battery power realistically. (If you run out of battery power when submerged, you may sink!) If you switch this option off, you will not run out of battery power.

Limited Fuel - if selected, this setting models the U-boat's consumption of diesel fuel realistically. You will have to monitor fuel carefully, or you might run out in mid-ocean. If you switch this option off, your sub will not run out of diesel fuel.

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Depth charge exploding behind an American escort vessel.

Vulnerable Boat - if selected, this setting makes your U-boat vulnerable to damage from enemy weapons. If this option is not selected, your boat cannot be damaged by enemy depth charges, torpedoes, hedgehogs, or guns.

Limited Visibility - if selected, this setting limits your [F5] tactical chart to show only those ships currently visible from the bridge as indicated by the red ring. At more difficult combat settings, the chart will not show ships beyond the visible horizon, and won't show any ships if you submerge below periscope depth. If you switch this option off, all vessels in your area will be visible on the tactical display.

Combat Level - This setting determines your general advantage, if any, in offensive and defensive action. For example, it affects visibility, the accuracy of your torpedo targeting computer and of your deck gun and AA fire, as well as the damage caused by your weapons' hits.

It also determines how easy you are to spot on radar, how much damage your boat suffers from an enemy hit, and how much information is displayed on your tactical chart (including ASDIC pings and torpedo tracks). On the *Easy* setting, your boat is relatively hard to hit, while you can hit and sink enemies rather easily. On *Medium* or *Hard*, your advantage is reduced. On *Expert*, you have no advantage.

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Sailing Model - This setting determines the realism of your U-boat's maneuverability, a critical factor in avoiding enemy attacks. Specifically, it affects how long it takes your boat to crash dive, change depth by a given number of meters, or complete a turn at a given speed. The *Novice* setting makes your boat much more maneuverable than historical boats, while *Expert* models maneuvering rates realistically.

Set Default - This setting lets you define all your Realism Defaults with a single selection. The options are *Novice*, *Intermediate*, and *Advanced*. You may still modify the individual default settings as you wish.

Realism Factor - This setting displays the realism level (and scoring potential) of the realism settings you have currently selected. This level is expressed as a percentage, with 100% as maximum. Your mission score is determined as follows: tonnage (or warship sinkings) are combined with your selected realism factors and mission difficulty (Encounter Options). At 100%, your achievements at sea can be scored at their highest potential value. You will see your score in the Patrol Summary screen that appears at the end of each mission.

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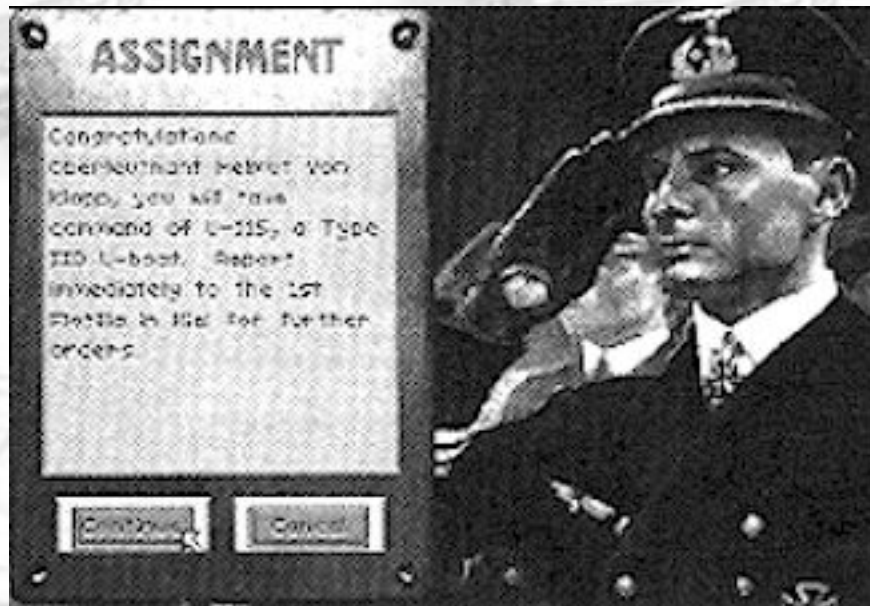
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CAREER OPTIONS

Select *Career* to begin or resume a career as a U-boat commander in the German Navy, the "Kriegsmarine".



Careers begin with your assignment to your first command. Your career will then be composed of war patrols. Each patrol is a mission that corresponds to the actual circumstances, technology, and events of that period in the battle of the Atlantic. You will sail from historical bases and navigate the hazardous course to your patrol area. Following radio orders from BdU (U-boat Headquarters) or engaging targets of opportunity, you may encounter enemy convoys or warship groups and then return to base.

Between patrols, you may relax on well-deserved shore leave. You may also be assigned to a new base or U-boat, be decorated for your victories, or be promoted. If you succeed and survive, your weapons will become better, and the enemy more proficient - as will those of the enemy. You may become a legendary skipper, competing for medals and glory and the top ranking in the Hall of Fame. You may end up in a prison camp. Or you and your crew may end up in a dark iron tomb on the cold floor of the Atlantic. Your luck and skill as a commander will decide.

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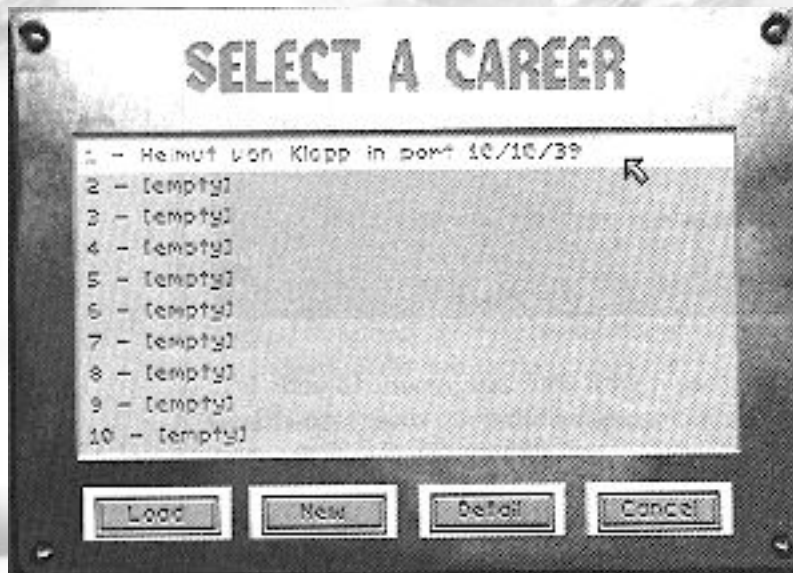
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Select a Career

This screen lets you create a new career (captain), load an existing career to continue, or see details of existing careers. Initially, the career roster will be empty. You may have multiple careers for each captain you create, but you can have no more than 20 saved careers at a time.



Load. To load an existing career to continue, click on the career to highlight it, and then click *Load*. A career labeled "At Sea" will resume the war patrol at sea from the point it was saved. A career labeled "In Port" is between patrols, and will resume from the Career menu (page 145).

New. To create a new career, click the *New* button on the Select a Career screen to open the New Career screen. Type your captain's name in the Your Name box exactly as you want it to appear. Then click on the *Starting Period* button to select when your career will begin. You may then select the personal emblem that will decorate your U-boat conning tower: click the arrows next to the emblem window until the emblem you want is displayed.

When your selections are complete, click *Select* to go to the Assignment screen. Here you will be given the number and type of your new U-boat and assigned a base of operations for your first patrol. You may *Cancel* to return to the Select a Career screen, or *Continue* to go to the Career Menu ([see next page](#)).

Detail. Click this button to see details on the progress of the current career. Click *Done* to exit.

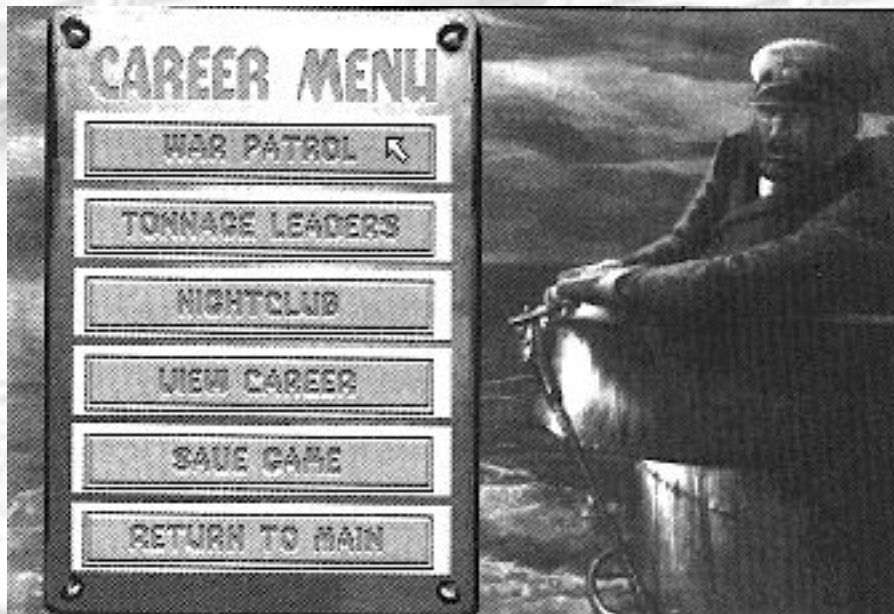
Cancel. Click this button to return to the Main Menu.

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Career Menu

Once you start a career, or resume one saved "in port", you will play from this menu.



[On following pages buttons are explained]

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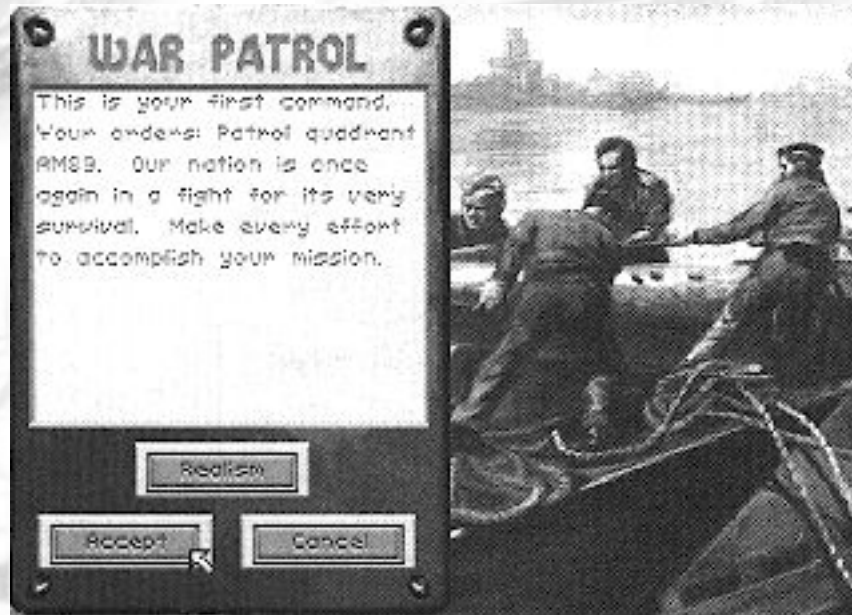
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War Patrol

This option sends you first to a mission briefing. Here you may review the mission objectives for this patrol and adjust your Realism settings. When ready to ship out, click *Accept* to leave port and go to sea on your next War Patrol.



War Patrols differ from Single Missions in that you must make the journey to your patrol area (using the Strategic Chart to navigate) before engaging in assigned missions. To end a patrol (after you run out of torpedoes or targets, or run low on fuel), you must return to the escort perimeter of your base (green circle on the strategic chart) and request an escort to finish the mission. You can also end missions in progress by selecting *Abort Mission* from the Simulation Options menu ([Ctrl] + [O]), or by pressing [Ctrl] + [D]. If you abort the mission, however, your mission score will be zero.

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Tonnage Leaders

This screen will give you a list of the top U-boat skippers up to the current month. This let you compare your performance against that of the historical aces.

COMMANDER	TONNAGE
Lump	23206
Schubert	19409
Stapp #	16698
Schulze, Herbert	14777
Kellogg	14012
Bellman #	13291
Hobkiss	8706
Dein	8270
Belmer von Klapp	0

OCT 10 1949

Done

With enough sinkings, your current captain's name may some day top this chart.

Night Club

This is your chance to relax between patrols with your fellow U-boat captains in the company of the lovely Elise, sweetheart of the U-boats.

Here you may pick up interesting gossip, rumors, and current war news from your comrades. Click *Next* to hear the next bit of "news", and click *Done* when you've heard enough. Be careful, though, though...you cannot believe everything you hear in a bar.

View Career

Select this option to see the war record of the current captain. The screen displays totals for patrols, tonnage, sinkings, and score, as well as a list of sinking by date, and any decorations awarded to the captain. You can also access this screen with the Details button in Select a Career.

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June 1942, Captain Erich Topp is back from another war patrol. He wears his brand new Knight's Cross around his neck.

Save Game

Select this option to save career when you are "in port" between patrols. If you already have 20 careers saved, you will need to replace a previous career to make room. You may also save your career at sea during a mission (if you are not in combat with the enemy) using the *Save Game* option on the [Ctrl] + [O] pop-up menu. Using this option, you just click on a blank slot or existing career to replace it with the current career. Enter a description for the saved game and press *Enter*.

Return to Main

Exits the Career Menu and return you to the Main Menu.

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Hall of Fame

Use this screen's options , available from the Main Menu only, to compare your current performance with your earlier missions or with the greatest submarine commanders of the battle of the Atlantic.

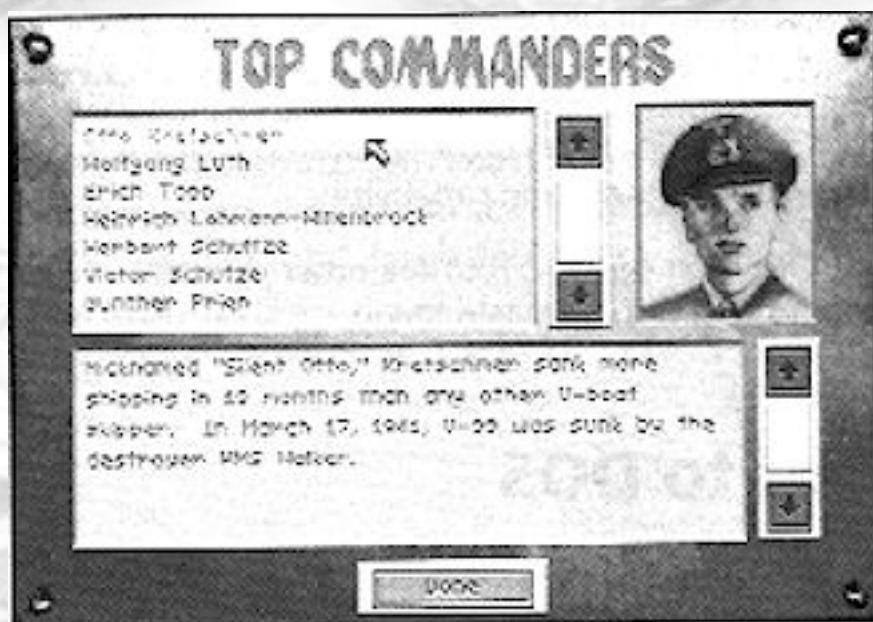
The primary mission of the U-boat forces is to sever the ocean supply routes to England. Accordingly, your performance is scored by factoring the cargo tonnage or warships you sink with the overall mission and realism difficulty.

Top Missions - This screen shows you a list of your highest-scoring single missions, ranking them by tonnage, ships sunk, and score. Click the *Detail* button to see a more detailed list of ships sunk; click *Done* to exit.

Top Careers - This screen lists your highest final career scores by name, tonnage, ships sunk, and score. For more information about the career click the *Detail* button; click *Done* to exit. Careers are eligible for the top career list when you finish the war, are killed, captured, or you retire.

Historic Aces - This screen profiles the most successful historic U-boat aces. You may click on an ace's name to see his picture and a brief description of his war record.

Return to Main - Exit the Hall of Fame and return to the Main Menu.

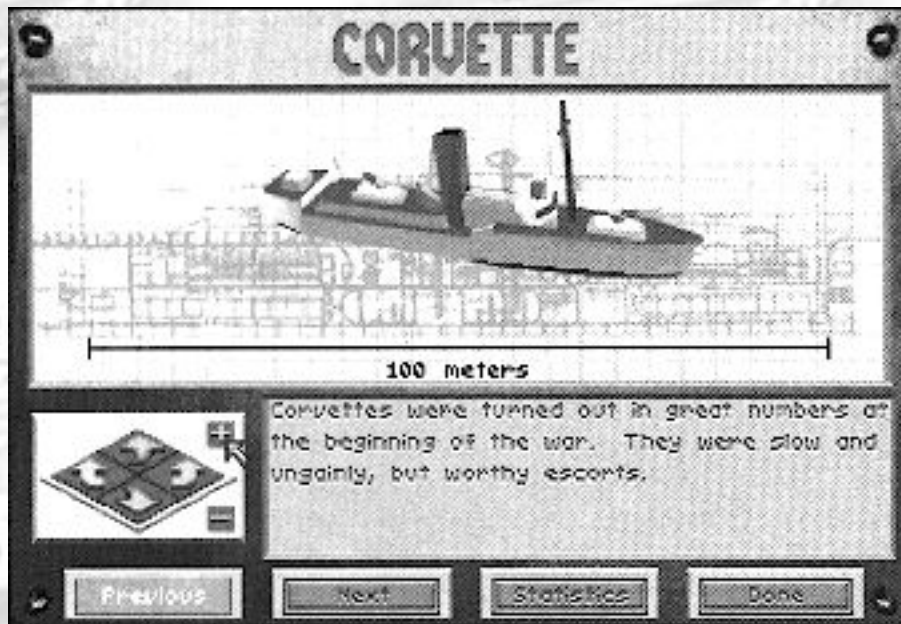


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Vehicle Preview

This screen displays views, descriptions, and statistics for the ships, aircraft, and submarines featured in the simulation.



Click the arrow buttons on the right or left to rotate the vehicle horizontally; click on the up and down arrow buttons to rotate vehicle view vertically. Click on the "+" or "-" buttons to zoom the view in or out.

Click the *Statistics/Description* button to learn about the vehicle's history and capabilities.

Click *Next* or *Previous* to see other vehicles, or click *Done* and return to the Main Menu.

Exit to DOS

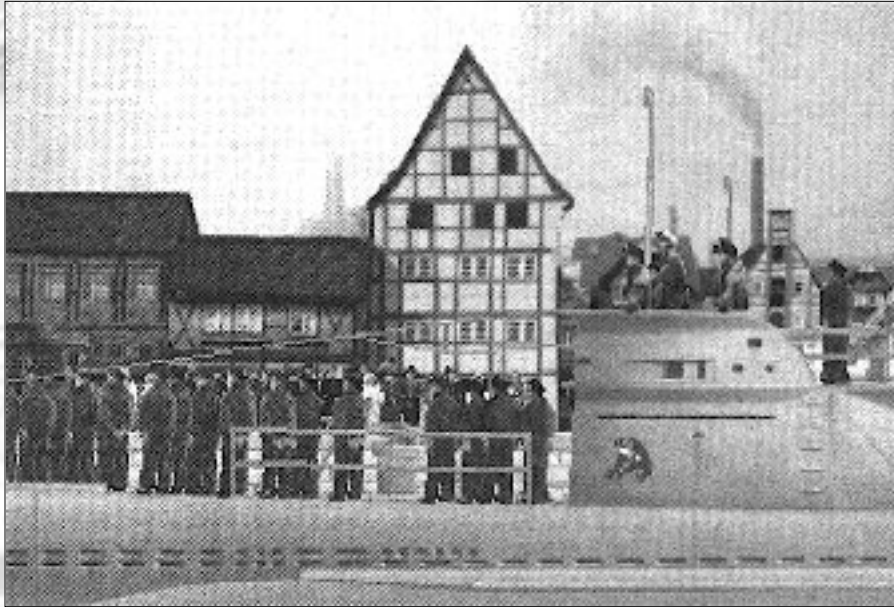
This Main Menu option lets you leave Aces of the Deep and return to DOS.

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AT SEA

Once you have chosen to undertake either a Single Mission or a Career War Patrol you will receive a Mission Briefing summarizing your initial orders. After you click *Accept* to end the Briefing, your boat puts to sea.



At sea, you can move to the different areas of the boat (see Command Screens) and give commands with the mouse. Many commands have keyboard equivalents as well. Command screens also have a row of command buttons across the bottom that provide related functions. See "Buttons" (page 169) for command button functions.

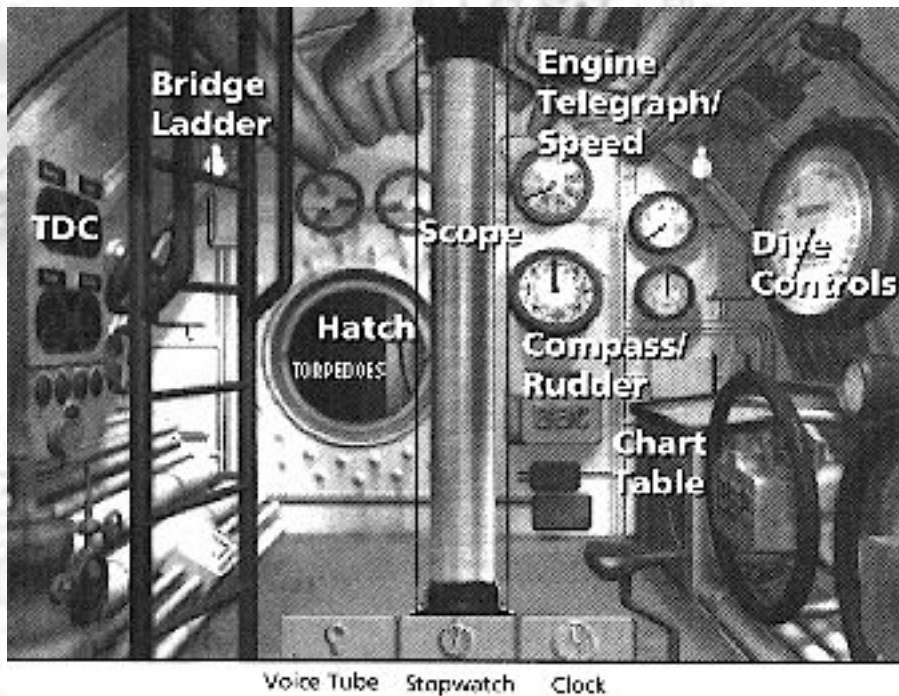
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Command Screens



Control Room

The Control Room is the command center of your U-boat, and the place where you begin each mission at sea. You can access it throughout the boat by pressing [F1] or by clicking the Control Room command button found in most other screens. The Control Room provides point-and-click access to most of the command screens and controls you use to maneuver your boat and conduct attacks. As you point to each area of the Control Room, you will see the name of the corresponding screen or control appear: Torpedo Data Computer (detailed on page 175), the ladder leading to the Bridge (page 155), and the hatch leading to the Torpedo Room (page 165), Radio Room (page 163), Damage Report (page 168) and Captain's Log (page 162) screens.

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Dividing the Control Room is the Periscope. Just to the right of the periscope is are the Engine Telegraph/Speed (page 172) and Compass/Rudder controls (page 170). On the right bulkhead are the Dive Controls (page 171), used to submerge and surface the boat. On Type II and Type VII boats, the Chart table (page 157) is below the Dive Controls; on Type IX's, the Chart table is on the left, behind the ladder.

The Control Room has the following command buttons: Voice Tube, Stopwatch, and Clock. Different buttons appear in other screens: all are described in the "Buttons" section (page 169).

Periscope

You can access the Periscope from the Control Room by clicking the periscope column, or by pressing [F2] when the boat is at periscope depth or surfaced. It allows you to scout the horizon or conduct attacks while submerged. Keep in mind, however, that the periscope can be spotted by lookouts or radar, especially if the weather is smooth or the moon is behind you, and that your visibility and speed are greatly reduced at periscope depth. Also, you are vulnerable to ramming or air attack at periscope depth. Take quick peeks to update your target contacts, and lower the scope as you move into position.

To scan the horizon with the periscope, click the arrow cursor right or left near the middle of the screen (small cursor) to scan slowly, and click near the edge (big cursor) to scan quickly (or use the [<] [>] keys). The periscope has two magnification settings: click on the knob at far left of the eyepiece to change the setting between 1.5x and 6x, or press [Z] for Zoom.

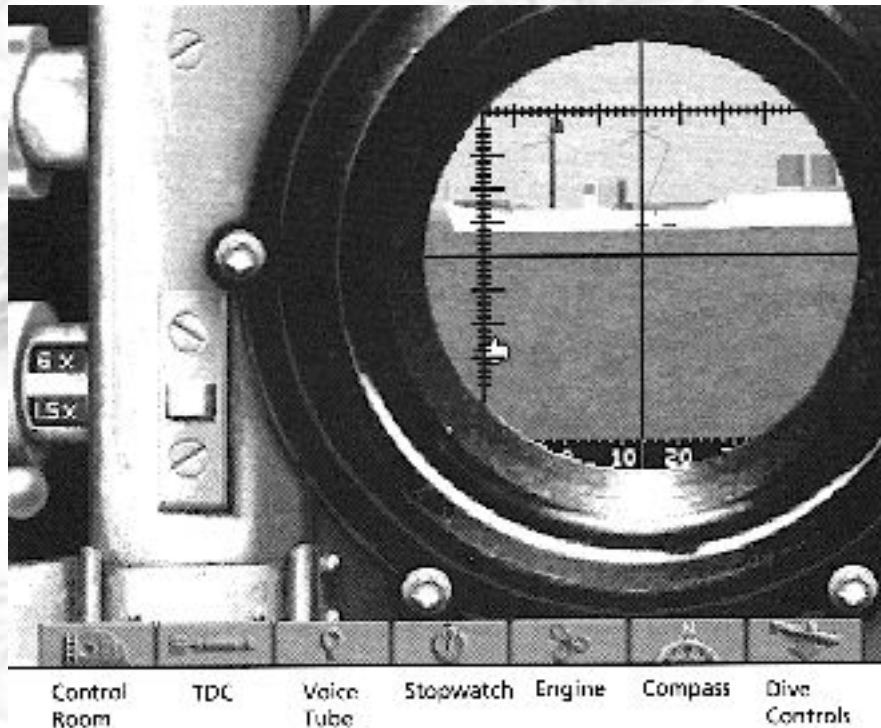
You can select a ship you see in the periscope to input its targeting data (bearing, speed, range, and heading) into the Torpedo Data Computer, or TDC. To select a target, center the periscope on the target and press ...

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... *Spacebar*. This selects the current target (indicated by a red cross) and sends its data to the Torpedo Data Computer. (When surfaced, you may also select targets using the binoculars or by clicking on them in the Tactical Chart). To "padlock" the selected target (keep it centered in the periscope), press [Alt] + [F2]. To break the lock, select another view.

The bearing indicator at the bottom of the eyepiece displays the bearing of the current view relative to the bow of your boat (not your compass heading).

The Periscope screen also uses the following command buttons: Control Room, TDC, Voice Tube, Stpwatch, Engine, Compass, and Dive Controls. See "Buttons" (page 169) for details. Related quick keys: Periscope Depth [P]; Crash Dive [C]; Set Heading to View [H]; Set View to heading [V]; Identify Target [I]; Surface [S]; Zoom View [Z].

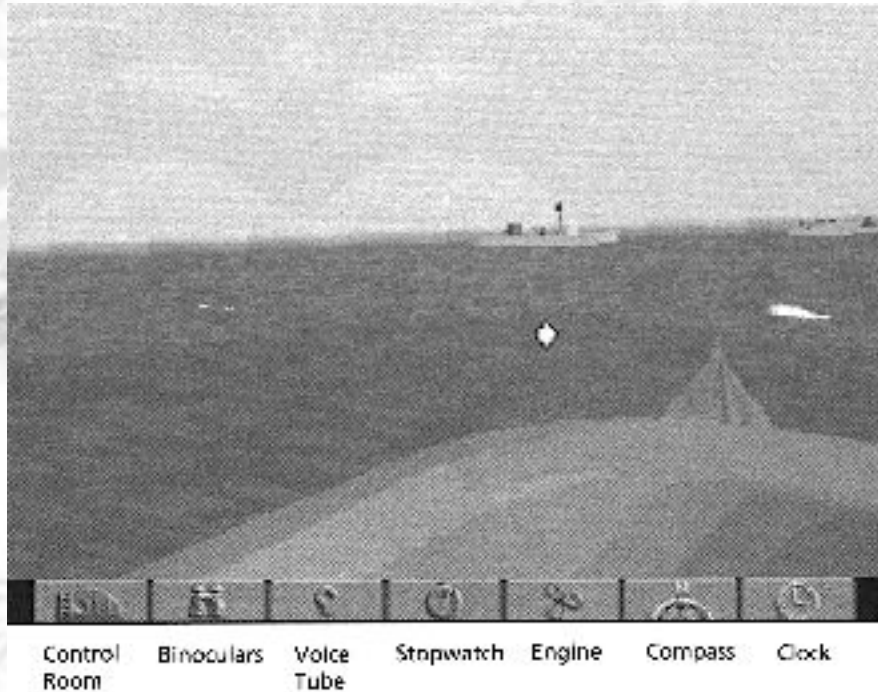
Note: From the tactical chart, you may order your watch officer to raise/lower the periscope with [Alt] + [P].

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Bridge

When your boat is surfaced, you can access the Bridge from the Binoculars or the Bridge ladder, or by pressing [F4] key. It provides a panoramic view of the surrounding ocean from the conning tower, and allows the best vantage point for spotting aircraft; facing astern, you will see the railing around your anti-aircraft gun platform.

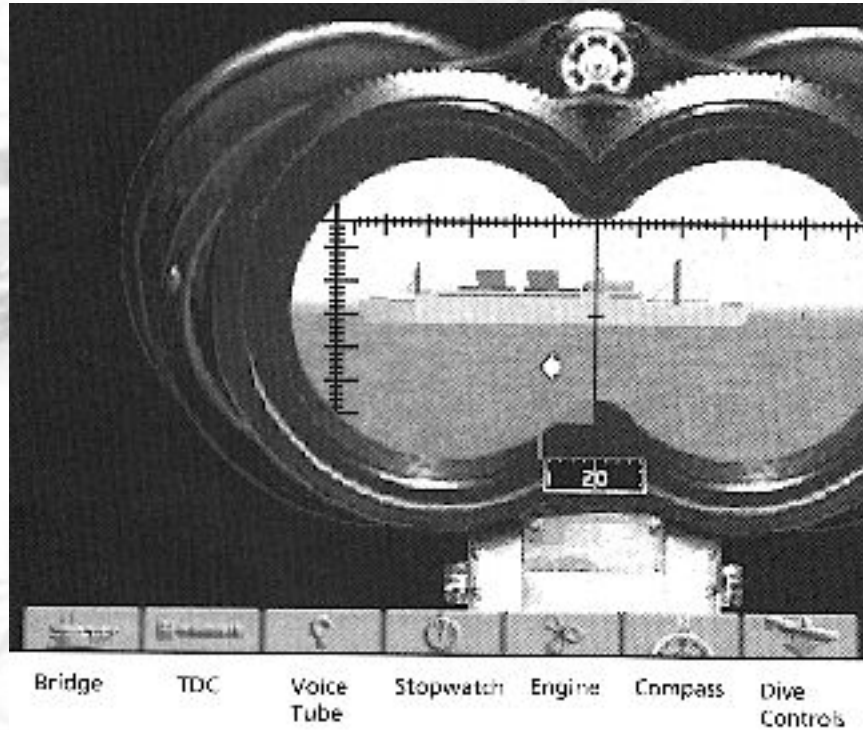
As with the periscope, click the arrow cursor to scan the horizon right or left: click near the middle of the screen (small cursor) to scan slowly, and click near the edge (big cursor) to scan quickly (or use the [,<] [,>] keys). The Bridge uses the following command buttons: Control Room, Binoculars, Voice Tube, Stopwatch, Engine, Compass, and Clock. See "Buttons" (page 169) for details. Related quick keys: Crash Dive [C]; Set heading to View [H]; Set View to Heading [V]; Identify Target [I]; Man/Unman AA Guns [A]; Man/Unman Deck Gun [D].

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Binoculars

Accessed via the Bridge or the [F3] key when your boat is surfaced, the Binoculars provide a magnified (7x) view of the horizon, and like the Periscope, function as a target bearing transmitter for torpedo attacks. As you do with the Bridge and Periscope view, click near the middle of the eyepiece (small cursor) to scan the horizon slowly, and click near the edge (big cursor) to scan quickly (or use the [<,>] keys). You cannot change the Binoculars magnification level.

Below the eyepiece is a gauge showing the relative bearing of the current view. For example, a reading of 90 degrees means you are looking 90 degrees (due starboard) of the bow, regardless of your boat's compass heading.

To select a target ship in the Binoculars, move the center vertical crosshair over the target and press [Spacebar]. This selects the current target (indicated by a red cross) and sends its data to the Torpedo Data Computer (TDC).

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To "padlock" the selected target (keep it centered in the binoculars), press [Alt] + [F2]. To break the lock, select another view. The longer a target is selected, the more accurate the TDC data will be (crosshairs brighten).

The Binoculars screen uses the following command buttons: Bridge, TDC, Voice Tube, Stopwatch, Engine, Compass, and Dive Controls. See "Buttons" (page 169) for details.

Related quick keys: Crash Dive [C]; Set heading to View [H]; Set View to Heading [V]; Identify Target [I]; Man/Unman AA Guns [A]; Man/Unman Deck Gun [D].

Charts

Accessed from the Control Room [F5], your Tactical Chart displays a "map view" of the nearby tactical situation, while the larger Strategic Chart helps you navigate long distances. To switch between the Tactical Chart and Strategic Chart, click on the Globe button (far right) or press [F5]. The other Chart command buttons are Control Room, Voice Tube, Engine, Compass, Clock, and Dive Controls. See "Buttons" (page 169) for details. Related quick keys: Up/Down Periscop [Alt] + [P]; Identify Target [I]. (Must be at periscope depth; watch officer performs both).

Tactical Chart

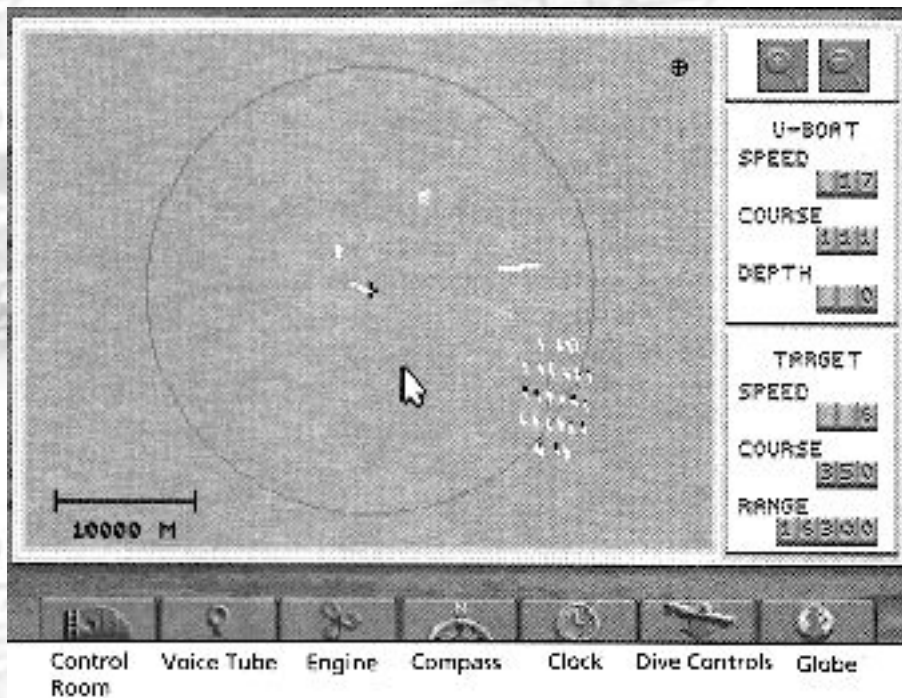
The Tactical Chart displays the vessels, the ocean, and land in your immediate area. It is always centered on your U-boat and oriented to compass North. Your boat is marked with a black cross, and surrounded by a red circle showing your approximate range of visibility. (If the Limited Visibility realism setting is disabled, you can see all ships in the chart range, regardless of the weather, time of day, or whether you are submerged or not). If you dive, your dive point is marked with a red square.

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The charts are animated to provide tactical updates in real time. The tactical chart automatically plot and displays all visible ships, and displays their wakes to highlight course changes. It also displays hydrophone contacts from your sound room as lines along the contact bearing: bright red for high-speed screws (escorts), and gray for low-speed screws (merchant ships), and white for convoys. Similarly, when an enemy is using ASDIC or SONAR to find your boat, you will see the directional "pings" of its underwater search pattern as it tries to locate you (except in Expert Combat mode). You can pick up hydrophone contacts far beyond visual range

Note: your U-boat must be stopped or moving slowly to use the hydrophone.

Zoom. Click on the Magnifying Glass buttons to zoom the chart scale in "+" and out "-". The tactical chart has several display scales from 50 meters to 20,000. For larger scale views, use the Strategic chart (Globe button).

Scale. The scale bar (lower left) displays the chart scale at a given zoom level. For example, at 100 M, the bar represents a distance of 100 meters.

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U-boat. These indicators display your U-boat's current *Speed* (in knots), *Course* (compass heading), and *Depth* (in meters).

Target. These indicators display the current estimated *Speed*, *Course*, and *Range* (in meters) of the selected target vessel. Estimate accuracy varies with crew experience, your selected Combat level, and how long the target is selected. To select a target ship from the tactical chart, click on it. (You can also select the ship from the Periscope or Binoculars). The selected ship will be marked with a red cross, and its estimated target data will be input to all ready torpedoes.

Periscope. If you have selected Limited Visibility, your target data will "fade" when you submerge unless you regularly check the periscop or surface to keep the contact current. To have your watch officer raise or lower the periscope from the chart and update the contacts, press [Alt] + [P] - you will see a periscope icon on the upper right of the chart as long as the scope is up. Press [Alt] + [P] again to lower it.

Note: Don't leave the periscope up, or it will be spotted.

Strategic Chart

The Strategic chart shows you events on an oceanwide scale, and allows you to plot a course to join up or avoid them.

Coordinates. The chart will display the latitude, longitude, and Kriegsmarine patrol quadrant coordinates of your current mouse cursor position whenever you click on the chart. Use this feature to fix your position and plot courses.

Zoom. As in the tactical chart, click on the Magnifying Glass buttons to zoom the chart scale in "+" and out "-".

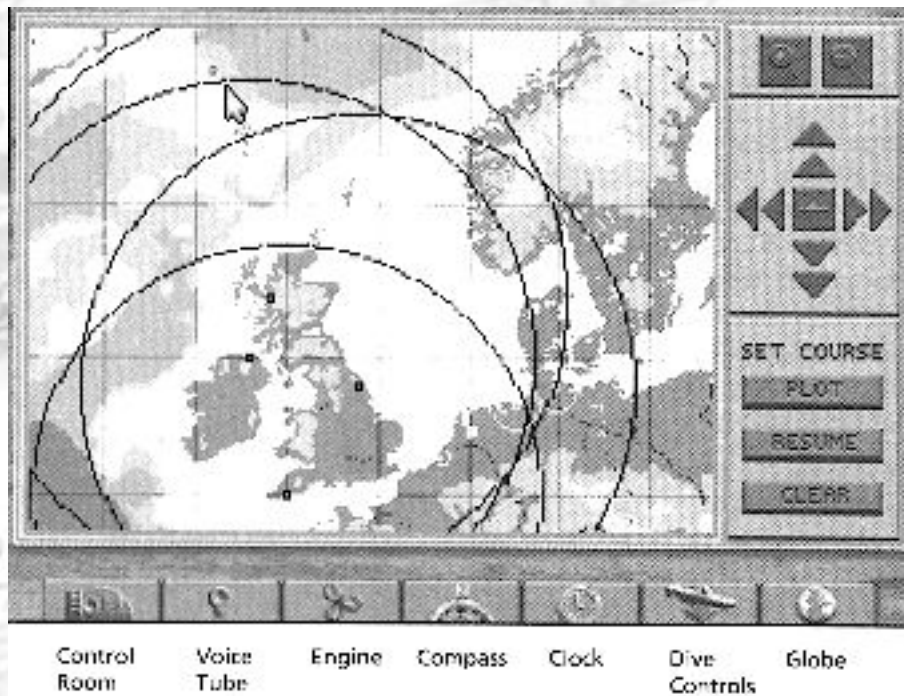
Scroll buttons. To center the chart on your sub, click on the U-boat button. To scroll the chart North, South, East or West, click on the corresponding arrow buttons surrounding the U-boat. The inner arrows scroll slowly, and the outer arrows scroll quickly.

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Set Course. These buttons allow you to plot courses all around the North Atlantic. You draw a course as a series of legs, or line segments, with the *Plot* function.

PLOT. To set a course, first change the *Zoom* level to where you can see your destination. Click the *Plot* button. Now when you move the cursor, you will see a line stretching between the cursor and your boat's current location. At lower left, the chart will now display the cursor's location in logitude, latitude and Kriegsmarine patrol quadrant, and the *Plot* button will now read *Enter*.

Ideally, you can plot a straight line course to your destination. (Prevailing winds and currents are not factors). However, you will usually have to plot the course in segments (legs) to avoid enemy coastlines, aircover, or formations. As you move the cursor to the next navigation waypoint, a valid course is shown with a light gray line. (If the line crosses land, it turns red).

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Click at the waypoint, and the line turns dark gray to set the course for that leg. Continue setting waypoints until you have plotted the course to your destination. To lock in the course, right-click the final waypoint or click the *Enter* button.

Your boat will now undertake that course until you interrupt with new orders or reach your destination. You can use the Clock to compress time on your journey: it returns you to normal time if your lookouts spot a target or threat. Note: Your navigator will inform you of arrival at your destination, but your boat continues on its last heading and speed until you give new orders.

RESUME. If your U-boat's course is interrupted (you spot a target or are jumped by aircraft, [or dive] for example), you may return to your course afterward by clicking on the "Resume" button.

CLEAR. To erase a set course, click on the *Clear* button.

Strategic Chart Symbols

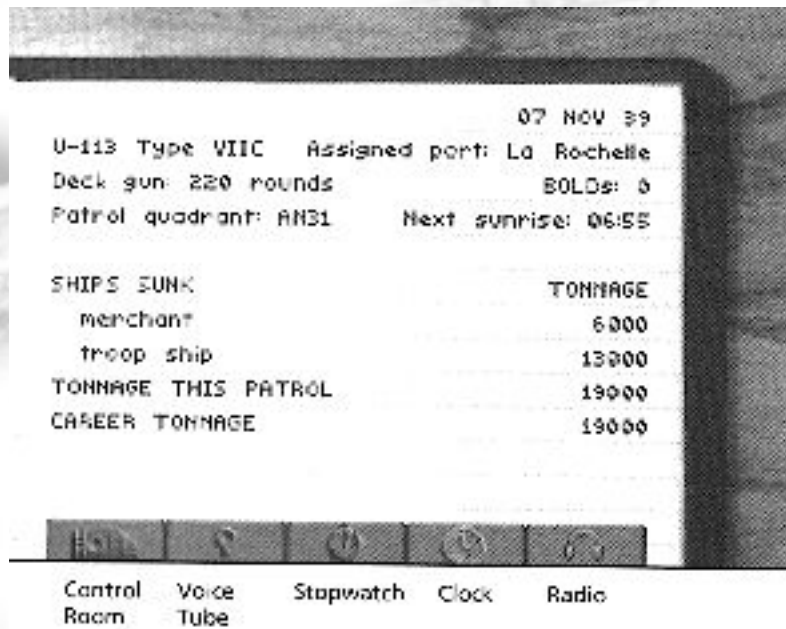
- Your boat is a red square. Click the U-boat button to center the map on your sub.
- Other U-boats appear as light yellow squares.
- Enemy convoys and warships appear as black or gray squares. Black squares indicate current, reliable contacts. At easy Combat levels, contact courses are displayed as white lines. At more difficult Combat levels, the course plot disappear, and the black contacts soon fade to gray (become less reliable) if not updated by new intercepts or shadowing reports.
- Enemy air bases appear as blue squares. Each base is surrounded by a blue circle indicating the reported scope of its air patrols. (As escort carriers become more common later in the war, you can expect air attack anywhere).
- Friendly bases appear as green squares within a green circle. If your U-boat is within one of the green circles, you may radio for a friendly vessel to escort you into the base. This is how you end a War Patrol in Career mode.

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Captain's Log

The Captain's Log (accessed from the Control Room hatch or by pressing [F9]) displays the name of your captain (in Career mode), the current date, the number and type of the current U-boat, and its home port. It also shows the number of deck gun rounds and BOLD canisters remaining, and the current patrol quadrant (location), along with the times for the next sunrise or sunset. Below that, the log records a complete list of ships sunk, with the type and tonnage of each vessel sunk for this single mission or for your career (in Career mode).

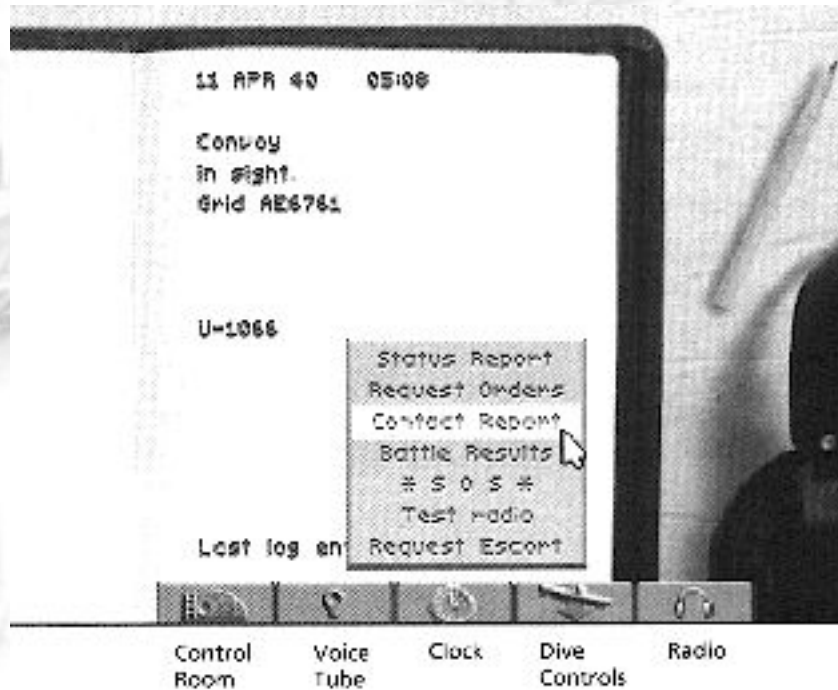
In Career mode, your log may be many pages long. Click on the left-hand page to page back through the Log, or the right-hand page to page forward. The Captain's Log uses the following command buttons: Control Room, Voice Tube, Stopwatch, Clock, and radio. See "Buttons" (page 169) for details.

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Radio Room

Accessed from the Control Room hatch or by pressing [F8], the Radio Room lets you send, receive, and log various messages from U-boat Headquarters (BdU) and other U-boats by clicking the Radio button. (You cannot use your radio below periscope depth). It may take a while for a response - your radio mate will alert you when a message is received. Note: Later in the war, any radio use may be detected by allied HF/DF. Other Radio Room command buttons are the Control Room, Voice Tube, Clock, and Dive Controls. See "Buttons" (page 169) for details.

Orders and information are tracked in the Radio Log for the duration of your patrol. On long patrols, your radio log may be many pages long. Click on the left-hand page to page back through the Log, or the right-hand page to page forward.

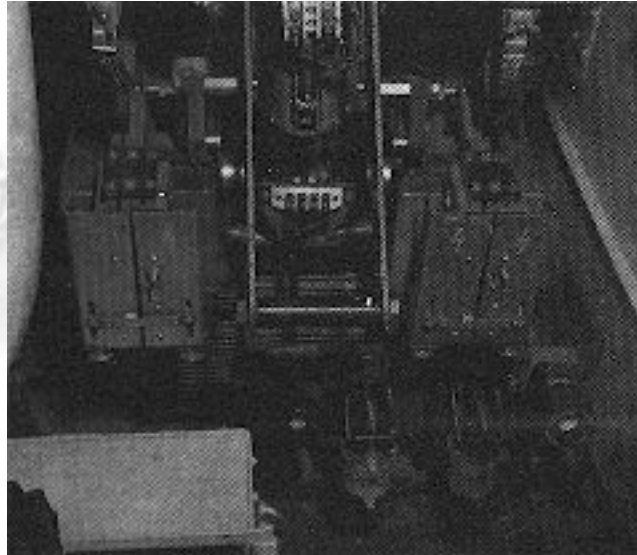
Note: All reports include current date, time, U-boat number, and patrol quadrant (grid).

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Hydrophone gear in the sound room of U-505

Message Options:

Status Report - Inform BdU of fuel status, torpedoes remaining, and location. (See Torpedo room for complete torpedo inventory).

Request Orders - Request new or additional orders from BdU on a arrival at a designated area.

Contact Report - Report or update an enemy ship sighting. This will help BdU and other U-boats coordinate a wolf pack attack on the contact.

Battle Results - Reports type, number, and estimated tonnage of any sinkings to the date on this patrol. Sinkings you report are added to your record, even if you do not survive the patrol. See "Captain's Log" (page 162) for Career sinkings.

SOS - Broadcasts "Attacked! Sinking!" Sending an SOS is your only chance of being assisted or rescued by friendly forces.

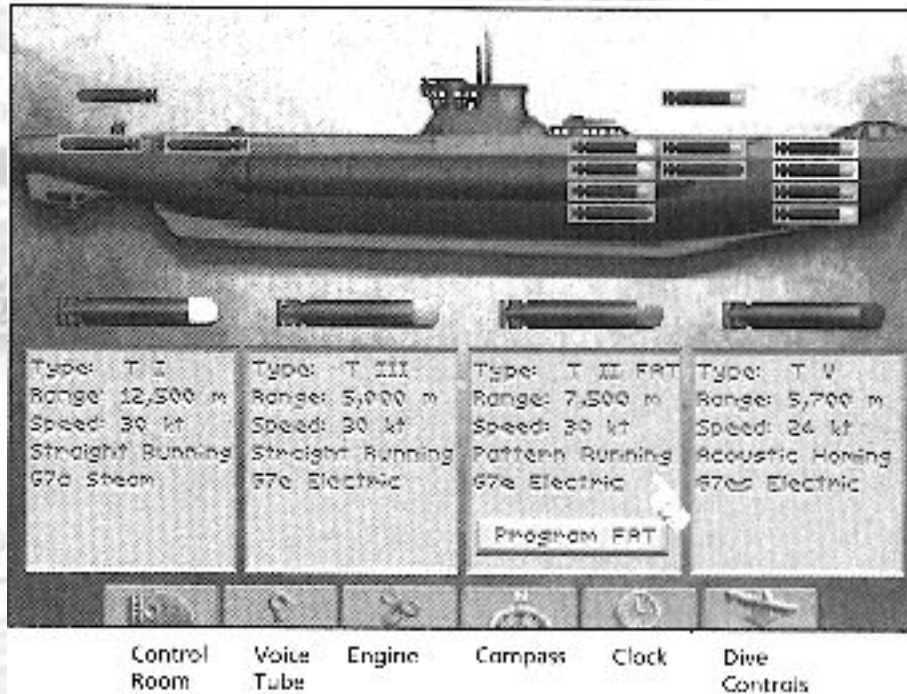
Request Escort - Asks for an escort ship or minesweeper to guide you into a friendly base. You must be within the range of a friendly base's escorts (green circle on strategic map). This is how you end a War Patrol in Career mode.

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Torpedoes

Accessed from the Control Room hatch or by pressing [F6], the Torpedo screen helps you manage torpedo moving and reloading. (You will use the TDC -Torpedo data Computer- to fire torpedoes). The Torpedoes screen uses the following command buttons: Control Room, Voice Tube, Engine, Compass, Clock, and Dive Controls. See "Buttons" (page 169) for details.

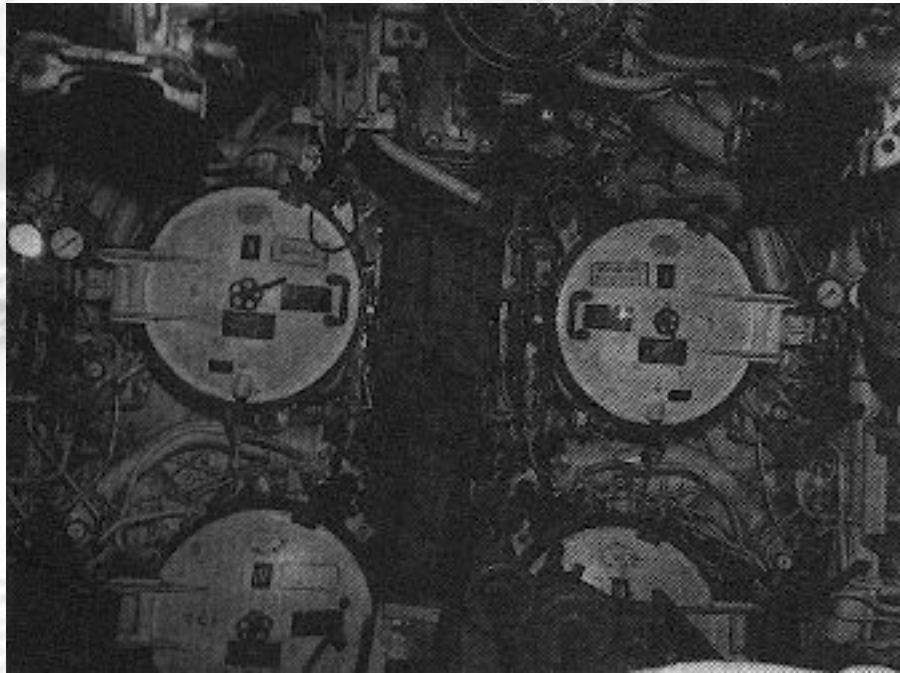
The U-boat diagram displays your current torpedo location and status. Depending on your boat type, you may have torpedoes located in bow and stern torpedo firing tubes, interior storage slots (inboard of the torpedo tubes) and external storage slots (shown above deck). Torpedoes that are ready to move or fire are shown with a green background. If a torpedo is being moved to or from a tube, both the tube and storage slot will have a yellow background until transfer is complete. To see how much longer the transfer will take, point to the firing tube ("Status cursor") and click, and the mate will tell you the time remaining.

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The forward torpedo tube interior doors on a Type IX U-boat.

(You may not cancel a transfer in progress.) A damaged tube is shown in red, and is unusable until repaired.

You may make torpedo loading automatic by enabling the Autoreload function (see "Simulation Operations", page 180). If you prefer to manage torpedoes yourself, turn Autoreload *Off* and use the following procedures.

To load a torpedo from storage to an available firing tube (empty, green) click on a stored torpedo (green background) to select it, then click on the empty tube. Both "slots" will turn yellow to indicate the transfer is underway, and the torpedo mate will tell you how much time loading will take.

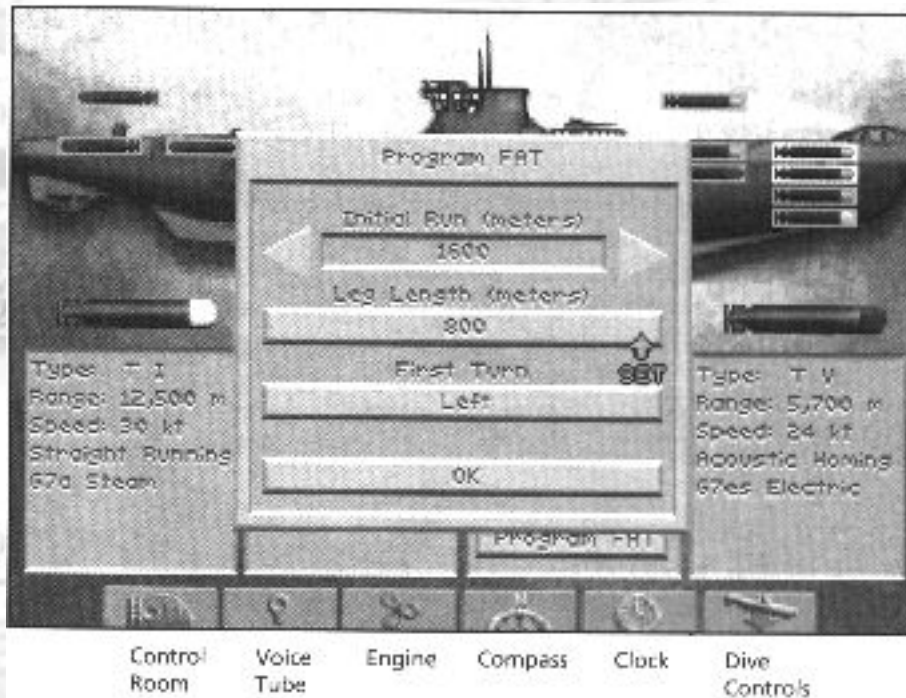
You may move externally stored torpedoes inboard at either end. Be aware that your deck hatches must remain open throughout the transfer, and you will not be able to dive for up to two hours. Also, you may not transfer internally stored torpedoes to the other end of the boat.

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The available torpedo types increase during the course of the war. You may have up to four types: each will be described below the sub diagram. See "U-boat Weapons" for details.

Program FAT - If you are carrying FAT torpedoes, you can click this button to view or change the default running pattern of all your FATs. (FAT become available later in the war). If a FAT misses on its initial run, it will run a large zigzag to the left or right until it hits something or depletes its batteries.

Initial Run (Meters) - This is the distance the FAT will run straight before starting a zigzag pattern. This entry should be the distance to your initial target or greater.

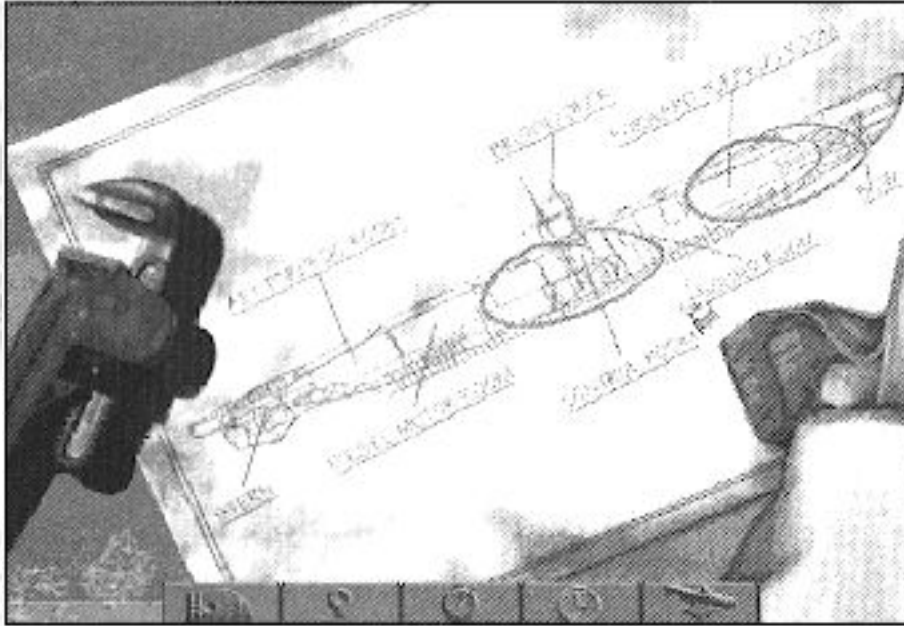
Leg Length (Meters) - This defines the width of the zigzag pattern: either 800 or 1,600 meters.

First Turn - After its initial run, the FAT turns to the left or right to start zigzag. Make this turn into the main body of the convoy to maximize odd of a hit.

Note: Once you fire a FAT, dive or steer clear of its pattern - it doesn't care what it hits.

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Control
Room

Voice
Tube

Stopwatch

Cluck

Dive
Controls

Damage Report

Accessed from the Control Room hatch or by pressing [F7], the Damage report screen shows you a blueprint of the boat, with any damaged areas circled in red. To see a list of the damaged equipment in a circled area, click on the area. You can then click on the listed item(s) to see a report of the damage severity, estimated repair time, status, and notes relevant to operations. You may continue to monitor repairs as they are being completed. Not all items could be repaired at sea - at higher levels of realism, you may have to return to base before some items can be fixed. The Damage Report screen provides the following command buttons: Control Room, Voice Tube, Stopwatch, Cluck, and Dive Controls. See "Buttons" (page 169) for details.

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Buttons

This section describes (in alphabetical order) the gray command buttons that appear throughout the simulation to provide access to controls, menus, or other screens or areas of the boat: Binoculars, Bridge, Clock, Compass, Control Room, Dive Controls, Engine, Globe, Headphones, Stopwatch, TDC, and Voice Tube. Most of these buttons appear in several screens. Click the button to access the associated control areas. When done with the control, you may right-click or press [Esc] to close the display, or leave it open - the next screen or control you open will replace it.

Binoculars [F3]



On the Bridge, click this button to bring up the Binoculars and the surface targeting sight. See the "Binoculars" command screen section for details on using the Binoculars and tracking surface targets. Related quick keys: Crash Dive [C]; Set Heading to View [H]; Set View to Heading [V]; Identify Target [I]; Man/Unman AA Guns [A]; Man/Unman Deck Gun [D].

Bridge [F4]



In the Binoculars screen, click this button to go to the Bridge view. See the "Bridge" Command Screen section for details on Bridge operations. Related quick keys: Crash Dive [C]; Set Heading to View [H]; Set View to Heading [V]; Identify Target [I]; Man/Unman AA Guns [A]; Man/Unman Deck Gun [D].

Clock



Click this button to see the local time in military notation (0-12 for am, 13-24 for pm) and to check or set the current level of time compression. Related quick keys: [+] to increase or [-] to decrease time compression, [Enter] to set 1:1.

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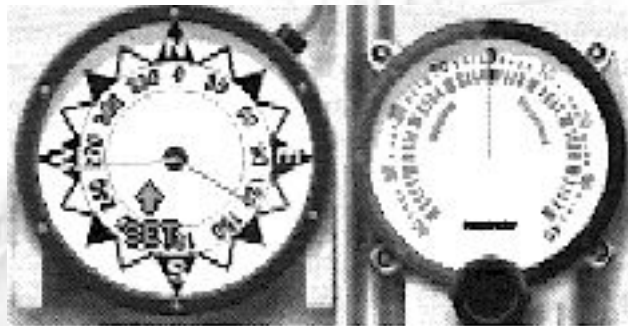
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To set/change time compression, click on the clock's scroll bar arrows - compression may be set from 1 to 4096 by powers of two. Time compression is automatically halted if your crew spots a new enemy target or threat. Higher levels of time compression may not always be available due to the combat situation or your PC's computing capacity.

Compass



Click this button to access the interlinked Compass and Rudder controls. You may also access these controls directly from the Control Room (middle right). Related quick keys: Right Rudder (right cursor or keypad [g]); Left Rudder (left cursor or keypad [4]); Center Rudder [5].



The compass shows your current course as a red line, and your ordered course (if different) as a blue line. To change course, click on the Compass "rose" in the desired direction, and a blue line will appear to mark the new heading. The boat will then come around to the chosen compass heading automatically. (Note: the boat must be underway to change course). In contrast, the Rudder lets you manually set the boat's rudder from 1-40 degrees port (left/red) or starboard (right/green). The vertical red line shows a straight rudder: click on the desired number of degrees rudder left or right, or press [4] or [6] on the numeric keypad. Once the rudder is set, it keeps turning the boat until you recenter the rudder. To recenter the rudder, click on the rudder's red center line, click on the Compass, or press the center key [5] on your numeric keypad.

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Control Room [F1]

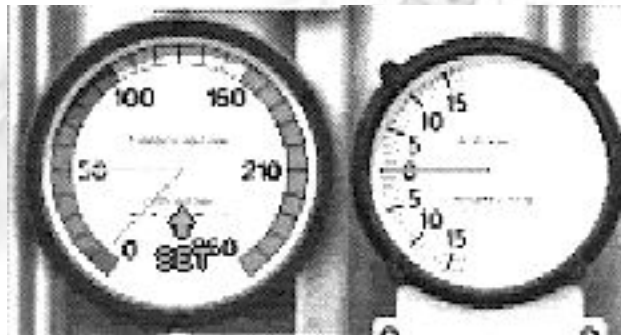


Click this button to go straight to the Control Room. The various screens and controls you can access from the Control room are described in their specific sections.

Dive Controls



Click this button to access the interlinked Depth Gauge and Dive Plane (Inclinometer) controls and change the boat's depth. These controls are directly available on the right bulkhead of the Control Room. Related quick keys: Crash Dive [C]; Periscope Depth [P]; Surface [S]; and Dive Planes Up [8], Down [2], Level [5].



Depth Gauge. The Depth Gauge shows the current depth of the boat as a red line, and the ordered depth (if different) as a blue line. To move the boat to a specific depth, click on the depth: a blue line will appear there, and the boat will make its best climb or descent to the indicated level. Safe depths are shown in the green part of the gauge, and you may descend to depths in the yellow range if your pumps and hatches are not seriously damaged - if you descend into the red, you risk discovering your particular U-boat's crush depth first-hand.

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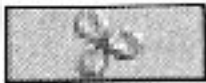
(Click above to return to Contents)

Note: you may make the boat descend or ascend without forward motion, as long as you have sufficient compressed air and working pumps. To ascend immediately to the surface, Blow Tanks (from Voice Tube - Chief Engineer).

Akin to the rudder, the inclinometer shows the up or down angle of the dive planes (hydroplanes), the small horizontal "wings" on the boat that allows it to use engine thrust to dive or climb through the water when submerged. To set the dive planes manually, press the Up arrow [9] or Down arrow [2] keys on your numeric keypad, and press [5] to level off. In a crash dive, the Engineer puts the engine at flank speed and sets the dive planes to drive the boat deep quickly. A crash dive continues to 150 meters, unless you select another depth. If you order crash dive from below 150 meters, the dive continues (past crush depth) unless you select a specific depth to level off.

Note: The speed with which your boat can change depth depends on your boat's speed, your crew quality, and your Sailing Model settings. It takes a long time to surface from a great depth, even if you blow your ballast tanks. If you have an emergency, such as a severe leak, or chlorine gas contamination from cracked battery casings, you may not have time to reach the surface. Also, outside pressure may prevent your pumps from ejecting water from the boat, and the bilges will begin to fill - the only remedy is to come up to a depth that allows the pumps to work.

Engine



Click this "propeller" button to access the interlinked Engine Room Telegraph and Speed Gauge controls. You may also access these controls directly from the Control Room (upper right). Related quick keys: Battery Gauge [B]; Fuel Level [F], Engine Setting [1]...[6].

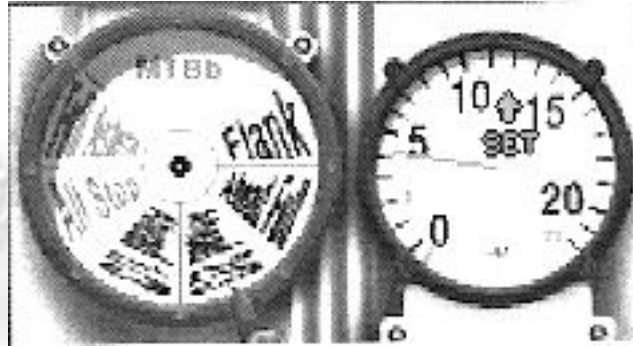
Together, these controls set your U-boat's speed. Click on the Telegraph or press number keys [1] through [6] to order your diesel engines, or electric motors to a given direction and power level setting:

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Full Astern, All Stop, Ahead 1/3, Ahead 2/3, Ahead Full, or Flank (emergency). Alternatively, click on the Speed Gauge to set a specific speed in knots, and the Telegraph will shift to the appropriate settings. The boat's actual speed depends on if you are surfaced, submerged, or damaged. It also depends on your Sailing Level realism selection.

Note: By default, the boat runs on diesel engines when surfaced and electric motors when submerged. Low speed conserve fuel. When your boat is submerged, higher engine settings are most easily detected by enemy hydrophones. Flank speed on the electrics will deplete the batteries in about an hour. If you lose power, you will be unable to run your pumps, and will have no power to drive the boat to the surface.

Globe



In the Chart screens, click this button or press [F5] to switch between the Tactical Chart and the Strategic Chart. See the "Chart " section, page 157, for details on using the charts.

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Radio Headphones



Click this button to choose the type of radio message to send. Where appropriate, the response to your message will appear in the radio log.

Radio Message Option:

(Note: All reports include current date, time, U-boat number, and location).

Status Report - Inform BdU of fuel status, torpedoes remaining, and location. (See Torpedo room for complete torpedo information).

Request Orders - Request new or additional orders from BdU on a arrival at at designated area.

Contact Report - Report or update an enemy ship sighting. This will help BdU and other U-boats coordinate a wolf pack attack on the contact.

Patrol Results - Reports type, number, and estimated tonnage of any sinkings to date on this patrol. Sinkings you report are added to your score even if you are sunk later in the mission. See Captain's Log for Career sinkings.

SOS - Broadcasts "Attacked! Sinking!" Sending an SOS is your only chance of being assisted or rescued by friendly forces.

Request Escort - Asks for an escort ship or minesweeper to guide you into a friendly base. You must be within the range of a friendly base's escort (green circle on strategic map). This is how you end a War Patrol in Career mode.

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Stopwatch [W]



Click this button or press [W] to see estimated runtime for all fired torpedoes.

Whenever torpedoes are launched, your crew will mark the status of each on the stop watch as follows: Black mark = torpedo has over one minute to go; Blue mark = torpedo should hit when the sweep second hand reaches the mark; Red mark = past due to hit - a probable miss or dud. At higher realism levels, this may be your only indication that a torpedo has missed the target.

Torpedo Data Computer (TDC) [T]



Click this button to access the Torpedo Data Computer, or TDC. This panel is also directly available on the left bulkhead of the Control Room, but you will normally operate it from the Binoculars or Periscope.

The TDC gives you information about your selected target, calculates the proper torpedo firing angle or "solution", and allows you to fire "spreads" of torpedoes. It continually updates target information on the selected ship for all torpedoes. (To select a target, you must center it in the Binoculars or Periscope and press [Spacebar], or click on it in the Tactical Chart.) Note: TDC data is supplied by your lookouts - its accuracy depends on your crew's experience, and how long you have been tracking this particular target.

Bearing - Indicates in degrees the direction to the selected target relative to your boat. 0 or 360 degrees is straight ahead, 90 degrees is off the starboard beam, 180 is due astern, etc.. Although advanced torpedoes can follow course changes up to

135 degrees, your firing tube(s) should be aimed within 20 degrees of the selected target to give the eel's gyroscopes the best chance of guiding it accurately the rest of the way.

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Speed - Indicates the estimated speed of your target in knots. Fast, agile targets such as warships can be difficult to hit with anything less than a perfect firing solution.

Range - The estimated range to the selected target in meters. Torpedoes must run at least 250 meters before their detonators are armed. Beyond that, distance increases the difficulty of the shot.

Heading - The estimated current heading of your selected target. Expect convoys to change course frequently. Plan your firing solutions so the torpedoes hit the target at as close to a right angle as possible, and avoid head-on or tail shots if you can.

Fire Buttons - The numbered button lights at the bottom of the TDC show the status of your corresponding torpedo tubes. Ready tubes are bright red. Tubes that are empty or being loaded are dark red. To fire a ready torpedo using the current TDC data, click the corresponding tube's button.

The number of torpedo tubes depend on your Y-boat type: the top row shows forward tubes, and the bottom row shows stern tubes (if any). A Type II boat has three forward tubes only; a Type VII has four forward tubes and a fifth stern tube; a Type IX has four forward tubes and two stern tubes.

Offset - Torpedoes fired together will normally follow the same track to the target, differing only by the movement of your boat between launches. While you always want to fire your first eel straight, you may also fire subsequent torpedoes in a "spread", each with a slightly different course, to ensure a hit. To define a spread, use the Offset "dial" just above the Fire Buttons. Zero represents center, the TDC bearing: click the arrows on the dial sides to offset this bearing by X degrees for next torpedo.

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Voice Tube



Click this button, available in all command screens, to give or delegate orders to crew members in other sections of the boat. You'll first select the crew member/area, and then the specific order, from the menus that open. To cancel a voice command, right-click or press [Esc]. Options that don't apply to your particular boat or mission will be grayed-out (not available). Related quick keys are shown next to the appropriate commands. Note: To see the last voice message to you, press [Backspace].

Chief Engineer

Persicope Depth - Submerge (or rise) to periscope depth.
Quick Key = [P]

Crash Dive - Dive as rapidly as possible: flood tanks, down dive planes, flank speed. Continue diving to 150 meters unless told otherwise.
Quick Key = [C]

Blow All Tanks - Rise as rapidly as possible; blow out ballast water with compressed air, elevate dive planes, flank speed.

Surface - Bring the boat to the surface. Quick Key = [S]

Damage Report - Go to Damage Report Screen. [F7]

Oxygen Remaining - Show how much breathable air is inside the U-boat.
Quick Key = [O]

Deploy Snorkel - (if equipped with snorkel). Go to snorkel depth and raise snorkel. This device, available towards the end of the war, allows U-boats to pipe down air from the surface to run diesel engines while submerged. The snorkel lets you travel submerged without draining batteries, but its large head may be spotted visually or by radar more easily than the periscope. Note: You must keep your

speed under seven knots for the snorkel to work properly.

Stow Snorkel - (if equipped with snorkel). Lower snorkel and switch to electric motors.

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Engine Room

Battery Level



- Shows amount of remaining battery power. (if you have selected the Unlimited Battery realism setting, you will always have a full battery charge).

Quick Key = [B]

Fuel Level



- Shows amount of remaining diesel fuel. (if you have selected the Unlimited Fuel realism setting, you will always have a full diesel tanks).

Quick Key = [F]

Sound Room

Report Contacts - Report current or last hydrophone contact. You must be running slowly to use hydrophones. Also, hydrophones work very poorly below 200 meters.

Depth under Keel - Report distance between keel and bottom. Use to check diving room, and avoid running aground.

Record Player - Select a record to pipe through the boat for the crew.

Torpedo Room

Report - Brings up Torpedoes screen [F6]


Launch BOLD - Launches a bubbling canister that interferes with ASDIC.

Watch Officer

Man/Unman AA Guns - Order men to anti-aircraft (flak) guns. AA fire is automatic. Quick Key = [A]

Man/Unman Deck Gun - Prepares deck gun for firing, for boats that have one. Once a target is selected, firing will continue until the target is destroyed, a new target is chosen, or you order the gun abandoned. Quick Key = [D]

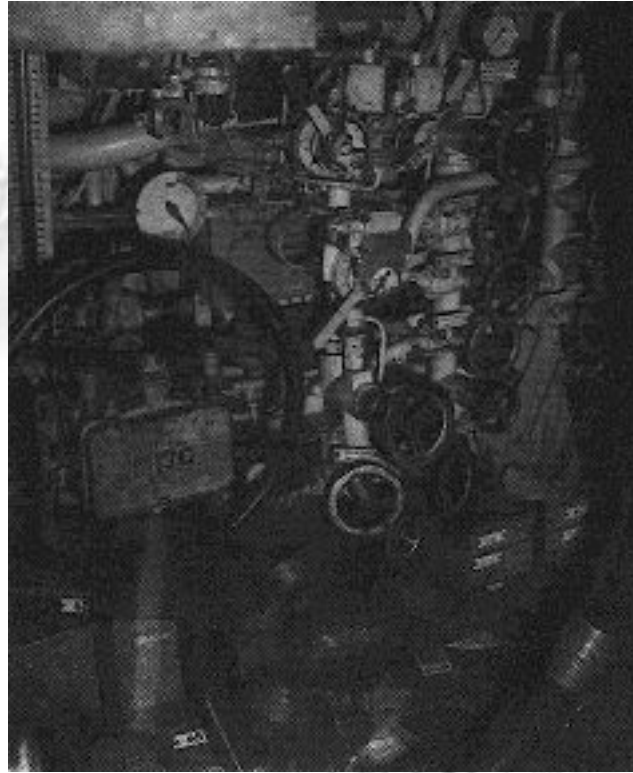
[In Command Aces of the Deep, you can either select a target and have your men automatically fire the Deck Gun - or from the Bridge man it yourself to manually fire at a target.]

The logo for the game 'Aces of the Deep' is located at the bottom right of the page. It features the text 'ACES OF THE DEEP' in a stylized, bold font, with a small graphic element to the left.

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Diving plane control station and valve set aboard U-505.

Report Contacts - Report current or last contact.

Identify Target - Estimates vessel type and gross tonnage of currently selected target. The estimates improve at close range. Quick Key = [I]

Rig for Silent Running - Must be submerged. Lower speed to two knots, turn off pumps and ventilation, and send non-essential personnel to bunks.

All Stations

Abandon Ship - If your boat is on the surface or in shallow water, your crew will abandon the vessel as best they can. This usually results in your capture, but you may be rescued if you radio an SOS first.

Radio Room - Opens Radio Room screen. [F8]

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Simulation Options Menu

At any point the simulation (at sea), you may access the following options by pressing [Ctrl] + [O] and clicking on the appropriate button. The simulation is paused until you select *OK* to close the options menu.

- **Music On/Off** - Turns the music sound track on or off.
Also [Ctrl] + [M].
- **Sound Effects On/Off** - Turns all simulation sound effects on or off.
- **Engine Sound On/Off** - Turns the engine sound effect on or off.
- **Crew Speech** - Requires installation of additional Speech Disk. Turns the crew speech sound effect on or off, and toggles between English and German. *[As far as I know this Crew Speech utility's always been delivered with the game].*
- **Torpedo Screen On/Off** - Turns the torpedo firing animation on or off.
- **Torpedo Autoreload On/Off** - If turned on, Autoreload automatically reloads empty torpedo tubes with the next available torpedo (selected by shortest reload time). With Autoreload turned off, you manage all aspects of torpedo reloading yourself in the Torpedoes screen [F6].
- **Calm Ocean On/Off** - This setting overrides the weather simulation, providing you with smooth sailing as long as it is turned on.
- **Status Line On/Off** - This setting displays your current course, speed, and time compression settings in the upper left of the simulation screen as long as it is turned on.
- **Load Game** - Careers only. End current mission, resume previously saved career.
- **Save Game** - Careers only. Save current mission (must not be in combat with the enemy.) If the Saved Careers list is full, select an earlier career to overwrite. You may add descriptive text to help you select the mission later.
- **Abort Mission** - Abort current mission and return to the menus. Note: If you abort on a war patrol, you will lose any score earned on the mission so far.
- **Quit to DOS** - Exit immediately to DOS.
- **OK** - Close the Options menu and return to the simulation.

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Quick Reference

Control Room	[F1]
Periscope	[F2]
Binoculars	[F3]
Bridge	[F4]
Charts	[F5]
Torpedoes	[F6]
Damage Report	[F7]
Radio Room	[F8]
Captain's Log	[F9]
Torpedo Camera/ Victim View	[F10]
Increase Time Compression	[+]
Decrease Time Compression	[-]
Reset Time to 1/1	[Enter]
Repeat Last Message	[Backspace]
Select/Deselect Target	[Spacebar]
View Left	[<,]
View Right	[>,]
Dive Planes Up	[Up arrow button]
Left Rudder	[Left arrow button]
Straight and Level	Keypad [5]
Right Rudder	[Right arrow button]
Dive Planes Down	[Down arrow button]
Engine Speed	[1]...[6]
Man/Unman AA Gun	[A]
Check Battery Level	[B]
Crash Dive	[C]

Man/Unman Deck Gun	[D]
Check Fuel Level	[F]
Set Heading to View	[H]
Launch Bold	[Ctrl] + [R]
Identify Target	[I]
Fire Tube	[Ctrl] + [1]...[Ctrl] + [6]
Check Reamaining Oxygen	[O]
Persicope Depth	[P]
Surface Boat	[S]
Open TDC	[T]
Set View to Heading	[V]
Zoom Periscope Mag.	[Z]
Padlock View	[Alt] + [F2]
Raise/Lower Scope (in chart)	[Alt] + [P]
Stopwatch	[W]
Abort Mission	[Ctrl] + [D]
Options Menu	[Ctrl] + [O]
Pause	[Ctrl] + [P]
Music On/Off	[Ctrl] + [M]
Quit to DOS (confirm first)	[Ctrl] + [Q], [Alt] + [X]
Quit to DOS (don't confirm)	[Ctrl] + [Alt] + [Del]

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Appendix A Troubleshooting

[First of all do remember that Aces of the Deep is a game that is a few years old and was created for the PC standards of those days, meaning that if you're running a later computer you might-, and if you're running a state of the art computer, you most defenately will, run into trouble! AOD for (real) DOS and Command AOD for Win95 both have severe problem cooperating with modern machines as well as modern sound cards, graphics cards, super-multi-spin CD-ROM players, etc. If really wanting to game AOD/CAOD and get the best out of it, our best, and most honest suggestion is to get a computer, configured and equipped, from let's say around 1994 to 1997 - depending on wether you're about to game AOD or Command AOD. That cheap investment will save you sweat, tears, and keep your blood pressure as well as your temper at a moderate level].

[Second, the most common problem people get into when everything else is working just fine is that colors look odd, showing a pink Periscop View, and so on = Check that you're screen is set to 256 colors!
And then there's of course the one where Command AOD gamers run in "Ratio 1:1" and find that the screens update dead slow = Do NOT change size of window even if it is possible. That will only make updates of views slow down so radical you'll have to sit and wait before making next step, getting you instantly killed if in combat! Never change "Ratio".]

[Third, you might have a computer with 4MB RAM, and all other stuff right - still unable to make it even start. The problem could be that you have not **intel** 4MB RAM(!) AOD for DOS was made for least 4 Meg's of intel RAM as other brands, as I once was told, miss a "line...20" (of some sort). However, getting 8, or more, of that "other brand RAM" of yours will fix it. And again it is recommended to have 8MB for smooth running.]

[Fourth, please remember that the below troubles described are for 1994 PC's. Today, to many, mostly funny reading on how it was at the stone age. But again, you might get some help or a hint from out of this.]

Problem: I have installed Aces of the Deep on a compressed drive, and it does not run.

Possible solution: AOD may need more disk space. Compression software estimates available disk space using an expected compression ratio of 2 to 1 or

more. However, many AOD files will not compress much. This means you may need to free up to twice as much space as the compression software says. [\[I say: Today, stay out of any HD compression device!\]](#)

Problem: My computer has at least 4 megabytes of memory, but even after creating a boot disk, I still receive a message saying that I do not have enough memory to run the game.

Possible solution: Your boot disk may require further modifications to load your device drivers correctly into upper memory. See the "Customizing the Boot Disk" section, or consult your computer system manual or manufacturer for assistance.

Problem: My mouse is not responding.

Possible solution: Your mouse driver may not be loaded for MS-DOS programs. You will need to edit the AUTOEXEC.BAT or CONFIG.SYS files on the boot disk to include your mouse driver.

Problem: I have a SCSI drive and AOD does not work properly.

Possible solution: There are incompatibilities between SMARTDRV.SYS and SCSI drives. Do not use SMARTDRV.SYS for AOD if you have a SCSI drive.

Problem: I am getting vertical white bars or another graphic anomalies in the game.

Possible solution: You may be using a mouse driver that is not fully compatible. AOD requires a 100% Microsoft compatible mouse.

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Error Messages

This section offers possible solutions for error messages you may encounter.

-YOU NEED XXX MORE BYTES OF FREE MEMORY AVAILABLE TO RUN THIS GAME. Try using a boot disk.

-GENERAL FAILURE READING DRIVE (floppy drive letter).

You may have a low-density drive that cannot read the high-density game disk(s).

-CRC ERROR.

-DATA ERROR READING DRIVE (A or B or C or D)

-SECTOR NOT FOUND READING DRIVE A or D

These mean you have a faulty game disk, and should return it for a replacement.

-ASSERTION FAILED...

The program cannot load a file because of insufficient memory, or because the file is missing or corrupted. You should be able to avoid this by keeping your files in the default directories and configuring your PC correctly for the game.

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Appendix B

Configuring Memory

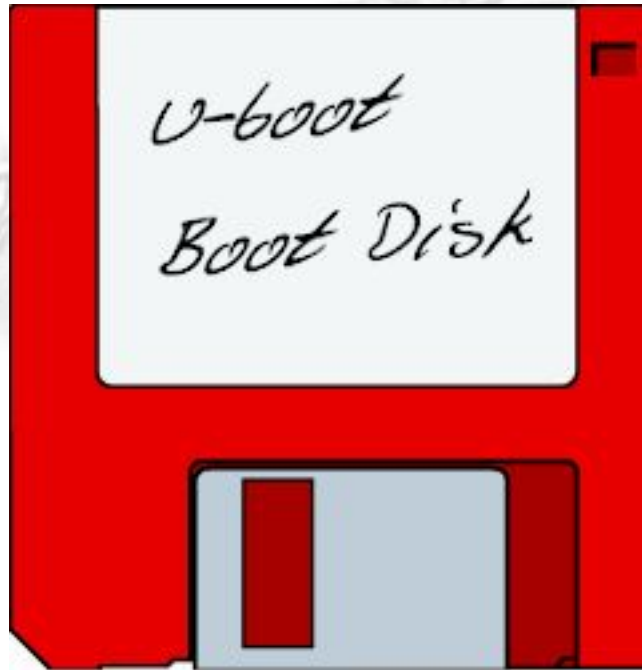
Even if you have the minimum 4MB of RAM, Aces of the Deep may not run correctly unless the RAM is configured (set up) correctly for the game. If Aces of the Deep DOES NOT start correctly, use the MS-DOS MEM command to see if you need to free up some of your computer's memory. From MS-DOS, type MEM and press [Enter].

You need about 3,320 Kilobytes (KB) of free memory to run Aces of the Deep. MS-DOS 6.0 or later shows this as "Total Free Memory" in kilobytes (KB). If you have MS-DOS 5.0, add "Largest executable program size" (free conventional memory), "bytes free EMS" (free expanded memory), and "bytes available XMS" (free extended memory). Together, they must add up to about 3,400,000 bytes (3,320 KB) total free memory. If you do not have enough free memory, you probably have resident or "background" programs and device drivers taking up memory that the game needs. This means you will need to free up memory for AOD by reconfiguring or removing one or more of these programs.

Freeing up Memory

1. If you cannot run AOD because of low memory, try the install program's "Make Bootable Floppy Disk" option as described below. A boot disk is a fast and effective way of freeing memory to run the game.
2. If you continue to have problems even with a boot disk, try customizing the boot disk's AUTOEXEC.BAT and CONFIG.SYS start-up files. See "Customizing the Boot Disk", below, for details.
3. Consult your DOS and memory manager software documentation for detailed information about system memory and how to optimize it.

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Creating a Boot Disk

A boot disk is the simplest way to configure your computer's memory for running AOD. The AOD install program has a "Make Bootable Floppy Disk" option that makes creating a boot disk easy. If you set it up successfully, all you will have to do is to put the boot disk in your computer to configure its memory correctly and launch the game.

Although the "Make Bootable Floppy Disk" option does a very good job of configuring most systems, it may not be able to properly recognize every possible sound card, mouse, or disk-controlling device driver. This means that you might have to make additional changes to the boot disk to get the program running. If you are having trouble starting the game, try "Make Bootable Floppy Disk" - it can't hurt. If it does not work, however, proceed to the "Customizing the Boot Disk" section.

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"Make a Bootable Floppy Disk" Option

You can use the Install program to format and create a AOD boot disk for your computer's A: drive. Before you start, have a blank or formattable floppy disk for your A: drive ready. (All files on it will be erased).

1. Start the Install program from your AOD directory on the hard disk, or from disk #1.
2. From the Installation Choices window, select "Make Bootable Floppy Disk".
3. The install program will guide you through the process - follow the on-screen prompts carefully. Insert the blank diskette into your A: drive when prompted. Install will use DOS-commands to format the floppy disk and write all the necessary start-up files to it.

When the process is finished, exit the Install program. You can then re-boot your computer with the boot disk in the A: drive.

Using a Boot Disk

The boot disk you have created with the Install program's "Make Bootable Floppy Disk" option contains a stripped-down version of your usual start-up files. You must start (or re-start) your computer with the boot disk in the A: drive for it to work. (Note: a boot disk will work only in the A: drive).

1. Place the boot disk in the A: drive and start the computer. (If your computer is already running, exit any programs and restart the system with your PC's Reset button, or use [Ctrl] + [Alt] + [Del] from the keyboard.)

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2. The computer will start up using the boot disk's memory configuration. (If you created the boot disk with the Install program from within the AOD directory, it will also try to start the game automatically.) Otherwise, start the game manually by entering **aod** as usual in your AOD directory. (To return your computer to its normal setup later, just restart it again without using the boot disk).

Customizing Your Boot Disk

To customize a configuration for your specific system, you can edit the CONFIG.SYS and AUTOEXEC.BAT start-up files on the boot disk the install program created, or create a new boot disk from scratch. CONFIG.SYS and AUTOEXEC.BAT are simple text files that you can edit using your MS-DOS EDIT utility, the Windows Notepad, or your preferred word processor in its text only mode. On your hard drive, these files tell your computer how to arrange its memory for normal operation. On the boot disk, these files tell your computer how to arrange its memory specifically for running AOD.

Warning: Manually altering the CONFIG.SYS and AUTOEXEC.BAT start-up files can be a trial and error process. When opening a file to edit, triple-check to MAKE SURE you are working with the files on your boot disk in the A: drive. Otherwise, you may change the CONFIG.SYS and AUTOEXEC.BAT files on your hard drive instead, which in turn may impair the normal operation of your system.

If you prefer to create a boot disk from scratch, you will need a freshly formatted system diskette for your A: drive (See your MS-DOS manual for details on how to create a system diskette.) You can then create a new CONFIG.SYS and AUTOEXEC.BAT from scratch right on the boot disk.

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Compare the CONFIG.SYS and AUTOEXEC.BAT files on your boot disk to the following examples. Differences may indicate places where you can remove a driver, load it into upper memory, or change a device switch to use less memory. As always, refer to your system reference manuals if unsure about anything.



These examples show a "minimum configuration" that will let you run AOD on most PC's. The lines in your start-up files will differ according to your system's drivers and directory names, and the version of MS-DOS you use. (Note: Parentheses indicate comments that are NOT part of the file).

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Sample Boot Disk CONFIG.SYS File

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE
(You may use different memory manager)
DOS=HIGH,UMB
(Loads DOS into Upper Memory)
FILES=30
BUFFERS=20
BREAK=ON
LASTDRIVE=Z
DEVICEHIGH=C:\MOUSE\MOUSE.SYS
DEVICEHIGH=C:\DOS\DBLSPACE.SYS /MOVE
(Only if using DBLSPACE. See "Disk Compression Drivers", below.)
```

Sample Boot Disk AUTOEXEC.BAT File

```
@ECHO OFF
PROMPT AOD Boot Disk $P$G
(If you are working with files created with "Make Bootable Floppy Disk").
PATH=C:\DOS
SET COMSPEC=C:\COMMAND.COM
(Will use your actual COMMAND.COM location.)
LOADHIGH C:\MOUSE\MOUSE.COM
(Only if you do not use MOUSE.SYS in CONFIG.SYS. See "Mouse Drivers".)
C:
(From "Make Bootable Floppy Disk". Changes to hard drive.)
CD C:\DYNAMIX\AOD
(From "Make Bootable Floppy Disk". Starts AOD.)
```

To disable a line in one of your start-up files, you can just type MEM in front of it. For example, REM DEVICEHIGH=C:\MOUSE\MOUSE.SYS will disable the mouse driver. To re-enable it, just take the REM back out again.

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Mouse Drivers

If you have a mouse, the Install program will have assumed that you want to be able to use it with AOD, and put a mouse statement on the boot disk. This means you should have one mouse driver line in either your CONFIG.SYS or AUTOEXEC.BAT file - but not both! For example:

```
DEVICEHIGH=C:\MOUSE\MOUSE.SYS  
(Used in the CONFIG.SYS file only).
```

```
LOADHIGH C:\MOUSE\MOUSE.COM  
(Used in the AUTOEXEC.BAT file only).
```

If you have a different mouse driver name (MOUSE.EXE, IMOUSE, GMOUSE, HPMOUSE, etc) or if you keep the driver in a different directory (C:\MSMOUSE, C:\DRIVERS, etc) the path and driver name will be different. See your mouse manual if unsure.

Mouse Hints

Use MOUSE.SYS rather than MOUSE.COM or MOUSE.EXE, if possible. MOUSE.SYS is smaller and takes less memory. Make sure you do not have a mouse driver line in both the CONFIG.SYS or AUTOEXEC.BAT files. If you do, remove one, because you are needlessly loading two mouse drivers into memory.

Disk Compression Drivers

If you use disk compression on your hard disk, you must include the correct disk compression driver statement on your boot disk, or your mouse, or other drivers may not load correctly. The example CONFIG.SYS shows the correct statement if you are using the MS-DOS DBLSPACE utility.

If you are using Stacker 3.1 or later, use the following line instead:
DEVICEHIGH=C:\STACKERS\STACHIGH.SYS

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For other utilities, refer to your manual or contact the manufacturer for the complete instructions.

Reminder: For the boot disk to work, you must REBOOT your computer with the boot disk in your A: drive. Place the boot disk in drive A: and press your PC's Reset button, or [Ctrl] + [Alt] + [Del]. Your computer will now reboot, using the start-up files on the boot disk in A:. Have a great time!

Additional Boot Disk Instructions

If you have a modem, you can download additional boot disk instructions from the Sierra Bulletin Board Service, or BBS [!!!!] The file to download is BDALL.EXE or BDALL.ZIP (BDALL.ZIP is compressed - you will need the PKUNZIP shareware utility to open it). After downloading the file, select the instructions that will best match your system and program needs.

In the U.S., the BBS number is 206-644-0112; in the U.K., the BBS number is (44) 734 304227.

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Appendix C

Customer Services

The best customer service in the industry.

"You don't just buy our games - you buy the support of the whole company"

Sierra On-Line is dedicated to helping you with each and every question or problem. Whether it's memory shortages, software compability, or any other issue affecting uor products, we guarantee your satisfaction.

Customer Service

Contact the Customer Service Department for questions pertaining to returned merchandise, back orders, defective merchandise, and general game information. In the U.K. and Europe, use these contacts for Technical Support, Returns, and Direct Sales as well.

United Kingdom:

Sierra On-Line Limited
4 Brewery Court
The Old Brewery
Theale, Reading, Berkshire
RG7 5AJ United Kingdom

Continental Europe:

Coktel Vision
Parc Tertiaire de Meudon
Immeuble "Le Newton"
25 rue Jeanne Braconnier
92366 Meudon La Foret Cedex
France

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Appendix F Credits

Producer
Lead Programmer
Technical Director and
Programmer
Additional Programming

Mike Jones
Langdon Beeck

Art Direction
3Space Shape Modeling
3D Animations and Art

Peter Lukaszuk
Mike Jones,
Rick Overman,
Mark Boettcher,
Joe Wingard,
Ryan Hinke

Additional Art

Jarrett Jester,
Kyle Miller
Vance Naegle,
Damon Mitchells
Peter Lewis,
Cyrus Kanga,
Joel Mariano
Thomas vanVelkinburgh,
Brent Burkett,
Tito Pagan

Photography
Theatrical Coordinator
Design

Dale Tendick
Sher Alltucker
Mike Jones,
Langdon Beeck,
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Museum of Science and Industry, Chicago

Harry Cooper, Sharkhunters Intl.

National Archives

Admiral Otto Kretschmer

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Oregon Chapter of U.S. Submarine Veterans of wwII

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