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INTRODUCTION

Rule the Waves III is the latest instalment in our successful series of games on ship design and naval battles. *Rule the Waves III* extends the time of the simulation from 1890 to 1970. It includes better simulation of the pre-dreadnought and late Victorian period, and also introduces the early missile age. Ownership of earlier games in the *Rule the Waves* series is not required to be able to play *Rule the Waves III*. Many concepts and mechanics will be familiar to players of RTW and RTW2, but much has been enhanced and improved.

Rule the Waves III places you in the role of 'Grand Admiral' of a navy from the time when steam and iron dominated warship design up to the missile age. The game will let you design and build the ships of your navy, and lead them into battle when war erupts. You will guide your navy's deployment, construction and operations during a period of great technological innovation and political tensions. The player will have to deal with interfering Navy ministers, Kaisers and Presidents, as well as other aspects of politics and economics. You can influence but not decide foreign policy. Thus, you will never know for sure when your navy will have to stand the test of battle.

Rule the Waves is not a simple game. Some grasp of 20th century naval warfare and warships is recommended. The game focuses on realistic ship design, technical development and naval combat. If you are genuinely interested in naval history, warship construction and the way navies fought and manoeuvred in the first half of the 20th century, this is a game that will keep you engaged for many hours. Be aware that graphics are adequate but by no means cutting edge. If you want ships exploding in 3D graphics, this game is probably not for you.

INSTALLATION GUIDE

SYSTEM REQUIREMENTS

Please ensure your system meets the minimum requirements listed below.

Minimum Requirements:

Operating Systems: Windows 8.1, 10, 11

CPU: 1.2 GHz min, 2.4+ GHz recommended

Video/Graphics: No minimum requirement (no hardware video acceleration is required)

RAM: 2 GB of system RAM, 4 GB of system RAM recommended

Storage Space: 1 GB of free hard disk space

DirectX version: DirectX v9.0c or later

Sound: No requirements for sound

Display Resolution: 1366 x 768 minimum resolution required

INSTALLING THE GAME

To install the game, insert the game DVD disc into your DVD drive.

If you have disabled the Autorun function on your DVD or if you are installing from a digital download, navigate to the DVD or download file location, double-click on the installation file, and if it is a zip archive, then double click on the executable (exe) file that is shown inside the archive.

The correct file name will typically include the words "SetupRelease". Follow all on-screen prompts to complete the installation.

If you have purchased your game from the Steam Store, you can download the game by finding it in your Steam library, and then pressing the INSTALL button.

Any games purchased from the Slitherine or Matrix stores available on Steam can also be registered for a Steam Key, allowing you to add the game to your Steam library. To do this go to http://www.matrixgames.com/my_page and enter your serial number that came with the download to register.

UNINSTALLING THE GAME

Please use the Add/Remove Programs or Programs and Features option from the Windows Control Panel or the "Uninstall" link in the game's Windows START menu to uninstall the game. Uninstalling through any other method will not correctly uninstall the game.

PRODUCT UPDATES

To maintain our product excellence, Matrix Games and Slitherine release updates containing new features, enhancements, and corrections to any known issues. All our updates are free on our website (see more details in the section below) and can also be downloaded quickly and easily by clicking on the Check for Updates link in your Game Launcher.

REGISTER YOUR GAME, RE-DOWNLOAD YOUR GAME, BETA UPDATES

We also periodically make beta (preview) updates and other content available to registered owners. Keeping up with these special updates is easy and accessible by signing up for a Slitherine Group Member account. When you are signed up, you can then register your Slitherine Group products to receive access to these game-related materials. Doing so is a simple two-step process:

SIGN UP FOR A SLITHERINE GROUP MEMBER ACCOUNT

THIS IS A ONE TIME PROCEDURE; once you have signed up for an account, you are in the system and will not need to sign up again. Go to www.slitherine.com and click the SIGN UP button on the top-right, then click "Register" on the subsequent page after filling in your personal information. When you're finished a confirmation email will be sent to your specified e-mail account.

REGISTER A NEW GAME PURCHASE

Once you have signed up for a Slitherine Group Member account, you can register any Slitherine/Matrix title you own in your new account. To do so, log in to your account on either the Matrix Games website (www.matrixgames.com) or the Slitherine website (www.slitherine.com). Click MY PAGE on the top and then REGISTER SERIAL on the right to register your new purchase.

We strongly recommend registering your game as it will give you a backup location for your serial number should you lose it in the future.

If you were already logged into your main member account when you purchased your game, it will be automatically registered for you as part of the purchase process.

Once you've registered your game, when you log in to the Members section you can view your list of registered titles by clicking My Page. Each game title is a hyperlink that will take you to an information page on the game (including all the latest news on that title). Also on this list is a Downloads hyperlink that takes you to a page with all the latest public and registered downloads, including patches, for that particular title.

You can also access patches and updates via www.matrixgames.com/member/mypage. Once there select the game you wish to check updates for, then check the downloads link. Certain valuable content and additional downloads will be restricted to Group Members, so signing up there is always worthwhile.

Remember, once you have signed up for a Member account, you do not have to sign up again at that point you are free to register any product you purchase.

Thank you and enjoy your game!

UNIFIED LOGIN SYSTEM

Slitherine and Matrix Games now have a new "Unified Login System". This system allows you to access the Slitherine and Matrix Games sites using just one username and password. To merge your accounts so that they work for all Slitherine Group sites, go to (<http://samelogin.slitherine.com/>) and enter the details of one of your accounts (ie. Either your Matrix or your Slitherine login).

You will then be presented with the option to merge your accounts (listed as “[Merge my accounts]”), which will then allow you to combine any other accounts you have or generate a user for another website using the exact details (For instance, if you were called “JohnSmith123” on the Slitherine site but had no account on Matrix, you could enter the details into the site and it would create a “JohnSmith123” account for Matrix as well, with the same password as the Slitherine login.)

GAME FORUMS

Our forums are one of the best things about Matrix Games. Every game has its forum with our designers, developers and the gamers playing the game. If you are experiencing a problem, have a question or just an idea on improving the game, post a message there. Go to <http://www.matrixgames.com> and click on the Forums hyperlink.

TECHNICAL SUPPORT

Should you have a technical problem with the game, the best way to get help is to post a note in the Technical Support sub-forum of the main game forum at <http://www.matrixgames.com/forums>. You'll then hear back from either our Matrix Games Staff, the development team, or one of the many helpful players of the game. This method is usually the fastest way to get help. Alternatively, you can contact our Help Desk at <http://www.matrixgames.com/support/> or support@matrixgames.com. Support requests will generally be answered within 24 hours, except on weekends or US/UK national holidays.

THE OBJECT OF THE GAME

In *Rule the Waves III*, you take on the role as Grand Admiral of one of the leading naval powers of the time. You control the design and building of ships and their employment in war over a time period from the ironclads of the late 19th century to the missile cruisers of the 1970s. Your goal is to build up your fleet with suitable ships to implement the naval policy of your nation, lead that navy to success in battle, and of course to stay on in the post as Grand Admiral. You will strive to build up a war winning fleet that is compatible with the economic power of your nation.

The measure of success in game is your prestige. Prestige in the game represents your general reputation, based on your success in battle and your standing with the politicians, the officer corps and other parts of the establishment. Your prestige will be enhanced by naval victories and 'tough' responses to events. Your prestige will be lowered by 'soft' responses, defeats and mismanagement. Your prestige can to some extent be seen as a currency, which can be spent to affect various events that might impact on your plans or the Navy in general. If your prestige goes too low, you run a risk of being sacked as Grand Admiral, thus losing the game. Prestige is also used at the end of the game as a measure of the success of your tenure as head of the Navy, and your prestige at the end of the game will be saved in a naval 'Hall of Fame'.

THE WORLD AND YOUR ECONOMY

THE BUDGET



Yearly budget	<input type="text" value="135,480"/>	
Monthly budget	<input type="text" value="11,290"/>	
Maintenance	<input type="text" value="3,413"/>	<input type="text" value="3,362"/>
Construction	<input type="text" value="5,159"/>	
Naval aircraft	<input type="text" value="0"/>	
Research (8%)	<input type="text" value="903"/>	
Extra training	<input type="text" value="0"/>	
Intelligence	<input type="text" value="0"/>	
Total expenses	<input type="text" value="9,475"/>	
Monthly balance	<input type="text" value="1,815"/>	
Funds	<input type="text" value="16,412"/>	

You will have a yearly naval budget at your disposition. The budget is a function of the base resources of the nation and the proportion of expenditures devoted to the navy. Both of these can vary as an effect of various events in the game.

The base resources will increase as a result of wars won, and decrease when wars are lost. The base resources will also increase steadily at about 3-5% a year as a result of economic growth.

Your budget will also get an addition from the colonies and other possessions your nation controls. The income from colonies will decrease over time in the game. The effect of this is that, considering the costs of garrisoning your colonies, they might not be profitable by the 1970s.

The naval budget percentage will vary with various events and your response to them (see Events). In general the naval budget will tend to rise in times of high tension and be low in periods of low tension.

Your yearly budget will be divided into monthly payments to the navy. Running out of funds is not a good idea, and will tend to upset the finance ministry and lower your prestige. It will also affect fleet morale, as unpaid sailors tend to get surly. You can run up a surplus and save money for future expenses or for building that super battleship. Be aware however that if you have substantial funds in your coffers for long periods, the Kaiser, Prime Minister or finance ministry might find a use for some of those funds.

AREAS AND POSSESSIONS

The world is divided into areas. In each area there are a number of possessions that can be controlled by one of the player nations, or be neutral. Possessions have naval bases and can have coastal artillery or other defences. The base values and fortifications of possessions can be improved by the player.

Possessions can change hands, most often as a result of peace treaties. In some cases possessions can be transferred in other ways as a result of events. If a player nation acquires new possessions in an area where other nations are pre-eminent, this will probably increase tensions.

Each possession has a value that is used when calculating the budget effect of acquiring or losing possessions. The budget effect of possessions is relatively limited compared to the rest of income. Income from colonies will slowly decline over time. Eventually, democratic nations will tend to grant independence to their colonies.

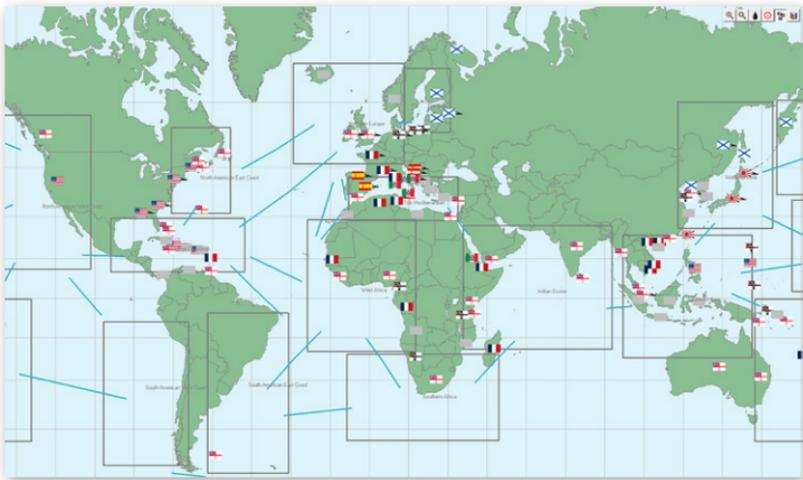
Some possessions have oil, and access to oil fuel is necessary to build oil fuelled ships before 1920. After that, oil extraction and trade is assumed to have spread so that all nations can gain access to oil. However, nations without own oil resources

may be subject to fuel shortages. Before 1920, oil may be randomly discovered in new places.

THE STRATEGIC MAP

The strategic map can be viewed in the first tab of the main screen of the game. You will see a map of the world with possessions owned by the various nation marked by their flags. To change the map view:

- ▲ Right drag to move the map.
- ▲ Mouse wheel to zoom in.
- ▲ Right click in the tree to the left for more map options.
- ▲ Left click in any area or on a possession when the map is zoomed in a bit to get details.



Hovering the mouse over an area will give you a tool tip window with information about ships of all nations deployed in that area. Note that ships will move before combat, thus forces may have changed when a battle occurs. This is to preserve some fog of war.



CANALS AND OTHER CHOKE POINTS

There are two canals in the game, the Suez Canal and the Panama Canal. The Suez Canal is operational at the start of the scenarios, and is controlled by the nation owning Egypt (Britain at the start of the scenarios). The Panama Canal will become operational in 1914, and is controlled by the player owning Panama (the USA at the start of the 1900, 1920 and 1935 scenarios).

Movement through canals is normally possible for other nations than the owning nation. During wartime, canals will be blocked for players at war with the owner, or if the tension level with the owner is 7 or higher.

Movement between the Baltic and the Northern Europe zone will be blocked for enemies of Germany in wartime after Germany researches active mine warfare.

RESEARCH

Research and technological development plays a large role in RTW. This is a period of rapidly changing technologies, and as it takes several years to build a battleship, your ships will sometimes be obsolete when they are completed.

You can define a portion of your budget up to a maximum of 12% as spent on research. You should be aware that on values over 10% there is a diminishing return.

There are a number of different research areas, from battleship projectiles to submarine technology and a lot in between. In the research menu, you can shift priorities between different research areas by setting their priority to high, medium or low. Note that these priorities are relative, so setting all research areas to high will not increase research, it will just mean that all are equally prioritized. To prioritize everything is to prioritize nothing, to paraphrase Frederick the Great.

Spending on research will lead to research advances, which will have varying effects depending on the area. Advances in Hull construction and Machinery development will reduce the weights of those components in new ship designs. Other research areas will unlock various technologies to be used in ship designs.

If there are no technologies left to discover in a research field, research points spent there will be automatically reallocated to other areas and not wasted. In other words, there is no need to manually set these fields to low.

Research

General | Naval guns

Research area	Last research	Priority	Levels
Machinery development	Three drum boiler	Medium	3
Armour development (Adv)	Krupp armour	Medium	3
Hull construction	Better hull strength calculations	Medium	2
Fire control	Coincidence rangefinder	Medium	3
Subdivision and damage control (Adv)	Counterflooding valves	Medium	2
Turrets and gun mountings	Longer gun barrels	Medium	3
Ship design	Sloping armour deck	Medium	2
AP Projectiles (Adv)	Improved smokeless powder	Medium	3
Light forces and torpedo warfare	DD of up to 400 tons displacement	Medium	2
Torpedo technology	Improved torpedo aiming systems	Medium	2
Submarines	Basic	Medium	0
Explosive shells	Lyddite bursting charges	Medium	2
Fleet tactics	Wireless telegraphy	Medium	2
Naval guns	11 inch guns	Medium	

Right click to change priority

Research budget (% of total budget) 8

Research area	Last research	Priority	Levels
Machinery development	Gas turbines	Low	31
Armour development (Adv)	Thermo mechanically treated armour materials	Medium	27
Hull construction	Aluminium superstructure	Low	26
Fire control	Improved electronic gunnery computer	Medium	29
Subdivision and damage control (Adv)	Improved foam extinguisher system	High	23
Turrets and gun mountings	Fully automatic 3 in gun	Medium	28
Ship design	Improved High Speed Drag Calculations	Medium	30
AP Projectiles (Adv)	Improved streamlining	Medium	25
Light forces and torpedo warfare	Modern torpedo control systems	Medium	31
Torpedo technology	Wire guided torpedoes	Medium	32
Submarines	Missile submarines	Medium	29
Anti submarine warfare	Rocket-assisted ASW torpedo	Medium	22
Explosive shells	Continuous rod warhead	Medium	25
Fleet tactics	Tactical Data system for ASW	Medium	30
Anti aircraft artillery	Improved radar directed medium AA guns	Medium	28
Radar and electronics	Tactical data system	High	22
Naval aviation, lighter than air (Adv)	Improved airship diesel engines	Low	8
Naval aviation, heavier than air	Low level air attack profile	High	26
Shipboard aircraft operation	Improved instrument landing systems	High	25
Missile technology (Adv)	Quadruple box launchers	High	22
Amphibious operations	Specialized landing craft	Low	9
Missile countermeasures		Medium	12
Naval guns	20 inch guns	Low	

Right click to change priority

Research budget (% of total budget)

Designer's Note: Research in RTW3 differs from many other games where you can specify a tech before it is invented and tell your scientists to invent that. RTW3 has what I feel to be a more realistic model where you can tell your scientists to focus on particular areas, but you cannot be sure what they will come up with. In other words, there is no "Hey guys, let's invent the Bronze Age" in RTW.

Note: Most development in RTW represents technical progress, but there are also a number of developments that reflect the conservatism of naval establishments or simply the time needed to grasp the utility of new concepts before they are commonly adopted. This prevents the player from using too much hindsight in ship designs. For example, there was no technical reason that battleships with three or more main turrets couldn't be built before 1904, indeed some such ships were built. But if the game had allowed the building of such ships from start, players would in all likelihood start building dreadnought- like ships immediately, knowing that advances in fire control and rate of fire would make them the most effective ships in some years.

GENERAL

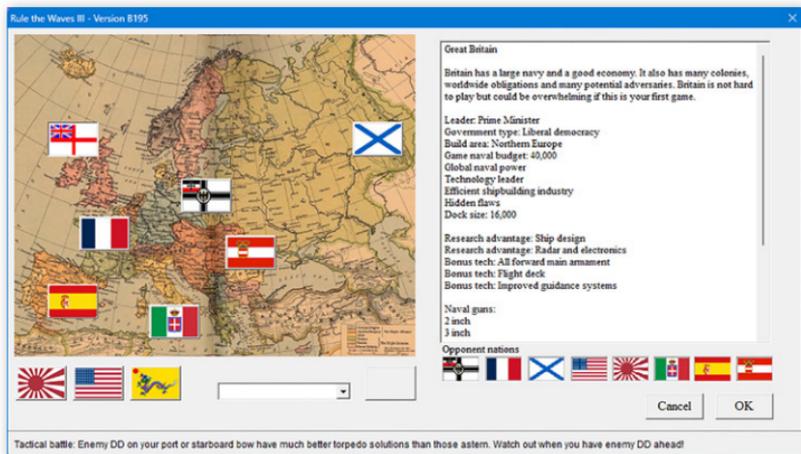
MEASUREMENTS

Measurements in the game are given in imperial measurement units. Gun calibres and armour thicknesses are in inches, ranges are in yards, bomb weights in pounds. These measurements were chosen because they are commonly used in naval history works, and should be familiar to the majority of naval warfare enthusiasts.

STARTING A GAME

When you start a new game, you will first select a nation for you to play. You can click the flags of the playable nations and see the main characteristics of the nation as well as their enemies. There will be eight opponent nations. Playable nations are Great Britain, Germany, France, Austria-Hungary, Russia, Italy, Japan, China and Spain. You can only play against the AI, there is no human vs human play.

You must also select a fleet size, which determines the size of your budget, and thus the size of your fleet. The size which most closely corresponds to real fleet sizes during the period is large or very large. Be aware, however, that managing a big fleet with tens of battleships and several dozens of cruisers and destroyers can be a considerable



administrative task, and it is suggested that you play your first game with medium or even small fleet size.

The budgets given to the different nations are somewhat compressed in their variation and not totally historical, as that would leave some smaller nations unable to compete. In other words, the naval budgets in the game are different from each other, but not so much different as in the real world. If you want to play with more historical budgets, there is an option for that in the 1900 campaign start. Note however that when playing with historical budgets, some smaller nations may find themselves constantly short on money and at a decided disadvantage versus larger nations.

Playing minor naval nations like Austria-Hungary or Spain at small fleet setting is not really recommended, as that may result in very limited resources for the player.

In addition to the budgetary differences, there are other advantages and disadvantages to the different nations that reflect historical factors. The nations have research advantages in different areas and some bonus technologies that they will research easily. Great Britain has some advantages and disadvantages from its status as a global naval power. See national characteristics below for details.

OPTIONS

There is an option for setting research speed. Setting research speed lower than 100 will slow down research.

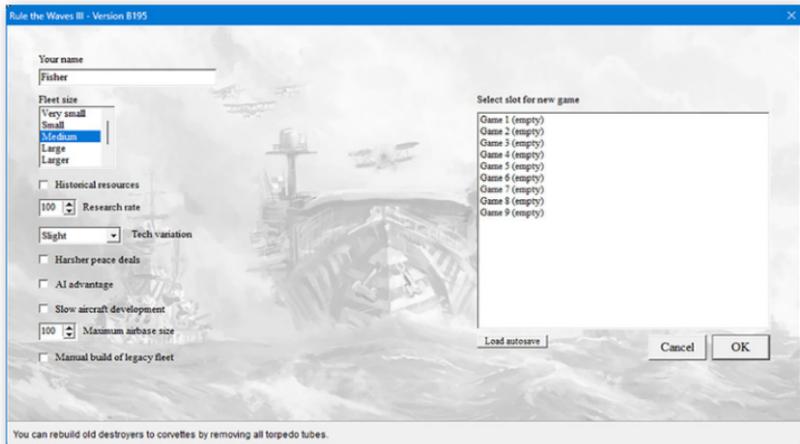
There is an option for varied technologies.

No technology variation means that all technologies become available for research at the historical time they were developed.

Some variation means that there might be a variation of one or two years, and the occasional technology may be more or less effective compared to real life.

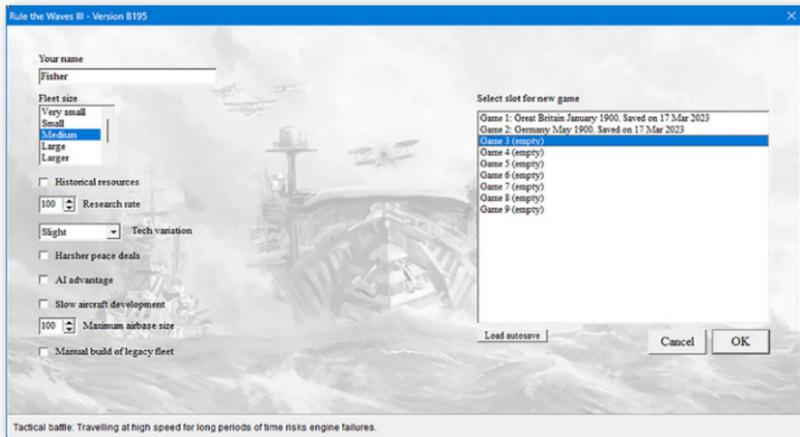
Considerable variation means that technologies may appear up to 6 years later than in reality, and their effectiveness can vary. Be aware that this setting can cause some inconsistencies compared to historical real world developments.

Varied technologies were introduced as a way to recreate historical uncertainty about which way technology development is moving. We as players have full hindsight and



we know what naval developments were ultimately the most successful. Ship designers and admirals in the early 20th century had no idea. Are torpedoes really the threat they are made out to be? Will the big gun battleship be rendered totally obsolete by aircraft? Will that happen now or in 20 years time? Nobody knew! That is the situation that varied technologies is intended to recreate.

The effects of playing with varied technologies will change from game to game. Technologies might arrive later or be harder to invent. Some technologies may be easier



to invent. Some technologies may not live up to their promises. Long range gunnery could suck, multiple gun mounts turn out to be a bad idea, torpedoes are not as good as expected etc. So remember that when playing with considerable tech variation that you are really in a parallel universe where things did not turn out the way they did in our regular naval history.

There is a specific option to slow down air development. This is for those players who want to prolong the period when battleships dominated the seas.

Historical budgets was explained above and manual build of legacy fleet is explained in the next section.

YOUR STARTING FLEET

There are options to start the game in 1890, 1900, 1920, or 1935. When the game starts, you will have an existing legacy fleet at game start. The legacy fleet is generated automatically in the 1890, 1920 and 1935 starts, but can optionally be built manually in the 1900 start. It is recommended that you start with an existing legacy fleet the first time you play the game, as building the legacy fleet can involve a lot of ship design, and it might be better to learn the design process gradually.

When choosing to build your legacy fleet manually you should consider that part of the challenge when starting a game is working with the fleet you inherited from your predecessor. You should also be aware that when you build the legacy fleet manually, you will most likely anticipate technical and tactical progress and thus you give yourself a substantial advantage vs the AI nations.

If you elect to build the legacy fleet yourself, you will get an amount of money as your starting funds, to be used for buying the ships existing at the start of the game. This will be done in two steps. In step one you will design and build existing ships. Then, in step 2, you will order ships that are under construction when the game begins. You can only keep a proportion of your starting funds for buying ships under construction. The majority must be spent on ships already existing. Ships under construction will be about 50% complete when the game starts, but you only pay 5% of the cost for work already completed. Remaining construction will be done at full cost.



LOADING AND SAVING GAMES

LOADING AND SAVING A GAME

There are nine slots for saved games. When you start a game, you will be prompted to select a save slot for your game.

Games can be saved at any time from the main screen or during battle by pressing save game. The game will automatically be saved in the slot you selected for your game.



You can also copy the game to another save slot if you want to preserve your game at a certain point in time.

To load a game, go to the load game when starting RTW and select the slot you want to load.

You can also press continue in the start screen, which will load your last saved game.

AUTOSAVE

RTW will autosave after every month and at intervals according to preferences during battles. Thus, if something happens that causes you to exit without saving, game crash, power failure, whatever, you can always reload the latest autosave by selecting the game slot and pressing "Load autosave".

SENDING A SAVED GAME

If you would want to send a saved game for some reason, just zip up the entire folder of your game in the RTW\Save directory, for example RTW\Save\Save1 if you are using game slot 1. All the ship design files are needed to reload a saved game, that is why it is not enough just with the save file. If you encounter a specific serious bug and want to make a bug report, a save is often useful for the developer to track down the bug.

BUILDING YOUR FLEET

DESIGNING SHIPS

The first step in building a ship is designing the ship. In the design window you can design any ship you need in your navy, from destroyers to super dreadnoughts.

You can get to the design window either by clicking the design ship button or by selecting an existing ship, right clicking and selecting 'open design'.

In the design window you determine the characteristics of the ship you want to design. Note that a number of the available technologies and features might need to be researched before they can be used in a ship.

Ships designed will have their ship type checked by the program, and ships will have to keep within the parameters of the ship type or be reclassified as another type. This is to prevent unrealistic ship designs and also because the ship types are used as the basis for decisions by the tactical AI. A 30 000 ton destroyer with 15 in guns would not only be unrealistic, it would confuse the AI. Very unusual designs will be disallowed by the program as illegal ship types.

Ship design - 1939

Ship type: CA - Heavy cruiser | Class name: GoodHope | Displacement: 15500 | Build at yard: local yard (40,000) | Weight: 2,640 | Cost: 8,661

Feedback: Normal | Hull and fittings: 2,640 | 8,661

Speed: 28 | Range: Medium | Machinery weight: 2,112 | 10,223

Engine power: Normal | Population: CA + Tubeless | End machinery: 1,820

Ball coverage: Normal | Induced tank: 89 | Weight: 247

Upper belt: 2 | Weight: 1,045

Deck: 1 | Weight: 110

Deck extended: 6 | Weight: 119

Corving tower: 5 | Weight: 296 | 590

Turrets: 2 | Accommodation space: 561

Turret top: 2 | Incident costs: 2,460

Secondary guns: 15 | Total armor: 3,440 | 10,320

Armor scheme: All or nothing | Amament: 295 | 0

Torpedo defense: 1 | TFS weight: 2,158 | 13,529

Accommodation: Normal | Accommodation space: 561

Complement: 895 | Incident costs: 2,460

Cabinal service: Total: 11,309 | 48,170

Weight remaining: 71

Time, assembly cost: 22 | 2,190

Guys: Additional armament | Structures | Torpedoes: Position, Tubes, Weight/hour

Flight installations: Seaplane/helicopter hangar, Flight deck, Air capacity, Torpedo launchers, Missiles launchers, Radar and electronics list

Topside load and capacity: 178 of 178 | Topside load

Save and back

Ship design - 1917

Ship type: CVL - Light aircraft carrier | Class name: Flava | Displacement: 12700 | Build at yard: local yard (38,000) | Weight: 3,073 | Cost: 8,442

Feedback: Normal | Hull and fittings: 3,073 | 8,442

Speed: 29 | Range: Medium | Machinery weight: 3,155 | 16,350

Engine power: Normal | Population: CA + Tubeless | End machinery: 577

Ball coverage: Normal | Induced tank: 0

Upper belt: 0 | Weight: 1,471

Deck: 2 | Weight: 0

Deck extended: 0 | Weight: 0

Corving tower: 0 | Weight: 0

Turrets: 0 | Accommodation space: 598

Turret top: 1 | Incident costs: 2,460

Secondary guns: 0 | Total armor: 2,048 | 6,144

Armor scheme: Flat deck on belt | Amament: 366 | 4,193

Torpedo defense: 2 | TFS weight: 520 | 1,640

Accommodation: Normal | Accommodation space: 598

Complement: 884 | Incident costs: 2,460

Cabinal service: Total: 12,008 | 42,497

Weight remaining: 52

Time, assembly cost: 23 | 1,640

Guys: Additional armament | Structures | Torpedoes: Position, Tubes, Weight/hour

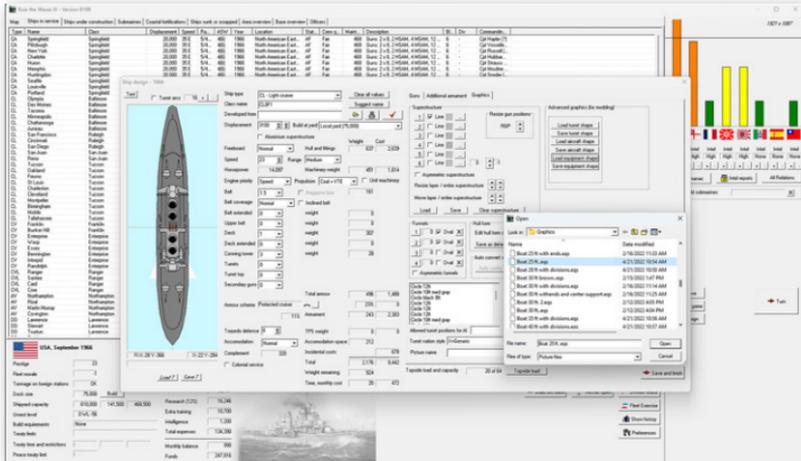
Flight installations: Seaplane/helicopter hangar, Flight deck, Air capacity, Torpedo launchers, Missiles launchers, Radar and electronics list

Topside load and capacity: 5 of 154 | Topside load

Save and back

The easiest way to design a ship is to select an existing class and open the design screen. You can then alter or modify the existing design and save as a new class. This saves work because most ships tend to be developments from existing classes, and you don't have to enter all the values from scratch.

The development of a new ship class will take time and incur costs. If your new ship class is developed from an existing class and reasonably close to that class, you will get a discount both on time and costs.



stability and flotation, and is usually not cost effective compared to increasing the size of the ship. Its main use is if you have a displacement limitation, for example by a treaty or in dock size.

When you develop a new ship class, there will first be a design study of between 1 and 4 months time and with some cost, depending on the size and complexity of the ship. After that is completed, you can either start construction or adjust the design (adjusting the design might be attractive if a new technology has just been invented during the design study). When a design study is completed, additional ships of the same class can be built without any delay (that is one reason ships are often built many to a class).

A new design that is developed from an existing class will get a discount on the development cost and time. To develop from an existing design, right click on an existing ship in service or in construction and select "open design". When changing the design, you can see the percentage of the development cost you will pay in the top left corner in the "Developed from" box. The more changes you make, the smaller the discount, and if you make big enough changes you will have to pay the full development cost.

Generally the following are the limits for change before it becomes an entirely new design with no discount.

- ▲ Displacement can increase by a maximum of 10% or 1000 tons.
- ▲ Main guns over 6 in cannot be changed.
- ▲ Secondary guns over 6 in can be changed to a limited extent.
- ▲ Speed can be changed by one knot.
- ▲ Vertical armour can be changed by one inch and horizontal armour by half an inch.

See appendix 2 for a fuller explanation of the various values used in designing a ship.

Tip: It can be a good idea to leave a few tons unused on your ships so that there is space for a minor rebuild of for example the fire control system or anti-aircraft armament without making the ship overweight.

MAIN TURRETS

Main turrets are handled individually. Each turret has a fire arc where it can shoot, determined by the gun position (one character). To add turrets, press 'add' and select position and number of guns in the turret. The positions available are determined by your research and the ship type.

You can move main gun mounts by right clicking a main gun mount and selecting 'Position'. You can also reposition main gun mounts by double clicking on the mount. After selecting position mount, click on the new location for the mount. Note that moving the mount is a purely aesthetic function, and will not in any way affect the arc of fire. The arc of fire is determined by the position indicator.

To visualize the fire arcs of the main guns, check the box "Fire arcs" by the top down ship view.

SECONDARY GUNS

Secondary guns are only determined as to the total number. Secondary guns do not have individual fire arcs. A proportion of the secondary guns will be able to fire, depending on the bearing of the target ship.

Secondary guns are assumed to be placed half on each side of the ship. You can have an odd number of secondary guns. The graphics logic can't really handle odd numbers of secondaries, but any odd guns left over are assumed to be on the centreline by the gunnery logic.

You can move secondary guns in the same way as main guns. Secondary gun mounts may also be automatically placed by clicking the auto place button.

Secondary guns do have position designators, which are used to make the guns point at the target during battles.

In contrast to main guns, there is no requirement to have a graphical representation of secondary guns, they will work fine in battle anyway, but the ship will of course look much better with the proper number of secondary mounts in the right places.

If the numbers and graphics of secondary guns on your ship do not match, you will get a reminder in the design screen, but you can disregard this with no ill effects.

TERTIARY GUNS

As with secondary guns, tertiary guns are only determined as to the total number. Tertiary guns do not have individual fire arcs. A proportion of the tertiary guns will be able to fire, depending on the bearing of the target ship.

You can move tertiary guns in the same way as main and secondary guns. Tertiary guns mount graphics are purely decorative. They will not turn with the target in battle. Like secondary guns, a proportion of tertiary guns will be available to fire on the target, depending on the target bearing.

TORPEDO TUBES

This works much as the main turrets. You select the position and the number of tubes for the mount.

VISUAL EXTRAS

These include ships boats, anchors, masts etc. They have no function in the game except to make your ships look better. You can add visual extras from files with common pieces of equipment used on ships, and you can even define your own.

Visual extras are placed in the same way as gun mounts.

Tip: If you reposition visual elements and want something to be on the centreline of the ship, hold down the alt key while placing it.

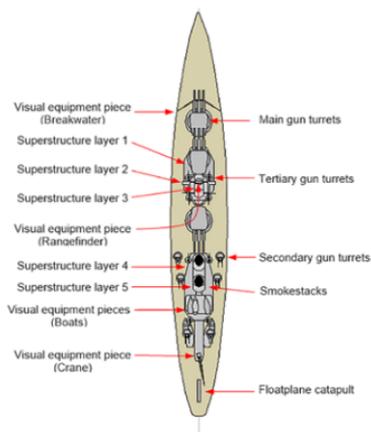
SHIP GRAPHICS

When you design your ship, you can also design how the ship looks in the top down view in the game. This is not necessary, the ship will work just fine without any graphics enhancements at all, but a nice looking ship is of course a source of pride and a morale booster for the player.

If you modify an existing design, or let the computer auto design a ship for you, the ship will already have its graphics done. In some cases you might want to modify the graphics if you increase or reduce the number of guns, displacement or similar.

You should be aware that the AI is somewhat aesthetically challenged, so ship designs by the AI might sometimes have some odd features, like turrets in unexpected places.

In the graphics tab in the design window, there are also functions for designing your own custom equipment to put on your ships, or modding the appearance of aircraft and other game graphics.



SHIP SUPERSTRUCTURE

The superstructure of ships is represented by graphics in six layers. Each layer can be drawn or edited using the controls in the graphics tab. Like equipment, the superstructure graphic has no function in the game except to make your ships look better.

Select if you want a line or a filled polygon. Then click on the button for the layer you want to draw and then add points by left clicking on the ship. Right click when finished. You can only add points on the left side of the ship, but the graphic will be mirrored so that it appears on the right side as well when you are finished. There can be a maximum of 24 points for each superstructure item (12 on each side).

There is an option for asymmetric superstructures, which are found mostly on aircraft carriers.

FUNNELS

You can have funnels generated as black roundels by the game, or you can use funnels provided as visual extras. If using the funnel function, select if you want an oval funnel or round, then click on the button and on the ship. You do not have to worry about clicking on the middle of the ship; the program assumes all funnels are on the centreline, so it only takes account of where you click relative to the length of the ship. There is also an option for asymmetric funnels.

TOPSIDE POINTS

Much equipment in ships had to be relatively high up in the ship, which affects stability. This became especially marked when anti-aircraft guns, radars and other equipment started to proliferate on ships in WW2. To simulate this, all weaponry and radars have a topside point cost. A ship has a maximum number of topside points, based on displacement. This value can be slightly exceeded but may result in the ship being top-heavy, which affects stability.

BUILDING SHIPS

Once the design study is completed, you can start building your new ships.

The time to complete a ship is dependent on the ship type and can be modified by having an efficient or undeveloped shipbuilding industry.

The cost of building a ship is paid in monthly instalments during the build time. If you run into budget problems, it is possible to temporarily halt the construction of one or more ships. Halted ships will cost half of their mothballed maintenance cost.

Build the Waves III - Version B195

Map | Ships in service | Ships under construction | Submarines | Coastal fortifications | Ships sunk or scrapped | Area overview | Base overview | Officers

Ts.	Name	Class	Displacement	Speed	Radio	ASW	Year	Builder	Moet.	Cost/Moet.	Description
BB	Nagato	Nagato	35 000	23	-	0	N/A	Great Britain	13	New	4 142 Guns: 8 x 16, 20 x 6, 5 TT
BB	Mutsu	Nagato	35 000	23	-	0	N/A	Great Britain	20	New	4 142 Guns: 8 x 16, 20 x 6, 5 TT
BB	Hizen	Nagato	35 000	23	-	0	N/A	Great Britain	22(A)	New	4 763 Guns: 8 x 16, 20 x 6, 5 TT
BC	Kashima	Kango	31 100	28	-	0	N/A	Great Britain	5(B)	New	291 Guns: 8 x 14, 14 x 6, 2 TT
DD	Nokaze	Aikaze	1 300	32	-	5	N/A	Local yard	1	New	342 Guns: 4 x 5, 6 TT
DD	Namikaze	Aikaze	1 300	32	-	5	N/A	Local yard	3	New	342 Guns: 4 x 5, 6 TT
DD	Okikaze	Aikaze	1 300	32	-	5	N/A	Local yard	5	New	342 Guns: 4 x 5, 6 TT
DD	Shimokaze	Aikaze	1 300	32	-	5	N/A	Local yard	3	New	342 Guns: 4 x 5, 6 TT
DD	Shikaze								4	New	342 Guns: 4 x 5, 6 TT
DD	Tachikaze								6	New	342 Guns: 4 x 5, 6 TT
DD	Yukaze								7	New	342 Guns: 4 x 5, 6 TT
DD	Asakaze								8	New	342 Guns: 4 x 5, 6 TT
DD	Amagaki								9	New	342 Guns: 4 x 5, 6 TT
DD	Hayate								13	New	342 Guns: 4 x 5, 6 TT

Build ship: Show older designs

Type	Class name	Displacement	Year	Speed	ASW
DD	Aikaze	1 300	1915	31	5
BC	Kango	31 100	1912	28	0
DD	Nagato	35 000	1914	23	0
CL	Tone	4 700	1912	23	0

Name:

Number:

Cost:

Build time:

Monthy build cost:

Maintenance cost:

Building nation:

Shipyards capacity line:

Treaty build allowance line:

You can also accelerate the construction of a limited number of ships. This will build them 10% faster, but with a 5% increase in cost. Having many ships in accelerated construction risks causing delays in the construction of other ships.

If a ship under construction is delayed, the monthly build cost will not be deducted, which can lead to lower than expected monthly expenses.

In the build dialog, you order up to 12 ships of the same class laid down. The names will be assigned automatically. This might be very handy when building large numbers of destroyers for example. Note however that you will have to consider if your monthly budget or your shipyard capacity is enough to build that many ships.

REBUILDING SHIPS

You can rebuild existing ships, but there are limitations on what can be rebuilt. The following actions can be taken while rebuilding ships:

You can change the main armament according to certain conditions. Guns can be changed to more modern versions of the same calibre. Triple turrets can be changed to double turrets with larger guns or vice versa if the calibres are compatible. Double

turrets can be changed to single turrets or vice versa if the calibres are compatible. For example, a double 8 in turret can be exchanged for a single 10 in turret or a triple 12 in turret can be exchanged for a double 16 in turret. To see the combinations available during a rebuild, select the turret and press the 'Rebuild?' button under the turret list. Gun rebuilds are generally expensive and take substantial time

You can change the secondary battery if the existing guns are in casemates or in turrets of 6 inches calibre or less. It can be changed to any arrangement of 6 in guns or less. The same with tertiary guns.

You can swap out the machinery for more modern machinery, increasing speed or using the weight gained for other purposes.

Fire control can be improved

You can add bulges, which will increase torpedo protection but will also reduce speed.

You can add one inch of deck armour. You can also remove the conning tower, or change the upper belt armour.

You can also rebuild ships to aircraft carriers (CV or CVL) provided you have researched the technology.

Some rebuilds will change the ship type, most often from something else to CV, but sometimes BC will be reclassified as BB. Sometimes a change of classification will be suggested, other times the change will be mandatory. The game definition of a BC will change over time (the speed requirement will rise), so occasionally when you rebuild a battlecruiser, the game will suggest that it might now be a battleship.

DOCKS



In the game, dock size is used as a limit to the largest ship your nation can build and operate. It is

also used to compute the total capacity of your shipbuilding industry.

You cannot build ships larger than your current dock size. Occasionally it is necessary to increase your maximum dock size. Docks take one year to build. Each building step

will increase your dock size by between 1000 and 2000 tons depending on the time period. Try to plan ahead; waiting an extra year to lay down your new battleship while you enlarge your docks can be very frustrating. Dock size may occasionally increase by itself as a result of development in private shipbuilding.

Dock size is also used with a multiplier to determine your total shipyard capacity, that is, the total tonnage of ships you can have building. Note that submarines under construction are included in this total.

If you cannot build ships at home, you can contract them to foreign yards. You will then be limited by the building nation's dock size. This can have a further advantage if your own nation lacks technology or has an undeveloped shipbuilding industry.

The drawback to building ships abroad is that you risk that your ships will be impounded and not delivered if a war breaks out. The risk of this happening depends on the tension level with the building nation. If you have a treaty with the building nation, they will always be delivered.

An advantage is that you may gain insight into the technology of the building nation.

SHIPYARD CAPACITY

Your nation will have a maximum shipyard capacity, which is computed as a multiple of the dock size. The total tonnage of your ships under construction cannot exceed the maximum shipyard capacity. Ships under rebuild do not count, and neither do AMCs and small corvettes (as they are rebuilt from existing ships). Submarines do count towards the limit.

SUBMARINES

You need not design submarines in RTW, they are selected from standardised types. The different types of submarine will be available as a result of your submarine research.

The different submarine types are: Coastal submarines, Medium range submarines, Long range submarines, Minelaying submarines and Missile submarines.

Rule the Waves III - Version B195

Map | Ships in service | Ships under construction | Submarines | Coastal fortifications | Ships sunk or scrapped | Area overview | Base overview | Officers

Tp.	Name	Class	Displacement	Reliab.	Year	Location	Status	Cost/month	
SS 12	Submarine	Submarine	1 200	-	70	1913	Southeast Asia	Ready	40
SS 14	Submarine	Submarine	1 200	-	70	1913	Southeast Asia	Ready	40
SS 16	Submarine	Submarine	1 200	-	70	1914	Southeast Asia	Ready	40
SS 18	Submarine	Submarine	1 200	-	70	1914	Southeast Asia	Ready	40
SS 19	Submarine	Submarine	1 200	-	70	1914	Northeast Asia	Ready	40
SS 130	Submarine	Submarine	1 200	-	70	1914	Northeast Asia	Ready	40
SS 111	Submarine	Submarine	1 200	-	70	1914	Northeast Asia	Ready	40
SS 112	Submarine	Submarine	1 200	-	76	1917	Northeast Asia	Ready	40
SS 113	Submarine	Submarine	1 200	-	-	-	Build.	1	200
SS 114	Submarine	Submarine	1 200	-	-	-	Build.	2	200
SS 115	Submarine	Submarine	1 200	-	-	-	Build.	3	200
SS 116	Submarine	Submarine	1 200	-	-	-	Build.	4	200
SS 117	Submarine	Submarine	1 200	-	-	-	Build.	5	200
SS 118	Submarine	Submarine	1 200	-	-	-	Build.	6	200
SS 119	Submarine	Submarine	1 200	-	-	-	Build.	7	200
SS 120	Submarine	Submarine	1 200	-	-	-	Build.	8	200
SS 121	Submarine	Submarine	1 200	-	-	-	Build.	9	200
SS 122	Submarine	Submarine	1 200	-	-	-	Build.	10	200
SS 123	Submarine	Submarine	1 200	-	-	-	Build.	11	200
SS 124	Submarine	Submarine	1 200	-	-	-	Build.	12	200
SS 125	Submarine	Submarine	1 200	-	-	-	Build.	13	200
SS 126	Submarine	Submarine	1 200	-	-	-	Build.	14	200
SS 127	Submarine	Submarine	1 200	-	-	-	Build.	15	200

Build submarine

- Coastal submarine (SSC)
- Medium range submarine (SS)
- Minelaying submarine (SSM)
- Long range submarine (SSL)

Name Suggest

Auto build

Build time

Cost

Monthly build cost

Maintenance cost

Go to list not on build

Cancel

Coastal submarines have shorter operational radius, so will only have full efficiency close to your bases. They have limited torpedo capacity and cannot make strategic moves in wartime.

Medium range submarines are the general run of the mill submarine.

Minelaying submarines are much like medium range submarines, but can also lay mines. On the other hand, they have a reduced torpedo load. They have a smaller risk of causing opprobrium among neutral nations in the period before 1930, as mined merchant ships do not inflame international opinion as much as torpedoed merchant ships.

Long range submarines are better at operating in areas where you do not have a large friendly base capacity. They are slightly more vulnerable to ASW attacks than other submarines.

Missile submarines carry anti-ship missiles and will use them when a suitable target is in range. They also have torpedoes.

Submarines will have an effect in the strategic turns, when they will attack enemy merchant shipping. They will also occasionally torpedo warships. The effectiveness of submarines will depend of the number of enemy ships on trade protection and or the number of destroyers relative to heavy ships on the fleet (see ASW warfare and Trade protection).

Submarines generally operate best in areas where they have friendly bases. They can operate in areas adjacent to areas with friendly bases, but with reduced effectiveness (except for long range submarines).

Advances in submarine technology will increase the serviceability and the attack effectiveness of your submarines.

Submarines will also participate randomly in battles, in proportion to the number of submarines available to either side. In battles, submarines can torpedo ships, and will also get an extra after battle attack chance on enemy ships returning to base after the engagement. In this phase, damaged ships are especially at risk.

During wars you have three policy options for your submarines:

Fleet support means that submarines will primarily operate against enemy warships and only attack enemy merchant shipping in very clear cut cases.

Prize rules means that your submarines will attack shipping, attempting to follow prize rules. The occasional incident that will upset neutral nations cannot be avoided. Your submarines will try to strike a balance between supporting the fleet and attacking enemy merchant shipping.



Unrestricted means your submarines will carry out unrestricted submarine warfare against enemy merchant shipping at the expense of operations in support of the fleet. This will increase sinkings of enemy merchant shipping and may cause starvation and higher unrest level for the enemy. However, it will also anger neutral nations and risk bringing in additional enemies against you.

Submarines will have a sharply reduced effect on enemy merchant shipping if you are blockading the enemy (enemy merchant shipping is assumed to have been reduced to a minimum by the blockade).

COASTAL ARTILLERY

You can build coastal artillery batteries in the same way you build ships, except that you do not design them and can only chose between predefined types. Coastal artillery must be built in a specific possession.

Coastal artillery will be assigned randomly in proportion to their numbers to positions on the coast of the possession where they are located, and will be available in battles at that location.

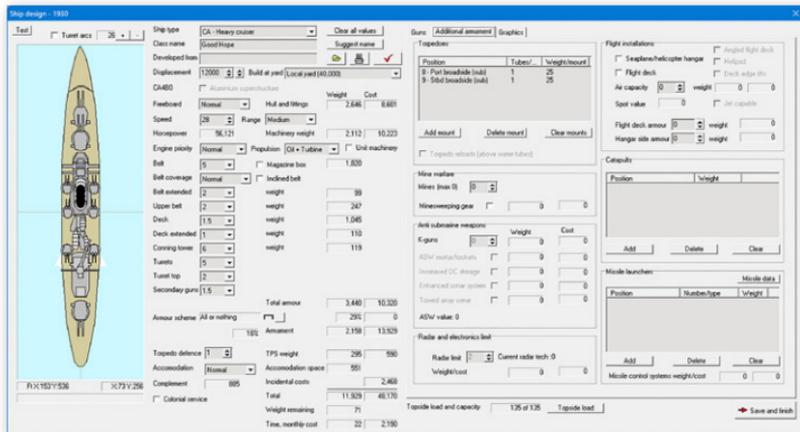
Coastal artillery positions will also increase the number of local minefields in the vicinity of the battery.

With time, coastal artillery emplacements will gain a few anti-aircraft guns.

Late game, you can also install coastal missile batteries.

Designer's note: Why are coastal batteries placed randomly? Why cannot the player build them where they are most needed? The battles in the game are generated from a number of battle templates, but over time, players will learn where battles tend to take place. Allowing players to place coastal artillery exactly where they wanted was found to enable players to take advantage of this knowledge to optimize the placement of coastal artillery.

CONSTRUCTION CHOICES



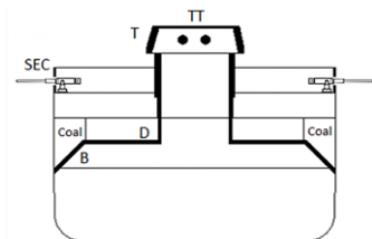
This is a summary of the construction choices and technologies available when designing ships, and their effects in the game. This might be overwhelming for the first time reader, and if this is your first time reading the manual, you can skip this section now and return to it later when you have started designing your ships.

ARMOUR ABBREVIATIONS USED IN THE GAME

B	Belt armour	This is the main armour belt of the ship
BU	Upper belt	Upper strakes of belt armour protecting the upper parts of the hull
BE	Belt extended	Armour protecting the ends of the ship, steering machinery and boiler uptakes
D	Deck	The main armour deck of the ship
DE	Deck extended	Corresponds to BE above
T		Main gun turret and barbette armour
TT	Turret top	Roof of main gun turrets
SEC		Secondary gun armour
CT		Conning tower armour

Armour values in the game are always in inches.

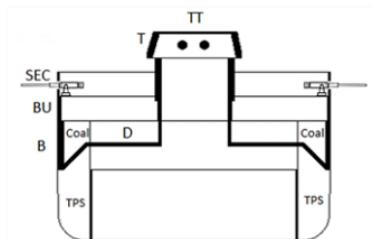
ARMOUR SCHEMES EXPLANATION



Protected Cruisers

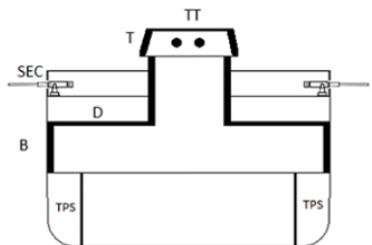
Protected cruisers have an armour deck with sloping sides, but no belt armour. They are more vulnerable to hull and superstructure hits, as well as splinter damage from near misses. Before you research light cruiser configuration, all light cruisers must be built

as protected cruisers. For protected cruisers, the Belt armour value represents the thickness of the sloping side of the armour deck. Protected cruisers cannot have an upper belt.



Belt and sloping deck

This is the standard WW1 era armour configuration. These ships will have extra protection against shells penetrating the belt, as the shell will also have to penetrate the sloping deck before reaching their vitals.



Flat deck on top of belt

This armour configuration was common on ironclad ships of the end of the 19th century, but it was superseded by the belt and sloping deck scheme. These ships will have a larger volume protected by the belt and deck, and save some weight, but lack

the extra protection offered by the sloping deck behind the belt.

All or Nothing

All or Nothing (AoN) is an armour philosophy where only the most important parts of the ship are protected, but these have as much armour as possible. The idea is that if you

are hit where it matters you are well protected, and if you are hit where it doesn't matter, it doesn't matter. The armour layout is otherwise similar to the 'Flat top on deck' armour scheme. All or nothing ships have some of their weight calculations altered compared to other ships, and they will tend to have their flotation reserve better protected from damage. All or nothing ships can have no upper belt. BE and DE armour are assumed to cover only such things as uptakes and steering mechanisms. AoN must be researched before it can be used.

NARROW BELT

A narrow belt saves weight but risks that shells that would have hit the belt instead might hit BE, BU or no armour at all.

LOW FREEBOARD

Ships with low freeboard will save weight but are more affected by the sea state, with rate of fire (ROF) reduced or sometimes turrets being out of action due to being swamped. Low freeboard can be selected for all ships, but the disadvantages are larger for ships with top speed above 20 knots. Ships with low freeboard will have their speed and gunnery affected more in heavy weather than ships with normal freeboard. The ship is simply less weatherly.

CRAMPED ACCOMMODATION

Cramped accommodation might increase the risk of mutinies during wars, especially if the nation is under blockade. Ships are less useful in the colonies if they have cramped accommodation and crew performance may suffer if away from home waters.

TRIPLE AND QUADRUPLE TURRETS

Early triple and quadruple turrets will have slightly lower ROF and a higher chance of turret jams. Improved triple and quadruple turrets will rectify these defects.

CASEMATES

Secondary guns in casemates are somewhat more vulnerable than secondary guns in turrets, but casemate armour will absorb some hits that would otherwise hit un-armoured hull or superstructure. Casemate guns are more sensitive to weather interference and will get higher ROF penalty in heavy seas.

Casemates are the usual method of mounting secondary guns in the early part of the game, as early turrets will have ROF penalties before reliable training and elevating mechanisms are developed.

TURRETED GUNS OF SMALLER CALIBRES

Until accurate training and elevation motors are developed, there is a ROF and accuracy penalty for guns of 9 inches and below in double and triple turrets.

Note that smaller guns will still have a higher ROF than larger guns, this is only a relative effect. Do not let this stop you from designing for example armoured cruisers with double 7 or 8 inch turrets as main armament. It is just that single gun turrets and casemate mounted guns have a relative ROF advantage compared to double turrets up until around the mid-1910s.

TURRET TOP ARMOUR

The program assumes that turret top armour is slightly sloped, at least for part of the turret, so shell penetration is somewhat better against turret tops than against decks. For heavy guns it is recommended to have slightly thicker armour for TT than D, just as was common in historical ships.

MAXIMUM ARMOUR THICKNESS

Armour thickness up to 20 in allowed for belt armour, but armour over 12 inches in thickness will not give the same proportional protection due to difficulties in manufacturing thicker armour plates. Turret armour can be up to 26 inches.

COAL OR OIL FUEL

Oil fuelled ships have slightly more expensive engines but get a smaller weight penalty for long range and more weight effective and manpower efficient engines. However, only those nations with access to oilfields can use oil firing before 1920. Coal fuelled ships get some extra hull protection from the coal bunkers.

Oil fuelled ships produce less smoke, so are less sensitive to own smoke interfering with spotting.

ENGINE TYPE

Initially ships will be powered by vertical triple expansion engines (VTE). Turbines will be developed around 1904 and will give substantial weight savings as well as better engine staying power in battle.

Diesel engines are heavier than steam plants but reduce the weight penalty of long and extreme range. Diesel powered ships have better acceleration.

Eventually, you will develop gas turbines, which give good acceleration and reduce weight but increase cost.

ENGINE PRIORITY

Engines optimised for speed are lighter, but increase the risk of breakdowns. Ships optimised for reliability decrease the risk of breakdowns, but weigh more. Engine breakdowns can affect your ships during battle, but also during strategic turns. Reliable engines are especially important for ships deployed as raiders.

ARMOUR AND SPLINTER DAMAGE

Splinter damage can occur to hull, machinery, funnel uptakes, main guns and secondary/tertiary guns from near misses or superstructure hits. Armour of 2 inches and above will protect from splinter damage. If armour is less than 2 inches, there will be a risk of splinter damage inversely proportional to the armour thickness. Note that tertiary guns are always considered to be un-armoured, but they will be somewhat better protected in casemates than in open mounts (they are assumed to have some protection from other armour, and shipbuilding steel is better than nothing).

GUN SHIELDS

Main guns of 6 inches calibre and below in single turrets with 2 inches or less of armour will be considered as shielded mounts. These are lighter than normal turrets, but are more vulnerable to splinters (though not nearly as vulnerable as un-armoured mounts).

COLONIAL SERVICE

Ships fitted for colonial service are more useful on foreign stations. Equipping a ship for colonial service takes up a proportion of displacement, which simulates increased marine contingent, storage spaces and other facilities useful for extended service on foreign stations.

ACCOMMODATION

Ships can have varying levels of accommodation for the crew.

Cramped accommodation saves weight, but will affect crew quality negatively if ships are outside of home waters. In a long war, it can also affect fleet morale if your nation is blockaded.

Normal accommodation will be sufficient for ships during most of the game.

Late game, after 1955, spacious accommodation will be needed to keep up crew quality, as the pampered youths of the modern age want more comforts. Communist regimes do not need to bother with spacious accommodation.

AUTOMATIC LOADING

Autoloaded guns will have a 10% higher ROF. When the ship is straddling the target and going to rapid fire they will give a 30% boost to ROF. They also have better AA performance. They are about 25% heavier than usual guns.

DUAL PURPOSE GUNS

Dual purpose guns are about 25% heavier than usual guns, but are capable of both AA fire and engaging surface targets. 3, 4, 5 and 6 inch guns can be dual purpose, with 4 and 5 inch guns being the most capable in the AA role. Late game technology will make 3 inch guns effective AA weapons. Dual purpose guns count as heavy anti-aircraft guns for purposes of anti-aircraft combat.

LIGHT AND MEDIUM AA GUNS

Light and medium AA guns are limited not only by weight, but also by topside space. To simulate this, all ships have an amount of topside space. Topside space is determined by displacement, and are used by other weaponry, guns, torpedo tubes, radar installations etc.

You will be able to fit more light and medium AA guns on ships when double and quadruple AA mounts are developed.

Light and medium AA guns will evolve with radar control and other improvements in the late game, see AA guns in the missile age.

AA DIRECTORS

AA directors will considerably increase the effectiveness of heavy and medium AA fire. More AA directors will improve AA fire, up to a maximum of 4.



INCLINED BELT

Inclined belt costs 10% more than a conventional belt. It adds about 10% to the protective effect of the belt, but it also entails a risk that long range hits will be converted to deck or lower belt edge hits.

BOX PROTECTION TO MAGAZINES

If this option is selected, belt and deck thickness will be halved for hits to areas other than magazines. Belt and deck weight is reduced by 1/3. This was a common armour configuration for cruisers in the interwar years that were restricted by the Washington Naval Treaty.

ALL FORWARD MAIN ARMAMENT

Ships with all forward main armament (Nelson or Richelieu configuration) save weight. This is also valid for G3 configuration (A, B, L turrets). A nation needs to research all forward armament before designs can benefit from the weight savings.

DIVING SHELLS

Once invented, diving shells can be selected for use in the ammo doctrine screen. Diving shells have a chance for long range near misses to be converted to hull hits bypassing armour. On the flip side, diving shells have a larger chance of passthrough hits and duds.

OXYGEN FUELLED TORPEDOES

When oxygen fuelled torpedoes have been invented, their use can be selected in the doctrine screen. Oxygen fuelled torpedoes give considerably better torpedo performance at the risk of more devastating torpedo explosions if torpedo tubes are hit.

RADAR

All ships can carry radar up to radar level 2. To install radar equipment above level 2, you need to have a certain amount of space left unused on the ship. The maximum radar level for the ship is shown in the design window. This is to simulate the added top-weight and space requirements for more complex radar equipment.

ALUMINIUM SUPERSTRUCTURE

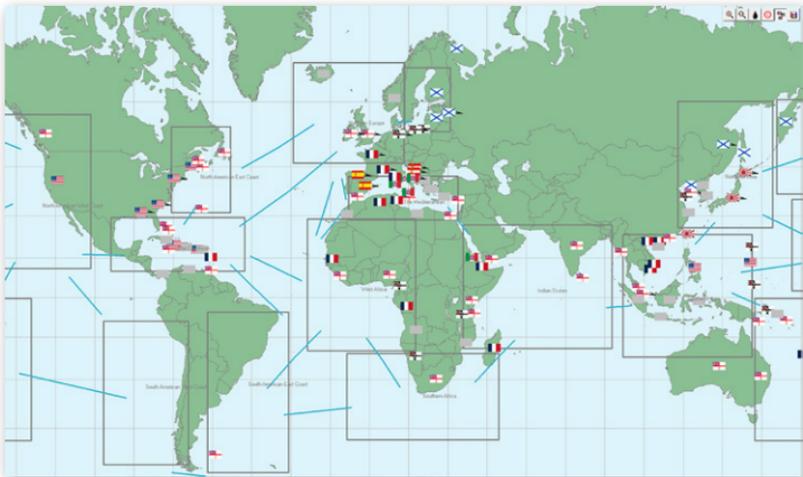
Once you have developed the technology, you can use aluminium superstructure. This saves 10% of the hull weight, but it makes the ship more susceptible to fire damage.

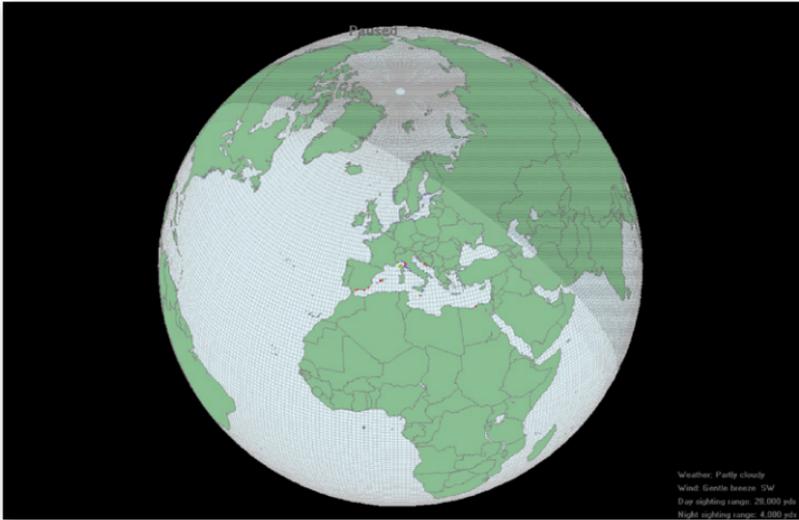
MANAGING YOUR FLEET

STRATEGIC DEPLOYMENT OF SHIPS

Ships are deployed in an area, either a home area or on a foreign station. The number of ships that can be deployed in an area is dependent on the base value of the area. The number can be exceeded, but this may cause ships to suffer from maintenance problems and reduced crew quality. If a nation has no bases in an area, only a very limited number of ships can be deployed, representing single cruisers and the like that coal at bases of friendly or neutral nations.

Base limits are checked at the end of the turn. That means that you can move a fleet into an area where you have insufficient bases and fight a battle before the ships start to suffer from lack of bases.





Nations are required to have a minimum naval presence in each area where they have possessions. This is expressed as a tonnage required in each area, and is dependent on the number and value of the possessions owned by the nation. Only active ships or ships on foreign stations status (see below) count for the purpose of calculating the naval presence in an area. If the required number is not met, player prestige may suffer and it might even lead to revolts in the affected areas.

Ships equipped for colonial service count as 1.5 times their tonnage on foreign stations.

Ships with cramped accommodation and ships with short range are less useful on foreign stations and will count as less than their actual displacement for the purpose of fulfilling this requirement.

Note: you may want to keep more ships than required on foreign stations to be sure of having an adequate force if war should come. During wartime, the deployment requirements at foreign stations are not enforced if you are under blockade.

multiple ships at the same time. When multi selecting, use the normal windows actions like holding down shift or control to select in the list.

In the construction tab you can see your ships under construction. Right clicking ships here will give you choices for halting or speeding up construction.

Explanations for the ship list:

Speed: After the speed in knots there will sometimes be letters denoting:

L = Long range

S = Short range

c = Equipped for colonial service

a = Cramped accommodation

Status: The abbreviations means:

AF = Active fleet

RF = Reserve Fleet

MB = Mothballed

R = Raider

FS = On foreign station

TP = Trade protection

WU = Working Up

A number means the ship is in repair for that number of months

* after the status means the ship needs maintenance and should return to an area with sufficient base capacity.

MOVEMENT

Ships can move to adjacent areas in one strategic turn (one month). You can give orders for ships to move to an area farther away, and the ships will then plot their own course to the ultimate destination area.

Only ships present in an area can take part in battles there. Ships that are moving count as present in their next destination area for battle purposes. Short range ships

cannot move strategically during wartime except between adjacent home areas (e.g. North American East Coast and Caribbean for the USA).

GIVING MOVEMENT ORDERS TO YOUR SHIPS

From an area details dialog. Click on the 'Move ships' button to go to the move ships screen.

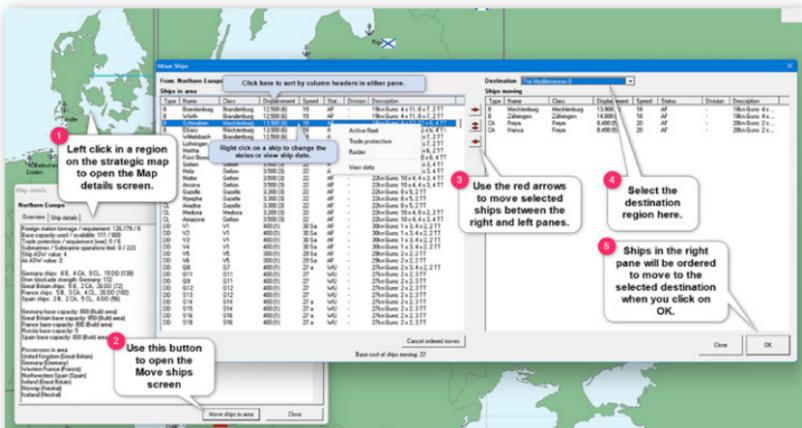
or

From the main window, right click a ship in the ship list and select 'Move ship' to go to the move ship screen with that ship selected.

or

Select one or more ships and press the "m" key. This will show a list of all areas. Click on an area to order the selected ships to move there.

or



On the strategic map hold down the mouse button and drag from one map area to another and release.

Note that you give movement orders to your ships that are actually executed when you press 'Turn'.

Also, if giving orders to move to an area two or more areas away, the ships will pick their own route there, and the destination shown for them will be the next area on their route.

Map Ships in service Ships under construction Submarines Coastal fortifications Ships st

Ships Possessions

Northern Europe

- B Brandenburg (AF)
- B Wöth (AF)
- B Zähring (AF)
- B Mecklenburg (AF)
- B Schwaben (AF)
- B Elzas (AF)
- B Wilt Move ships
- B Lotharing (AF)
- CA Hertha (AF)
- CA Freya (AF)
- CA Hansa (AF)
- CA Fürst Bismarck (AF)
- CL Gefion (AF)
- CL Hela (AF)
- CL Niobe (AF)
- CL Arcona (AF)
- CL Gazelle (AF)

Right click on any ship in the Ships tab on main screen's Map tab. Clicking on Move ships will open the Move ship screen.

Map Ships in service Ships under construction Submarines Coastal fortifications Ships sunk or scrapped Area overview Base overview Officers 5 ships selected

Type	Name	Class	Displacement	Spe.	Ra.	ASW	Year	Location	Stat.	Crew qual.	Maintenance	Description
B	Brandenburg	Brandenburg	12,500	19	-	0	1899	Northern Europe	AF	Fair	199	Guns: 4 x 11, 8 x 7, 2
B	Wöth	Brandenburg	12,500	19	-	0	1899	Northern Europe	AF	Fair	199	Guns: 4 x 11, 8 x 7, 2
B	Mecklenburg	Mecklenburg	13,900	18	-	0	1899	Northern Europe	AF	Fair	200	Guns: 4 x 12, 12 x 6, 4
B	Schwaben	Mecklenburg	13,900	18	-	0	1899	Northern Europe	AF	Fair	242	Guns: 4 x 12, 12 x 6, 4
B	Elzas	Mecklenburg	13,900	18	-	0	1899	Northern Europe > West Africa (South A.	AF	Fair	220	Guns: 4 x 12, 12 x 6, 4
B	Wittelsbach	Brandenburg	12,500	19	-	0	1899	Northern Europe > West Africa (South A.	AF	Fair	199	Guns: 4 x 11, 8 x 7, 2
B	Lotharing	Brandenburg	12,500	19	-	0	1899	Northern Europe > West Africa (South A.	AF	Fair	199	Guns: 4 x 11, 8 x 7, 2
CA	Victoria Louise	Victoria Louise	10,200	21	-	0	1899	Northeast Asia	AF	Good	223	Guns: 4 x 8, 10 x 6, 2
CA	Hertha	Freya	399	N	-	0	1899	Northern Europe	AF	Fair	147	Guns: 2 x 10, 10 x 6, 4
CA	Freya	Freya	Active Fleet				399	Northern Europe	AF	Fair	147	Guns: 2 x 10, 10 x 6, 4
CA	Hansa	Freya	Reserve Fleet				399	Northern Europe	AF	Fair	147	Guns: 2 x 10, 10 x 6, 4
CA	Fürst Bismarck	Freya	399	N	-	0	1899	Northern Europe	AF	Fair	147	Guns: 2 x 10, 10 x 6, 4
CL	Gefion	Geflor	Mothballed				399	N	AF	Fair	147	Guns: 10 x 4, 4 x 3, 4
CL	Hela	Geflor					399	N	AF	Fair	147	Guns: 10 x 4, 4 x 3, 4
CL	Hela	Geflor	Trade protection				399	N	AF	Fair	147	Guns: 10 x 4, 4 x 3, 4
CL	Thetis	Geflor	To foreign station				399	N	AF	Fair	147	Guns: 10 x 4, 4 x 3, 4
CL	Arcona	Geflor					399	N	AF	Fair	147	Guns: 10 x 4, 4 x 3, 4
CL	Gazelle	Gazell	Raider				399	N	AF	Fair	147	Guns: 8 x 5, 2TT
CL	Nymph	Gazell					399	N	AF	Fair	147	Guns: 8 x 5, 2TT
CL	Niobe	Gazell					399	N	AF	Fair	147	Guns: 8 x 5, 2TT
CL	Alacke	Gazell					399	N	AF	Fair	147	Guns: 8 x 5, 2TT
CL	Medusa	Medu	Select division of selected ship				399	Northern Europe	AF	Fair	67	Guns: 10 x 4, 8 x 2, 2
CL	Amazon	Geflor					399	N	AF	Fair	147	Guns: 10 x 4, 4 x 3, 4
DD	V1	V1	Radar				300					Guns: 1 x 3, 4 x 2, 2T
DD	V2	V1					399					Guns: 1 x 3, 4 x 2, 2T
DD	V3	V1	Commander and division				399					Guns: 1 x 3, 4 x 2, 2T
DD	V4	V1					399					Guns: 1 x 3, 4 x 2, 2T
DD	V5	V5	Name and picture				399					Guns: 2 x 2, 2TT
DD	V6	V5	Scrap				399					Guns: 2 x 2, 2TT
DD	S8	G7					300					Guns: 2 x 3, 4 x 2, 2T
DD	G11	G11	View data				300					Guns: 2 x 2, 3TT
DD	S9	G11					300					Guns: 2 x 2, 3TT
DD	G12	G12	Open design				300					Guns: 2 x 2, 3TT
DD	S13	G12					300					Guns: 2 x 2, 3TT
DD	S14	S14	Open design for rebuild				300					Guns: 2 x 2, 3TT
DD	S15	S14	Rebuild ship				300					Guns: 2 x 2, 3TT
DD	S16	S16					300					Guns: 2 x 2, 3TT
DD	S18	S16	Manage air group				300					Guns: 2 x 2, 3TT

On the Ships in Service tab, select any group of ships you want to move.

Right click on any selected ship and use the Move ships menu item to open the Move ships screen.

You can also just press "M" to open the Move ships screen after selecting your ships.

BLOCKADE AND MOVEMENT

If a nation is blockaded, ships are not allowed to move out of the home port unless as raiders, and these may be intercepted by the blocking nation.

MAINTENANCE AND READINESS

Ships in commission can be put in varying states of readiness, which will affect their maintenance costs, but also their readiness for war.

Ships can be in the active fleet, which have the best trained crews and are immediately available for service.

Ships in the reserve fleet are manned by reservists and will take time to get to full effectiveness.

Ships that are mothballed have poorly trained crews and will take substantial time to get to full effectiveness.

New ships and ships just mobilized will be placed in "Working up" status until they have decent crew quality. They can be changed to another status by the player (but not back). Ships in working up status will not take part in battles.

Ships under repair will cost about 2 times the active maintenance cost. This is to reflect the cost of making the repairs. Ships in Mothballed status will have repair work costs that crowds out other important ship construction. Ships under repairs that are put in mothballed status will have an H as notification in the ships list, as repairs are halted.

In some situations it might not be worth the cost to repair an old ship, and it might be an attractive option to scrap it instead.

It is a good idea to consider taking the opportunity to rebuild damaged ships, as that will enable some savings and use the repair time to improve the ship.

The three selected ships are the same class. Note how each ship's crew quality and maintenance costs have been modified by the status of the ship, Mothballed (MB), Reserve fleet (RF) or Active Fleet (AF).

Type	Name	Class	Deployment	Instr.	Fla.	Abil	Year	Location	AF	Crew-qual	Maintenance	Construction	Blockade	Inv.	Commanding officer
B	Bunderburg	Bunderburg	12,500	13	0	0	1899	Northern Europe	AF	Good	139	Gun: 4+11, 8+7, 2TT	9	-	Kapt. Fokker (T)
B	Urbild	Bunderburg	12,500	13	0	0	1899	Northern Europe	AF	Good	139	Gun: 4+11, 8+7, 2TT	9	-	Kapt. Langemann (B)
B	Zahagen	Zahagen	14,000	13	0	0	1899	Northern Europe	AF	Good	219	Gun: 4+11, 8+6, 6TT	9	-	Kapt. Heide (T)
B	Moslerburg	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Friedrich	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899	Northern Europe	AF	Good	144	Gun: 4+9, 5+5, 4+3, 4TT	9	-	Kapt. Schmitz (T)
B	Urbild	Moslerburg	13,000	13	0	0	1899								

Designer's Note: In wartime, maintenance costs will rise sharply. There is a prediction in the main screen of the cost of having all ships in active status. In addition to this, there will be extra wartime maintenance costs. It is not uncommon to be forced to curtail or stop ongoing ship construction during wartime, as was done historically in several cases. You will often have to fight with the fleet you have when war breaks out.

SPECIAL TRAINING

You have the option of setting special training for your crews. This will let you focus on some tactics or aspects of naval warfare that you deem especially important. Your choice of special training should consider the types of ships you build and the type of battle you expect to fight.

Doctrine and training ✕

Ammunition usage doctrine for target:
 Target is capital ship (BB, B, BC) | Target is CA | Target is CL

Training priorities

Gunnery

Night fighting

Torpedo warfare

Damage control

Various

Use diving shells (applies to AP only)

Use diving missiles

Use heavy AA shells

Elite pilot training

Floatplane/helicopter search priority

Use scout force

Torpedo usage options

Use oxygen fuelled torpedoes on DD

Use oxygen fuelled torpedoes on cruisers

Use oxygen fuelled torpedoes on other ships

Use magnetic pistols on torpedoes

Naval academy

Run naval academy

Monthly naval academy cost: 340

	Short range	Medium range	Long range
Firing gun calibre 4-5 inches	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP
Firing gun calibre 7-10 inches	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP
Firing gun calibre 11 inches +	<input checked="" type="radio"/> AP <input type="radio"/> HE <input type="radio"/> SAP	<input checked="" type="radio"/> AP <input type="radio"/> HE <input type="radio"/> SAP	<input type="radio"/> AP <input checked="" type="radio"/> HE <input type="radio"/> SAP

Auto ammo selection

Ship ammo loadout %:

	AP	HE	SAP
Guns 4-6 inches (sec)	50	50	0
Guns 4-6 inches (main)	75	25	0
Guns 7-10 inches	80	20	0
Guns 11 inches +	90	10	0

Each special training subject selected will increase maintenance cost for your ships. Once you start training, it will take 12 months to achieve proficiency in a subject. You have to keep on spending on training to keep the benefits. The benefits disappear immediately upon stopping spending on that type of training.

The different kinds of training are:

- ▲ **Gunnery:** Gunnery training will give your ships 10% better accuracy when firing guns. The cost is 30% increase in maintenance.
- ▲ **Night fighting:** This will give your ships a bonus when spotting enemy ships at night, and less chance of hesitating before opening fire at night. It also gives a 10% accuracy bonus at night. It will cost 20% increase in maintenance.
- ▲ **Torpedo tactics:** This will make your light forces more alert when carrying out torpedo attacks, quicker to react on flotilla attack orders and give better hit chances when firing torpedoes. The cost is 20% increase in maintenance.
- ▲ **Damage control:** This will increase the proficiency in damage control of your crews. They will reduce flooding faster and put out fires more effectively. The cost is 20% increase in maintenance.

You can select a maximum of two special training subjects.

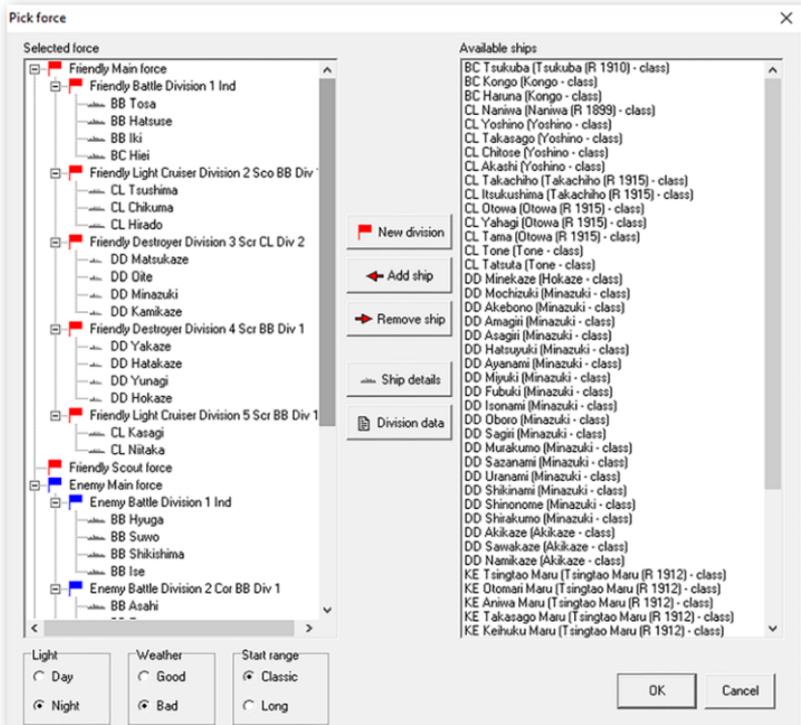
The cost of special training is reduced for Japan.

Designer's Note: This is to simulate that Japanese crews tolerated a harsh training schedule, and Japanese naval training during the time frame of the game emphasized realism over safety concerns.

FLEET EXERCISE

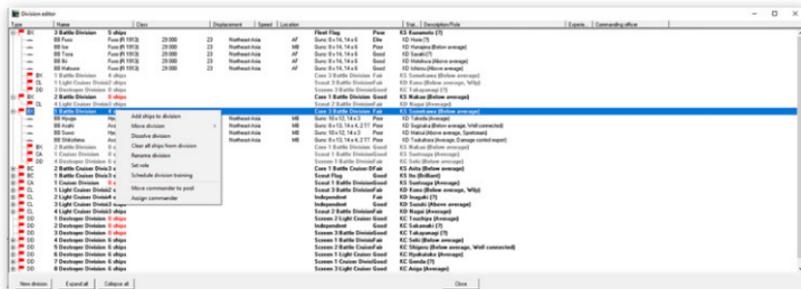
You can hold a fleet exercise once a year with any ships you select from your own fleet. Ships participating in the exercise will cost twice the active maintenance cost and gain some experience. Large fleet exercises can raise tensions. In effect you will play out a battle against a part of your own fleet, with no permanent damage of course.

A fleet exercise is a good way of learning the battle system for first time players, or a way of testing tactics and designs.



PERMANENT DIVISIONS

In RTW3, you can form permanent divisions of ships of similar type. Ships in divisions will most often fight together in the same division in tactical battles.



There is no requirement to put ships in divisions. If there are no permanent divisions, ships will be picked for battles and grouped by the battle generator. However, if you do organise divisions, it is recommended that you organise the majority of your ships in divisions to get the full benefits of your planned organisation.

There is a chance/risk that one or more ships in a division will be detached to perform some other role, or be unavailable for battle due to mechanical failures or other reasons. If ships in the same division are sent to different areas, they will obviously not be able to fight together in battles.

A division can contain from one to five ships except destroyer divisions which can have up to six ships. The ships must be of the same type, except that BB and B can be mixed in battle divisions, and CA can be part of BC-divisions. The recommendation is to keep divisions at least three ships strong, otherwise the battle generator might fill up the divisions with randomly selected ships to get the desired division strength for the scenario. Divisions of one ship are largely meaningless.

In the Division Editor you can assign roles for each division just as you can in a battle. Thus you can assign permanent scouting and screening forces to Carriers and Battleships.

Divisions have an experience rating. In battle, division experience affects signalling, the risk of ships losing contact, fire distribution and spotting. Division experience also has a slight impact on ship crew quality for battle.

Division experience will generally go up over time. Experience will go down when ships in the division are changed, or when the division changes commander.

The first ship in the division is the flagship. Changing the flagship will result in a small decrease in division experience.

In wartime, a division can be scheduled for a division training. Division training will bring up division experience faster, but a division on training will be unavailable for any battles taking place that turn. In contrast to a fleet exercise, this is not played out.

Designer's Note: Why no division training in peacetime? In peacetime, there is no need to hold a unit back from operational service to exercise, so periodic exercises are assumed to be a normal part of peacetime routine.

The ability of the division commander (see Officers below) will affect the rate at which division experience is gained, and have a slight effect on the crew quality of ships in the division.

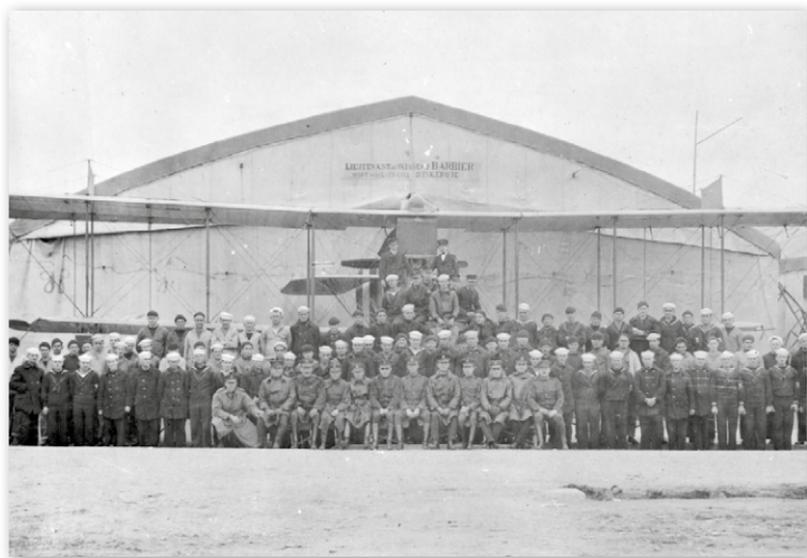
Special abilities of the division commander will have effect in some cases:

A ROF enthusiast will affect the ROF of all ships in the division.

A gunnery expert will improve gunnery in the entire division.

An aggressive or timid commander will affect the tactical behaviour of the division.

A loose cannon can affect any or none of the above. With the loose cannon, you never really know.



OFFICERS

Your ships and divisions will be commanded by officers, who have different abilities and strengths and weaknesses. Officer ranks in the game are: Commander, Captain, Rear Admiral and Admiral.

Designer's Note: A "Commander" would more properly be a Captain Junior Grade in the US and British Navies, and is called so in game if using the option for national officer ranks. Commander is used here for convenience and clarity. Most non-English speaking navies used a term with a literal meaning of Frigate Captain for that rank, like "Fregattenkapitän" or "Capitaine de fregate".

A commander can command a CL or a division of DD. A Captain can command a CA, B, BB, BC, CV, CVL or a division of DD. A rear admiral can command a division of CL or heavier ships.

Designer's Note: There are no Commanding Officers for destroyers. It is assumed that players would find it tedious to handle officers for dozens of destroyers.

Officers are rated by their ability. The possible values are: brilliant, above average, average, below average or incompetent. The ability of an officer is initially unknown, but will be revealed after some years of service. Participating in battles will increase the likelihood of the ability being revealed.

A brilliant or above average officer will give a slight boost to crew quality when crew quality is determined for battle. This can push the crew quality over the edge into the next better bracket. An incompetent or below average officer will cause a slight reduction in crew quality when crew quality is determined for battle. This can push the crew quality over the edge into the next worse bracket.

The quality of division commanders can affect the crew quality of all ships under their command, and affect the risk of misunderstood orders.

Some officers may also have 'characteristics' that can affect their performance during battles. See Appendix 6 for a list and explanation of these characteristics.

After a number of years in a rank, usually around 5, there is a chance of promotion. Promoted officers go into the pool for officers of the new rank. Officers that are promoted run a slight risk of losing their positive attributes, and a slight chance of acquiring a positive attribute.

When an officer is promoted out of his post, the command he occupies will be freed up. Captains that are promoted will either be promoted to an administrative post and disappear from the pool, or go to the rear admirals pool.

New officers will appear automatically at the lowest rank (commander).

Players can assign officers to free command slots, and officers can be removed from a command at the cost of some prestige. An officer can be manually promoted ahead of his time, but that costs prestige, and carries a higher risk that the officer will lose a positive trait (he is promoted out of his competence area).

Each turn, the player has the opportunity to assign officers from the pool to empty slots. If there should be slots free after the player turn, the AI will fill them up, either by promoting officers into empty slots or by creating new randomized officers. This means that the player can deal with officer assignments in detail if he wants to, but there is no requirement to do so. It is perfectly feasible to let officer assignments run their own course and only remove the occasional idiot now and then.

There are a number of officer events that can happen, often related to the special abilities of officers. These events can create trouble, but may also be opportunities to get rid of below average officers.



Once you have researched naval academy, you have the option (in the doctrine screen) to establish a Naval Academy. That will give you more and slightly better officers to choose from, at a small cost.

POLITICS AND RELATIONS TO OTHER NATIONS

NATIONAL CHARACTERISTICS

The playable nations have a number of national characteristics. Below is a list of those characteristics and their effect.

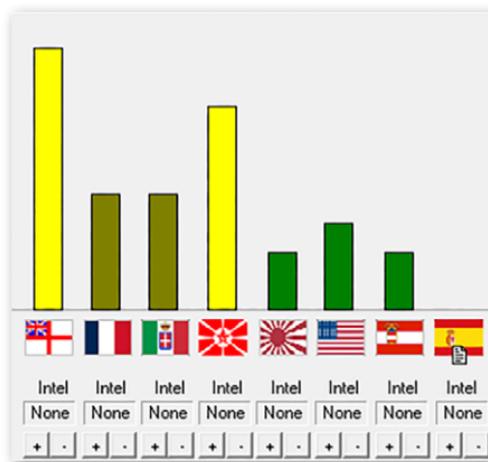
- ▲ **Efficient shipbuilding industry:** Ships will take 10% shorter time to complete.
- ▲ **Undeveloped shipbuilding industry:** Ships will take 10% longer to complete and are more prone to have unexpected faults, like not reaching their design speed.
- ▲ **Global naval power:** Nation must keep at least 10% of tonnage on foreign stations, cannot have cramped crew quarters. May get automatic budget raise if any other nation has a similar budget.
- ▲ **Cautious:** AI controlled forces will be cautious in battles. Player risks extra prestige loss on losing battles or losing capital ships.
- ▲ **Poor education level:** Affects the quality of ship crews and pilots, and has a slight negative effect on research.
- ▲ **Surprise attack:** The nation has a penchant for starting wars with a surprise attack on the enemy fleet. There will be an 80% chance of a surprise attack on the enemy fleet at the start of a war.
- ▲ **Inconsistent naval policy:** The politicians are more likely to interfere in ship building design and priorities.
- ▲ **Attention to detail:** Ships are less likely to have hidden defects or vulnerabilities.

- ▲ **Technology Leader:** The nation will be in the top tier of nations in research, and if AI controlled will spend on research to stay among the top nations in technical development.
- ▲ **Hidden faults:** Ships may have unexpected faults, like a tendency to explode on turret hits or similar.
- ▲ **Kamikaze:** A fascist nation with Kamikaze trait will practice suicide air missions if losing a war (see air sections). A nation with Kamikaze trait will also tend to do better in research in offensive technologies, and worse in defensive technologies.

GOVERNMENT TYPE

Nations also have a government type that influence several aspects of their internal and external policies. The government types are: Liberal democracy, Limited democracy, Autocratic, Fascist, Communist and Eastern. The government type of a nation can change, mostly through revolutions (see unrest level).

TENSION LEVELS



The player nation has a tension level with every other nation. When the tension level rises, there will eventually be a risk of war.

Normally, the tension levels will rise slowly over time and there will usually be several years before a war breaks out. However, you should be aware that there are some events that can cause a war to break out

rather quickly and unexpectedly. Thus, you cannot let your guard down and think that any war is in the future. You should keep your navy in shape to fight a war at any time. If you scrap too many old ships and count on having new ones ready in a year or so, you might find yourself in an awkward situation if the international situation takes a turn for the worse. Also, the press and the navy league might come down hard on you if they think the navy is too weak.

EVENTS

There will be random events and crises from time to time, and you will have to respond to them, mostly by giving advice to the government. "Hawkish" answers will tend to raise the budget and your prestige, but they will also tend to raise tension levels. "Doveish" answers will tend to lower the tension levels, but risks lowering your prestige and/or the naval budget.

In the event dialog, hover the mouse over the event answers and you will get a hint on the effects of the different answers.

Designer's Note: Most events are geared towards European politics in the 20th century. While the events that can occur and their likelihood are different depending on government type etc, there are some events that may feel more appropriate to Europe than the USA, Japan or China. The political events are there to give background to naval affairs, but do not attempt to be a complete simulation of the politics of all the nations concerned.

PRESTIGE

Prestige in the game represents your general reputation, based mostly on your standing with the Monarch/President and the politicians, the officer corps and other parts of the establishment. Your prestige will be enhanced by generally 'tough' responses to events and success in battle. Your prestige will be lowered by 'soft' responses, defeats and mismanagement. Prestige can be seen as a currency, which can be spent to affect various events that might impact on your plans or the Navy in general.

Prestige loss is in most cases proportional, which means that if you have high prestige, you will lose more of it on an event that results in prestige loss.

If your prestige goes too low (16 or below), you run a risk of being sacked, thus losing the game.

Prestige is also used at the end of the game as a kind of 'victory points' system to evaluate your career as head of the Navy.

UNREST LEVEL

The unrest level represents the feeling among the workers and lower classes. A high unrest level will lead to strikes and demands for lowered military budget, and in wartime can lead to revolution and defeat. Revolution is less likely in liberal democracies.

The unrest level is raised by:

- ▲ High military spending
- ▲ Long wars
- ▲ Being under blockade
- ▲ Cramped accommodation in ships
- ▲ Defeats
- ▲ Events

The unrest level is lowered by:

- ▲ War breaking out (initially, but longer wars will have the opposite effect)
- ▲ Social programmes (event answers)
- ▲ Victories
- ▲ Lower military spending

The amount of money spent for naval and military purposes is the most important factor in affecting the unrest level in the nation. Possible unrest in effect acts as a brake on the naval budget in the game. If you relentlessly press for higher naval expenditures, you will find that the unrest level will be going up. Entering a war with a high unrest level might leave you vulnerable when blockade or trade disruptions caused by war increase unrest further.

INTELLIGENCE

Nation Data

All
 Germany
 Great Britain
 France
 Italy
 Russia
 Japan
 USA
 Austria-Hungary
 Spain

Nation data | Ships | Sunk ships |

<p>Leader: Duce Government type: Fascist Build area: The Mediterranean Naval budget: 518,000 Technical development: Average Cautious Poor education Inconsistent naval policy Some corruption Dock size: 50,000 OI: No</p> <p>Research advantage: Ship design Bonus tech: Triple turrets Bonus tech: Motor torpedo boats Bonus tech: Molotomba FFF</p> <p>Base resources: 31,792 From possessions: 563</p> <p>Naval guns: 2 inch 3 inch 4 inch 5 inch 6 inch 7 inch 8 inch 9 inch 10 inch 11 inch 12 inch 13 inch 14 inch 15 inch 16 inch 17 inch 18 inch 19 inch 20 inch</p> <p>Research Machinery development: Gas turbines Armour development: Unknown Hull construction: Aluminium superstructure Fire control: Unknown Subdivision and damage control: Unknown Turrets and gun mountings: Fully automatic; 3 in gun Ship design: Improved High Speed Drag Calculations AP Projectiles: Improved streamlining Light forces and torpedo warfare: EO of up to 3500 displacement Torpedo technology: Unknown Submarines: Missile submarine Anti submarine warfare: Rocket-assisted ASW torpedo Explosive shells: Unknown Fleet tactics: Improved ship to ship communications Jet aircraft artillery: Signal cone proximity fuze Radar and electronics: Unknown Naval aviation, lighter than air: Unknown Naval aviation, heavier than air: Light sink-ship missiles for aircraft Shipboard aircraft operation: Improved instrument landing systems</p>	<p>Ship summary</p> <p>BB: 1 BC: 1 CV: 4 (1 building) CVL: 2 CA: 12 (3 building) CL: 4 (2 building) DD: 59 (2 building) KE: 7 SS: 70 (4 building) Coastal battles: 22</p> <p>Naval aircraft: 750</p> <p>Air bases: 21 Naval air station Imperia (large) Airbase Messina (large) Airbase Trapani (large) Airbase Sciacusa (large) Naval air station Taranto (large) Naval air station Pescara (large) Naval air station Genova (large) Airbase Agrigento (large) Naval air station Ancona (large) Airbase Mocimboa (large) Naval air station Napoli (large) Naval air station Bari (large) Naval air station Venezia (large) Airbase Maputo (large) Naval air station Ancona (large) Airbase Mocimboa (large) Naval air station Napoli (large) Naval air station Bari (large) Naval air station Venezia (large) Airbase Maputo (large) Naval air station Civitavecchia (large) Naval air station La Spezia (large) Airbase Alexandria (medium) Airbase Port Said (small) Airbase Athina (small) Airbase Heraklion (small) Airbase Thessaloniki (small)</p> <p>Aircraft types Light jet fighter: Piaggio P.130 (1948) Speed: 540 Firepower: 16 Heavy jet fighter: Breda Ba.142 (1967) Speed: 580 Firepower: 14 Jet attack: Reggiane Re.143 (1967) Speed: 480 Firepower: 0 Fighter: Savoia Marchetti SM.148 (1961) Speed: 320 Firepower: 8 Biplane scout: Fiat G.149 (1965) Speed: 220 Firepower: 0 Naval patrol aircraft: Savoia Marchetti SM.150 (1962) Speed: 200 Firepower: 16 Torpedo bomber: Piaggio P.152 (1963) Speed: 300 Firepower: 12 Dive bomber: Ansaldo AC.154 (1964) Speed: 340 Firepower: 8 Dive bomber: CAH.2.155 (1963) Speed: 300 Firepower: 9 Medium bomber: Caproni Ca.159 (1964) Speed: 550 Firepower: 8 Fighter: Reggiane Re.185 (1966) Speed: 300 Firepower: 8 Biplane scout: Fiat G.167 (1964) Speed: 200 Firepower: 2 Naval patrol aircraft: Caproni Ca.169 (1963) Speed: 200 Firepower: 14 Dive bomber: Savoia Marchetti SM.171 (1965) Speed: 320 Firepower: 8 Medium bomber: Savoia Marchetti SM.172 (1964) Speed: 560 Firepower: 8</p>
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OK

You can set a level of intelligence collection for each other nation. Intelligence activities might give information on research in other nations, boosting your own research, or it might yield information about the capabilities of enemy ships.

Intelligence spending does not take effect immediately. It takes time to build up an intelligence network. It can thus be a good idea to prepare for intelligence activities in potential enemy nations. When you have increased spending towards a nation, you will see * in the intelligence field, denoting that it has still not reached full capability.

Intelligence activities carry a risk of detection. If your agents are discovered, it will increase the tension level with the nation in question.

Intelligence affects many aspects of the game. In wartime, it will reduce the risk that your ships will be facing unexpected battles that cannot be avoided. It will also increase the effectiveness of your ASW efforts. Spies might gain you technology, or knowledge of enemy ship details or war plans.

ENEMY SHIPS

Nation Data

All Germany Great Britain France Italy Russia Japan USA Austria-Hungary Spain

Nation data Ships Sunk ships

Type	Ship	Class	Year	Location	Data
BB	Scipione Africano	Scipione Afr.	1933	MB Maint:188 The Mediterranean	40,700 tons, Speed 0, Guns: 9 x 16, 14 x 5, 2 TT
BC	Piemonte	Piemonte	1930	MB Maint:220 The Mediterranean	39,500 tons, Speed 29, Guns: 10 x 16, 14 x 6, 2 TT
CA	Umbria	Umbria	1945	RF Maint:173 Indian Ocean	14,400 tons, Speed 33, Guns: 9 x 8, 16 x 5
CA	Etruria	Umbria	1947	RF Maint:158 Indian Ocean	14,400 tons, Speed 33, Guns: 9 x 8, 16 x 5
CA	Lombardia	Umbria	1947	RF Maint:158 Indian Ocean	14,400 tons, Speed 33, Guns: 9 x 8, 16 x 5
CA	Calabria	Calabria	1950	RF Maint:150 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Emilia Romagna	Calabria	1951	RF Maint:150 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Sicilia	Calabria	1951	MB Maint:60 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Eba	Calabria	1951	RF Maint:150 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Veneto	Calabria	1951	RF Maint:150 The Mediterranean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Lazio	Calabria	1951	MB Maint:60 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Molise	Calabria	1951	RF Maint:150 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Sardegna	Calabria	1951	RF Maint:150 Indian Ocean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Etna	Calabria	1967	AF Maint:295 The Mediterranean	13,100 tons, Speed 33, Guns: 12 x 8, 16 x 5
CA	Toscana	Toscana	1954 ...		13,200 tons (Building)
CA	Alto Adige	Alto Adige	1963 ...		15,500 tons (Building)
CA	Basilicata	Alto Adige	1963 ...		15,500 tons (Building)
CL	Catania	Catania	1935	MB Maint:46 Indian Ocean	7,600 tons, Speed 31, Guns: 8 x 6, 8 x 4, 8 TT, 30 Mines
CL	Alberico da Barbiano	Catania	1936	MB Maint:46 Indian Ocean	7,600 tons, Speed 31, Guns: 8 x 6, 8 x 4, 8 TT, 30 Mines
CL	Eugenio di Savoia	Barcellona	1943	RF Maint:123 Indian Ocean	9,700 tons, Speed 32, Guns: 16 x 5, 12 TT, 30 Mines
CL	Alberto da Giussano	Alberto da G.	1967	WU Maint:235 The Mediterranean	10,100 tons, Speed 18, Guns: 10 x 5, 12 TT, 2 MSAM, 30 Mines
CL	Giovanni delle Ban...	Alberto da G.	1954 ...		10,100 tons (Building)
CL	Luigi Cadorna	Luigi Cadorna	1969 ...		11,200 tons (Building)
CV	Autore	Autore	1945	MB Maint:84 Indian Ocean	23,000 tons, Speed 32, 45 a/c Guns: 16 x 4
CV	Matin	Matin	1945	MB Maint:74 The Mediterranean	23,000 tons, Speed 28, 57 a/c Guns: 8 x 5
CV	Il Rondone	Il Rondone	1945	MB Maint:74 The Mediterranean	23,000 tons, Speed 28, 57 a/c Guns: 8 x 5
CV	Corvo	Corvo	1946	RF Maint:186 Indian Ocean	23,000 tons, Speed 30, 57 a/c Guns: 8 x 5
CV	Ulla	Ulla	1970 ...		47,300 tons (Building)

OK

The information you can see about ships belonging to other nations is restricted. For ships under construction, you will only be able to see the ship type and displacement. For completed ships you can see the ship type, displacement, number and calibre of guns or missile launchers, and speed, although the official numbers may be misleading.

By performing intelligence you might glean additional details, like details on armament, armour thickness, torpedo protection etc.

ARMS LIMITATION TREATIES

Treaties will result from disarmament conferences, and these are an effect of event responses. You can affect the chances of a treaty by your answers, but 'tough' answers disdaining treaties will tend to raise tensions.

A treaty will set a limit in displacement and main armament calibre for new ships laid down. It will also set a limit for the total warship tonnage of all nations. During the negotiations for a treaty, you will get an opportunity to have input on the conditions of the treaty, or even recommend against it entirely.

All ships under construction at the time of signing the treaty that do not fulfil the terms of the treaty will be scrapped. Existing ships may be kept, and may be rebuilt and modernized, even if they exceed the treaty limits.

Liberal democracies must adhere strictly to the treaty. Other nations may 'cheat' by up to 10% of the displacement. No cheating is possible on the main calibre.

ALLIES



You can be allied with other nations. There are several advantages to having an alliance with another nation. An alliance will keep down tension with that nation, and the ally will support you in a war. An ally is also more prone to sell you technology, and will do so at lower prices. You can also buy licenses to produce aircraft types from allied nations.

Allied ships may show up on your side in battles. Similarly, if you are at war with two or more nations, the allies of your enemy may show up. Allied bases and coastal batteries will also be present in battles.

There are also some potential disadvantages to alliances. You might be embroiled in conflicts that are caused by the foreign policy of your ally, and the existence of the alliance might raise tensions with other nations.

Alliances can be revoked if tension goes up between the allies. Alliances have a larger chance of being revoked if one nation is fascist/communist and the other is liberal democracy.

Alliances will not be revoked during war. Instead, your ally may seek a separate peace if tension with them goes high enough.

PEACE

During a war there will be events relating to possible peace negotiations. Your answers to these will influence the chance for a peace and also the nature of that peace. In a victory, you may gain increased base resources, possessions or even ships from the enemy's fleet, depending on the magnitude of your victory. Conversely, if you lose a war, you may yourself lose some of the above.

When you win possessions, you will be presented with a list of enemy possessions to choose from, and the number of value points you can select. Unused points will gain a small increase in your base resources instead. You can even decline to take any possessions and be satisfied with the base resource gain.

Tip: Wars are easy to start, but they do not end when you want them to. – Machiavelli



TACTICAL BATTLES

When a state of war is in effect, there will be a chance of some kind of naval action every turn. The missions might be:

- ▲ **Fleet battle:** A decisive battle with the entire fleet of both involved nations.
- ▲ **Cruiser battle:** A battle between cruiser forces.
- ▲ **Coastal raid:** Various kinds of bombardments, attacks on merchant shipping or other offensive activities near the enemy coast. The forces involved can vary but are usually based on faster ships up to battle cruisers in strength. In these battles coastal artillery and patrol craft will help the defending player.
- ▲ **Convoy attack/defence:** Attack or defence of a convoy, usually with cruiser forces.

You will be presented with a screen with a force estimate of enemy strength, where you have the option to accept or decline battle. Declining a battle will cost victory points, and may cost prestige after several declined battles. There is a chance that the enemy will decline battle if they are feeling that they cannot send out a force with reasonable chances of victory.

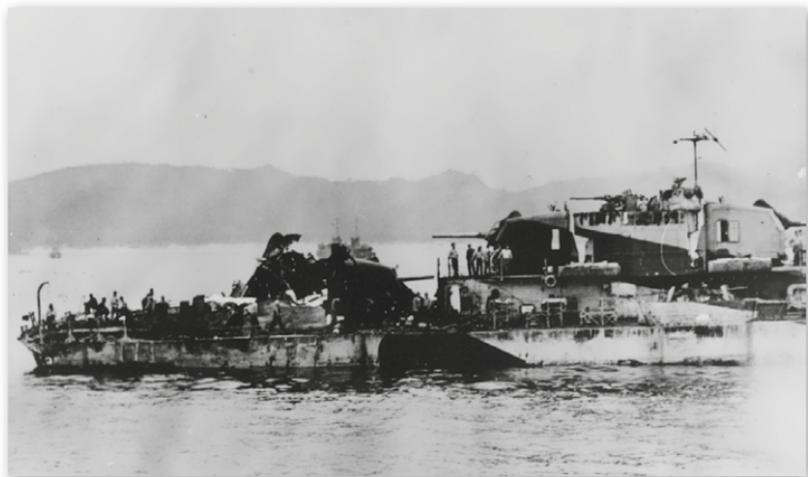
If you accept a battle, you will be brought to the tactical resolution screen. The ships at your disposal will be randomly selected from the ships in the area according to the size and type of battle, though your permanent division structure will be taken into account.

Sometimes there will be an additional friendly AI controlled support force present. This can both be a blessing and a source of problems. Sometimes the support force will save your skin, sometimes it can charge ahead and be involved in battles you would want to avoid.

The majority of battles will start with manoeuvre controls locked and the fleets meeting shortly. In rare cases, mostly in low visibility, the fleets may miss each other and the battle will be without contact between the fleets.

In coastal raids, there will be a large element of manoeuvre and finding (or avoiding) the enemy fleet.

After a battle, when you have finished studying the result, just close the battle screen to return to the main RTW screen.



SURPRISE ATTACKS

A surprise attack may occur on the first turn of war, if one of the nations has the national characteristic "Surprise attack".

In the early game, before 1925, a surprise attack will take place at night and involve a group of destroyers making a torpedo attack on the enemy fleet at anchor, with a heavier group of ships following up. The defending ships will be initially surprised.

To make the most of a possible surprise attack, you should have a decent force of destroyers in the same area as an enemy base. Having well developed torpedoes and destroyers also helps of course.

Surprise attacks in the game are arranged so that they can succeed brilliantly, but be prepared that surprise attacks can occasionally end in relative failure.

Surprise attacks between 1925 and 1935 will be replaced by a submarine sneak attack.

Surprise attacks after 1935 will be a carrier aircraft attack on the enemy's fleet in port. In this case, you will get the opportunity to mobilize carriers and supporting ships and have them moved to the area where the surprise attack is taking place. Naturally, a carrier that has been in the active fleet will have better pilots than a newly mobilized one, so it might be a good idea to have carriers in active service in preparation for an expected surprise attack.

Note that a surprise attack is not a sure thing. There is a basic chance of 80% for a surprise attack to take place. This is reduced considerably in subsequent wars with the same nation (they are not so stupid that they fall for the same trick again). Also, there might not be suitable enemy ships to target in a location within reach. In such cases, you will be informed that there was no opportunity for a surprise attack.

Note: Ships in reserve or mothballed status might be included as defending ships in a surprise attack, even though they will otherwise not take part in battles. This is to make them vulnerable, and make it impossible for the player to 'hide' ships from surprise attacks by putting them in reserve.

BLOCKADE

Map details

Northern Europe

Overview | Ship details

Foreign station tonnage / requirement: 156,087 / 0
Base capacity used / available: 669 / 1700
Trade protection / requirement (war): 0 / 6
Submarines / Submarine operations limit: 8 / 507
Ship ASW value: 27
Air ASW value: 182

Germany ships: 12 BB, 1 CA, 14 CL, 16 CV, 4 CVL, 140 DD, 66 KE, 8 SS (162) 310 a/c
Own blockade strength: Germany: 89

Great Britain ships: 1 BB, 2 CL, 1 CV, 1 AMC, 33 DD, 1 KE, 11 SS (6) 320 a/c
France ships: 2 CA, 2 CL, 1 CV, 5 CVL, 1 AV, 36 DD, 3 KE, 61 SS (29) 220 a/c
Russia ships: 3 BB, 3 BC, 1 CA, 1 CL, 3 CV, 2 CVL, 45 DD, 1 KE (11) 60 a/c
Spain ships: 1 CA, 1 CV, 4 CVL, 18 DD, 5 KE, 3 SS (5) 20 a/c

Germany base capacity: 1600 (Build area)
Great Britain base capacity: 1640 (Build area)
France base capacity: 1600 (Build area)
Russia base capacity: 10 (Build area)
Spain base capacity: 200 (Build area)

Possessions in area:
United Kingdom (Great Britain)
Germany (Germany)
Western France (France)
Northwestern Spain (Spain)
Ireland (Neutral)
Norway (Great Britain)

Move ships in area Close

Map	Ships in service	Ships under construction	Submarines	Coastal fortifications	Ships sunk or scrapped	Area overruns	State overruns	Offices	1 ship selected						
T	Name	Class	Engl.	Speed	Radio	Armor	View	Location	S.	Conv.	Main	Description	Blockade value	Dir.	Commanding officer
CL	Sweden	Marek (P 1951)	3,300	26(20)	5/4(2)	0	1919 (2)	The Netherlands	FS	Fair	95	Gun: 6 x 5. 2 x 4. 4 TT. 1 M55M. 30 Mines	4	1 CL FS	Cd Harnø 9 (Blow average)
CL	Finland	Marek (P 1951)	3,300	27(20)	5/4(2)	0	1919 (2)	Northern Europe	AF	Good	127	Gun: 6 x 5. 2 x 4. 4 TT. 1 M55M. 30 Mines	4	4 CL FS	Cd Fackert (average)
CL	CLG Cdn	CdR (P 1945)	8,000	26(20)	5/4(2)	0	1920 (2)	Northern Europe	AF	Fair	240	Gun: 6 x 6. 18 x 6. 5 TT. 2 M55AM	4	2 CL Dir	Cd Harnø 9 (Blow average, Luck)
CL	Magellang	Marek (P 1951)	3,300	26(20)	5/4(2)	0	1921 (2)	Indian Ocean	FS	Fair	161	Gun: 4 x 5. 1 M55M	4	4 CL FS	Cd Fackert II (7)
CL	CLG Hamburg	Augusta (P 1945)	11,000	26	5/4(2)	0	1925 (2)	Northern Europe	RF	Poor	148	Gun: 6 x 6. 18 x 6. 5 TT. 2 M55AM	4	2 CL Dir	Cd Linsen II (Blow average)
CL	CLG Leipzig	CLAA Drang (P 17)	5,500	27(20)	5/4(2)	0	1929 (2)	Northern Europe	RF	Poor	74	Gun: 10 x 5. 5 TT. 1 M55AM	4	2 CL Dir	Cd Engel II (7)
CL	CLG Stockholm	Augusta (P 1945)	11,000	26	5/4(2)	0	1929 (2)	Northern Europe	RF	Poor	70	Gun: 6 x 6. 18 x 6. 5 TT. 1 M55AM	4	2 CL Dir	-
CL	CLG Köln	KdR (P 1944)	5,000	27(20)	5/4(2)	0	1940 (2)	Northern Europe	RF	Poor	80	Gun: 10 x 5. 18 x 5. 5 TT. 1 M55AM	4	2 CL Dir	Cd Flieger III (Blow average, 1/3 blow correct)
CL	CLG Stuttgart	KdR (P 1944)	5,000	27(20)	5/4(2)	0	1940 (2)	Northern Europe	RF	Poor	70	Gun: 6 x 6. 18 x 6. 5 TT. 1 M55AM	4	2 CL Dir	Cd von Spaeng (average)
CL	CLG Hamburg	Hamburg	4,400	26(20)	5/4(2)	0	1949 (2)	Northern Europe	RF	Poor	70	Gun: 10 x 5. 18 x 5. 5 TT. 2 M55AM. 30 Mines	4	2 CL Dir	Cd von Turck (7)
CL	Leipzig	Leipzig	10,700	32(14)	5/4(2)	305	1957	Northern Europe	AF	Fair	250	Gun: 6 x 6. 18 x 6. 2 L55M. 4 Subs. 30 Mines	4	3 CL Dir	Cd GdMella (7)
CL	Leipzig	Leipzig	10,700	32(14)	5/4(16)	305	1957	Northern Europe	AF	Fair	250	Gun: 6 x 6. 18 x 6. 2 L55M. 4 Subs. 30 Mines	4	3 CL Dir	Cd GdMella (7)
CL	Leipzig	Leipzig (P 1942)	10,700	32(14)	5/4(2)	305	1919 (2)	Northern Europe	AF	Good	547	65 x 6 Subs: 18 x 5. 5 x 1. 102P 87E	14	4 CL Dir	Cd Eskerman (7)
CV	Geat Zepheus	Geat Zepheus (P 15)	20,000	27(20)	5/4(2)	32(5)	1924 (2)	Northern Europe	AF	Good	547	65 x 6 Subs: 18 x 6. 16 x 3. 102P 87E	14	2 CL Dir	Cd von Butler (Blow average) II (Blow average)
CV	Fries Theone	Geat Zepheus (P 15)	20,000	27(20)	5/4(2)	32(5)	1924 (2)	Northern Europe	AF	Good	547	65 x 6 Subs: 18 x 5. 5 x 1. 102P 87E	14	2 CL Dir	Cd Klander (7)
CV	Europa	Geat Zepheus (P 15)	20,000	28	5/4(2)	32(5)	1924 (2)	Northern Europe	AF	Good	604	58 x 6 Subs: 18 x 6. 16 x 3. 102P 87E	14	2 CL Dir	Cd GdMella II (Blow average)
CV	CV France Auguste	Augusta (P 1945)	20,000	27(20)	5/4(2)	40(10)	1926 (2)	Northern Europe	RF	Poor	230	Gun: 12 x 5. 2 x 4. 102P 87E	14	2 CL Dir	Cd GdMella II (Blow average)
CV	CV France van's	Augusta (P 1945)	20,000	23(25)	5/4(2)	40(10)	1926 (2)	Northern Europe	RF	Poor	120	7 x 6 Subs: 16 x 3. 2 (7P)	14	2 CL Dir	Cd GdMella II (Blow average)
CV	Hindenburg	Hindenburg (P 1944)	26,300	28	5/4(2)	40(10)	1929 (2)	Northern Europe	RF	Poor	300	88 x 6 Subs: 18 x 6. 16 x 3. 102P 87E	14	2 CL Dir	Cd Schmidt II (Blow average)

To blockade a nation, you must have 110% of the enemy's naval strength in the build area of the enemy nation. Naval strength for this purpose is computed as a sum of all ships in the area, weighted by type. Some nations have their blockade strengths modified. For example, Britain has its blockade strength multiplied by 1.2 to account for its geographic position and its dominance in trade and finance. Russia has its blockade strength multiplied by 0.7 to reflect its geographic position.

If you are a blockading nation in a war, you will earn a number of extra VP per month as long as the blockade is kept up, which can ultimately lead to revolution and defeat.

A blockaded nation will not be able to move ships out of its build area, except as raiders, which are subject to possible interception as they break through the blockade.

The Baltic Sea is a special case for blockade purposes. Russia, which has home area in Baltic Sea, can be blockaded from Northern Europe to simulate Russia's geographic position.

Tip: If you hover the mouse pointer over an area on the strategic map, you will see a summary of naval forces in the hint box. After the list of ship types for each nation is the total strength value in the area in parentheses. These are the values used to determine if a blockade exists. Note that to preserve fog of war, the values you see are before movement, ships might move during the turn and blockade is resolved after the move and any battles, but it should still be a pretty good indication

TRADE PROTECTION

When war breaks out each nation will be required to keep a number of ships on Trade protection duty. The number of ships required will be proportional to the fleet size and your economy, and modified by the strength of the enemy submarine force. Ships on

Trade protection are counted in one global pool, and their exact location is not important for fulfilling the overall requirement.

Ships assigned to trade protection will not normally be available for fleet operations. However, in non-home areas, any ship present might be used in battle.

DD and KE assigned to trade protection will be on ASW patrols or assigned as convoy escorts.

Cruisers assigned to trade protection will patrol against enemy raiders and provide heavy convoy escort.

If you do not satisfy the Trade protection requirement, there will be a larger chance of enemy submarines sinking merchant ships and your prestige may suffer. Stronger patrols than required will hamper the operations of enemy submarines and increase the chance of sinking them. Also, the crew quality of patrolling ships will have an effect, so while it is tempting to put your worst crews on obsolete ships on ASW patrol, it might not be an ideal solution.

Ships on Trade protection may be present in defensive coastal battles in the area where they are deployed, but will otherwise have a low chance of being involved in battles.

AMCs can be used on trade protection patrols and if you have invented Q-ships, they can surprise and sink enemy submarines.

RAIDERS

During war, you can send out ships as raiders to prey on enemy shipping. Raiders cannot be short range ships and are more effective if they have long range and relatively high speed. Generally, cruisers are ideal for this mission.

Raiders run a risk of being intercepted by enemy trade route patrols and brought to battle. Note that a raider winning a battle but suffering significant damage might be forced to scuttle itself or seek internment in a neutral port.

There is a slight risk that raiders run out of fuel, especially if not long range or of large size, or suffer a mechanical breakdown. This can force them to be interned in neutral countries until the war is over.

AMCs can be effective as raiders, despite relatively low speed, due to their ability to disguise themselves as normal merchantmen. A speed of at least 8 knots is required.

Large fast AMCs (fuel hungry liners) are however prone to running out of fuel. An AMC raider has a chance of deceiving and surprising an enemy intercepting ship, with the interception battle starting at short range and the intercepting ship surprised.

If you are blockaded, ships deployed as raiders may be engaged by enemy ships while breaking out to the trade routes.

Raiders have no effect if you are blockading the enemy (enemy merchant shipping is assumed to have been reduced to a minimum by the blockade).

ANTI-SUBMARINE AND MINE CAPABILITY

Each ship has a rating for its capabilities in these fields. However, if the ship has a capability in both of these fields, the effectiveness of each will be reduced, to reflect the fact that the ship has to divide its time between the various duties.

ASW WARFARE

Anti submarine weapons	Weight	Cost
DC throwers <input type="text" value="4"/>	<input type="text" value="16"/>	<input type="text" value="16"/>
ASW mortar/rockets <input checked="" type="checkbox"/>	<input type="text" value="12"/>	<input type="text" value="12"/>
Increased DC storage <input checked="" type="checkbox"/>	<input type="text" value="30"/>	<input type="text" value="0"/>
Enhanced sonar system <input checked="" type="checkbox"/>	<input type="text" value="150"/>	<input type="text" value="100"/>
Towed array sonar <input checked="" type="checkbox"/>	<input type="text" value="50"/>	<input type="text" value="100"/>
ASW value: 18		

Ship types capable of ASW warfare are DD, MS, CV and CVL. Later CL and AV will get ASW capabilities. Ships capable of ASW warfare have an ASW rating. The ASW rating of a ship depends on displacement and installed equipment. All DD and

small ships will automatically have a basic amount of depth charges when these are invented. Additional ASW equipment, like increased storage of depth charges, depth charge throwers, and ASW mortars, need to be added to the design and will increase the cost and weight of the ship.

The ASW value of CV and CVL will initially be low, but will increase with development of aerial depth charges and airborne radar.

AMC will have a limited ASW value during the early period (as Q-ships).

The ASW value will be used both in strategic turns and during tactical battles.

For the purposes of submarine attacks on merchant shipping, the numbers of ASW capable ships assigned to trade protection in the area the submarine operates will be used as a modifier. After attacking, there is a chance that the sub will be attacked by trade protection vessels. A random vessel in the area is selected, and its ASW rating is used as the basis for the attack.

For the purpose of submarine attacks on warships, the proportion of destroyers not on trade protection compared to heavier ships in the area will be used as a modifier.

Thus, you will have to balance the need for trade protection against the need to protect your heavy ships from submarines. It is easy to underestimate the need for ASW ships and find that you have a lack of them when war breaks out.

In battles, when a submarine is detected, the nearest ASW capable ship will try to attack the submarine, with success being based on its ASW value compared to the reliability rating of the submarine. Even if the submarine is not sunk, it will in most cases be driven to dive deep, and it will have a downtime before it can go to periscope depth and become active again.

MINE WARFARE



Mines are represented in three ways in RTW3.

There will be a defensive minefield around all bases. You will see those of the enemy but not your own. The purpose of these is to prevent enemy ships from operating unrealistically close to enemy bases. You cannot enter this area with your ships.

There will also be small minefields present in scenarios near enemy bases and coastal artillery positions. They will be more common the longer a war progresses. These minefields will be invisible until one of your ships hits a mine. Screening light ships will protect your heavy ships from these to an extent.

Before each battle, there will be a pre-battle round of mining and minesweeping, where ships with mining or minesweeping capabilities present in the area will take part. Results will be presented to the player, to illustrate the effectiveness of these often underappreciated but vital assets.

There is also operational mining carried out in the monthly turns. Ships equipped for mine laying will be assumed to carry out mining in the area they are deployed. Minelaying submarines will also contribute to operational mining. This mining is abstracted and will not show on the map, but will increase the risk of opposing ships falling victims to mines. Friendly minesweepers (DD or KE with minesweeping capability) will help mitigate the risk of striking mines.

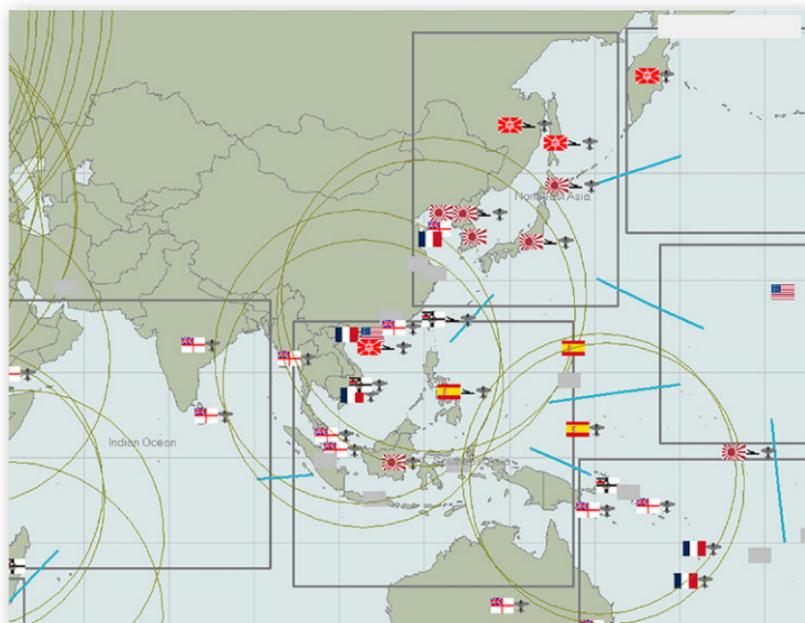
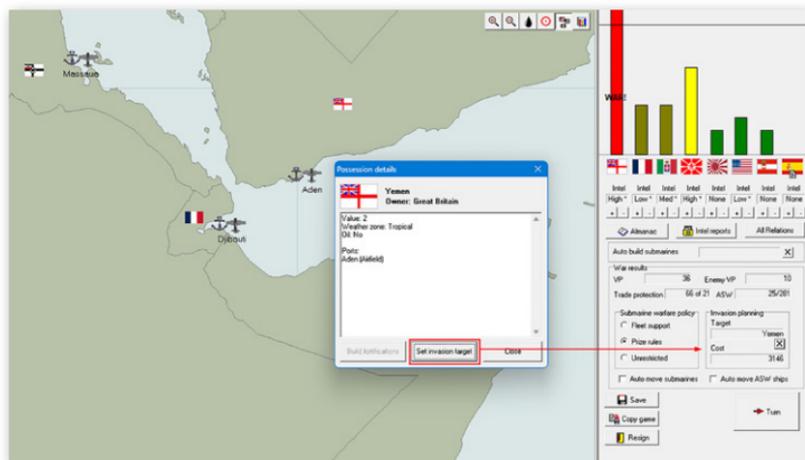
Ships equipped to lay mines will add to the mine value of the area, which will be used to determine the risk of enemy ships striking mines.

Ships equipped with minesweeping gear will contribute to a minesweeping value for each area. This value will be compared to enemy minelaying capabilities in the area to determine the risk of ships striking mines during operational movement and also influence the number of minefields during battles.

Similar to ASW, it is easy to underestimate the need for minesweepers and be caught unprepared.

INVASIONS AND AMPHIBIOUS OPERATIONS

Each nation has an invasion range, expressed in nautical miles. This is the range from friendly ports that you can conduct an invasion. It is measured from the nearest friendly



port to the nearest enemy port in the intended invasion target possession. If the range is greater than your invasion range, you cannot invade.

The invasion range is modified by advances in the tech area "Amphibious operations". It is also increased for global naval powers and for nations with surprise attack ability during the first year of a war. It is lowered for blockaded nations.

Your current invasion range is shown in the lower left of the main screen. By pressing the invasion range button on the world map, you can see invasion range circles from your bases.

To start an invasion, you select an enemy possession within your invasion range, either by clicking on the possession flag on the map or via the possessions list to the left. Once you have selected a target you should move naval forces into the area. For an invasion to take place you must have more strength in the area than the enemy, but there is also a random roll made each turn, so it may take a couple of months before the invasion is actually launched. The larger your naval superiority, the greater the chance of an invasion taking place.

Advances in amphibious capability will affect the chances of being able to carry out an invasion once you have selected an invasion target.

When the invasion takes place, you will have to fight a battle where you escort an invasion force of transports to the beaches. If you win the battle with more than marginal victory, the invasion has succeeded.

The enemy nations will of course also have the capability to invade your possessions, in which case you will have to fight a defensive invasion battle.

BLITZKRIEG

A nation that has a fascist, or to a lesser extent communist, regime can seize possessions in blitzkrieg invasions. Blitzkrieg invasions cannot take place before 1935. The chance of blitzkrieg invasions will be highest at the beginning of a war and then be reduced. As a player, you will be consulted on blitzkrieg attack plans by the General Staff. Note that even nations uninvolved in the current war might take the chance to make a blitzkrieg invasion of some coveted possession.



FUEL SHORTAGE

Nations without access to oil run a risk of suffering fuel shortages in wartime. The risk of fuel shortage occurring in a turn will increase the longer the duration of the war. If a nation is blockaded, the risk of fuel shortage will increase considerably.

In a turn with fuel shortage, there is a risk that ships will have ordered strategic moves cancelled or that they will be unable to take part in a battle. The larger the ship, the greater the risk of it being affected.

Ships using coal fuel will never be affected by fuel shortages.

WINNING OR LOSING A WAR

Battles and other events will gain victory points. When one side has a substantial advantage, there will be chance for some kind of peace agreement. Peace agreements might entail the loss or gain of territory, simulated in the game by gaining or losing possessions, which will in turn affect your base national economy. They might also involve handing over ships to the victor or restrictions on the shipbuilding of the losing nation.

Wars might be lost by revolution if the unrest level goes too high. Wars lost in this way will lead to unusually harsh conditions. Thus, if you notice that your unrest level is going up, you are well advised to consider reining in military expenditure and consider some kind of social reforms. If that doesn't help, a negotiated peace is a lot better than revolution.

YOUR FLEET IN BATTLE

USING THE MAP

The battle map shows your ships as coloured dots on higher zoom levels, and as ship graphics when you zoom in. The ships are shown in approximately double size, so ships might look more crowded together than they actually are.

Ships will be shown on the map and elsewhere in the game with the following prefixes denoting the ship type:

- BB Dreadnought Battleship
- BC Battlecruiser
- B Pre-dreadnought Battleship
- CA Armoured Cruiser/ Heavy cruiser
- CL Light Cruiser
- DD Destroyer
- KE Corvette (used to represent a variety of small surface combatants without torpedoes)
- TR Transport or merchant ship
- AMC Armed Merchant Cruiser
- AV Seaplane carrier
- SS Submarine
- LT Land target
- MTB Motor torpedo boats (a squadron of three MTBs).



You can zoom the map by clicking the + or - buttons on the toolbar. You can also use the mouse wheel to zoom or left click and drag a box on the map to zoom in to a particular area of the map.

To scroll the map, right click and drag on the map, this effectively rotates the earth. You can also scroll the map by using the W-A-S-D keys.

Clicking the Zoom to force button will zoom the map so that you see all your ships, and any spotted enemy ships.

The lock button will make the map follow the currently selected division as it moves.

You can show various types of information like sighting ranges, visual or radar, gun ranges or fire lines for the selected division by pressing the appropriate buttons on the toolbar.

You can get details on friendly ships and divisions by right clicking on the ship or the division flag.

Info on enemy ships will be limited, depending on the sighting level. At first, you will only know it is a ship, then the ship might be identified as to type, and last its class might be identified. You can hover the mouse pointer over a ship to get additional info, and you can right click on an enemy ship to bring up information about the ship class from a simulated Jane's Fighting Ships, provided the class is identified.

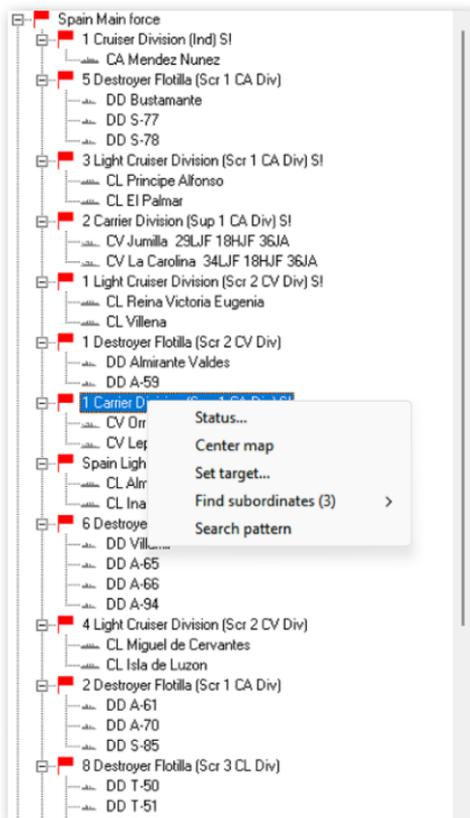
It is possible to show an inset with an enlarged view of the current ship by pressing the show enlarged view button on the toolbar. This can be very handy for checking if all guns are bearing, or if you just want to keep an eye on how your flagship looks. It can also be useful for taking a look at how the enemy ships look.

The ship displayed will shift when a popup is shown, but it is possible to lock the inset view to the current ship.

When the scenario is finished, you can use the track chart button on the toolbar to display a track chart of the action.

THE ORDER OF BATTLE TAB

The Order of battle tab to the left of the map lists all your ships and shows how they are organised. Each side will have one or more forces, which are divided into divisions



which contain the ships. You can expand the forces and divisions to see your ships.

As the ships are damaged, they will get stars beside their names in the tree, one star is light damage, two stars is medium damage and three stars is heavy damage. An (M) beside the name denotes that the ship is carrying mines.

Most objects in the OOB tree can be right clicked for further functionality, for example finding them on the map or seeing detailed info on forces, ships or divisions.

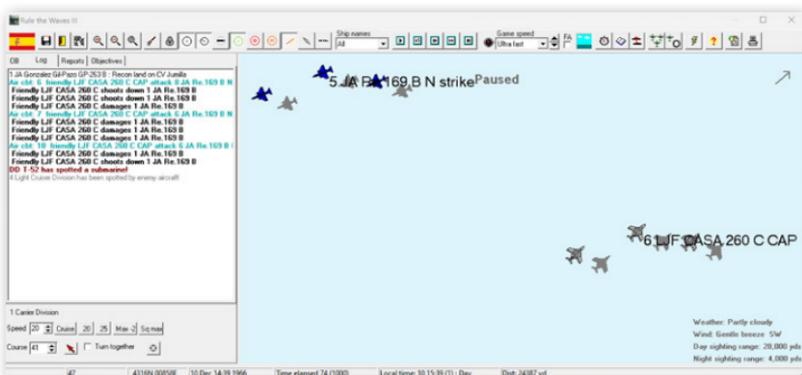
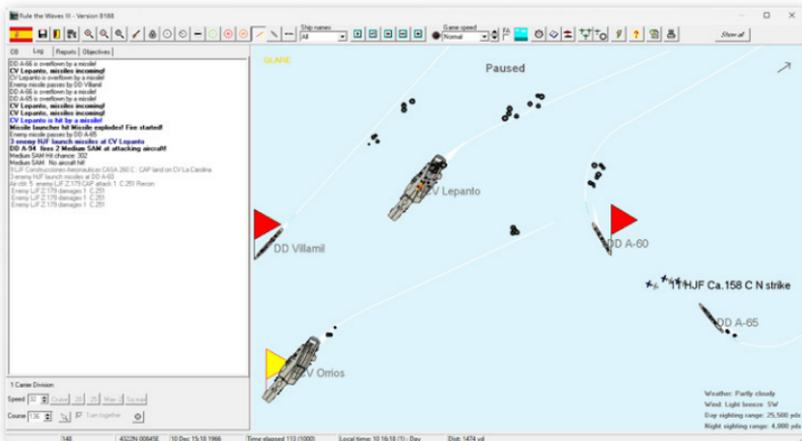
A force may be computer controlled, which means that there are friendly forces over which you have no control and do not know exactly where they

are. They will report sightings of enemy forces, but those reports will be fragmentary and subject to error. You cannot change the control of computer controlled forces, but you can change AI control of divisions in player controlled forces (see below)

THE LOG



The log list on the log tab will list all important events taking place in the game. Events during the current turn will be in black, while events from the preceding turn will be shown in gray.



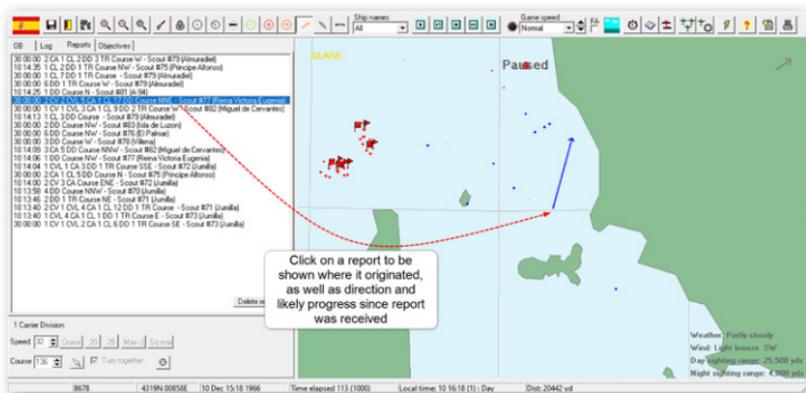
Click on an event to locate the map to the ship causing or suffering the event. You can also right click most events related to friendly ships to get details on the ship.

Some events will be shown in differing colour or font to make them stand out. These are ships sinking, torpedo hits etc. Some events can also be made to pause the game or show a message box, subject to customization by the player. See under preferences.

All log entries are recorded in a total log that is available when you press the log button on the toolbar (the one with a book on it). In the log window, you can copy all entries to the clipboard with **Ctrl+C** and paste into Word or Word Pad. It is an RTF file

so it will keep the formatting with colors and bold lines for hits etc. In this way, you can peruse the log after the battle or even save it for future reference.

THE REPORTS TAB



The reports tab lists all reports on enemy activity that come from friendly non-player controlled forces or submarines. Click on a report to locate it on the map. Note that reports are randomized and subject to “fog of war”, both as regards location and enemy strength.

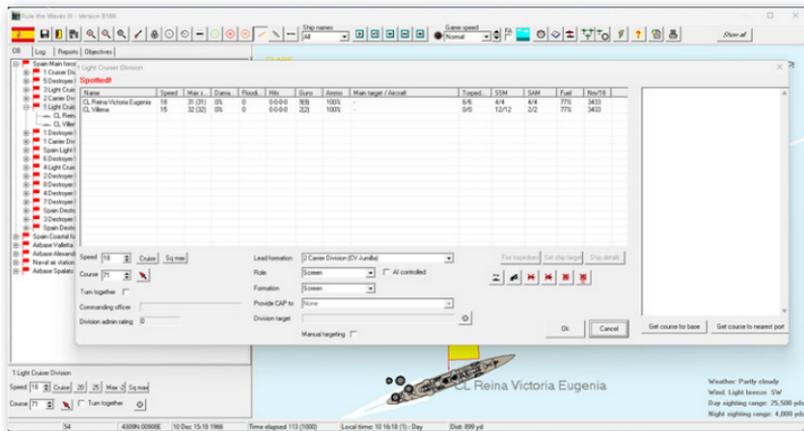
THE OBJECTIVES TAB

This lists all objectives for your side. Click on an objective to highlight its location on the map. See more on objectives under Victory and objectives.

MANOEUVRING YOUR SHIPS

Rule the Waves puts you in the place of the admiral. That means you will give orders to divisions of ships, not to single ships (unless they are alone in a division).

Divisions are shown on the map with flags. A square flag means a division under the control of the player, a triangular flag means the division is under AI control.



Tip: It can often be preferable to have smaller ships, destroyers for example, under AI control. In a big battle, that will let you focus your attention on the big ships. It will also insure against a division doing something stupid just because you have forgotten to give it orders. You can switch on and off AI control for divisions in your force at any time during play, subject to the realism level you have chosen (see preferences section).

There are a couple of ways to give orders to a division. You can right click on the division flag, which will bring up the division dialog. The division dialog will show a list of the ships in the division, and their details. For further details on a ship, double click on its listing.

You can set the speed and course for the division. Clicking the arrow button by the course value will let you pick a direction from the map. The map will be shown and the cursor will be a cross. Left click on the map and the division will be given a course to the point you clicked.

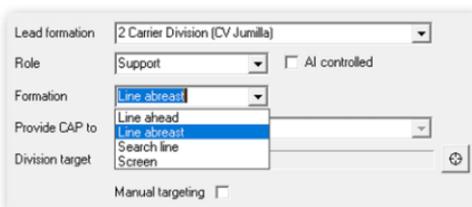
There is also a quick way to give orders by using the panel in the lower left corner of the main screen. If a division is selected, you can simply enter a course or a speed, or press the arrow button to pick a course from the map.

Lastly, you can give a course order to the currently selected division by holding down shift and clicking on the map. By holding down Ctrl and clicking on the map, you can give the

currently selected orders to move to that point and the game will pause when the division reaches that point (or when something happens which would cause the game to pause).

You can switch on and off AI control for a division by clicking the AI control checkbox (possibly restricted depending on realism level).

FORMATIONS



The formation of the division will affect how the ships deploy. Line ahead means all ships will follow the division flagship. Very common formation, especially for heavier ships, as it maximises

firepower and will avoid putting ships in the line of fire of each other.

Line abreast means the ships will form up on the flagship in a line abreast. Usually used when avoiding torpedo attacks or when you want to withdraw, or for manoeuvring cruiser forces.

Search line is a specialized formation, like line abreast but with much larger intervals between ships. Typically used by a lone squadron trying to locate the enemy.

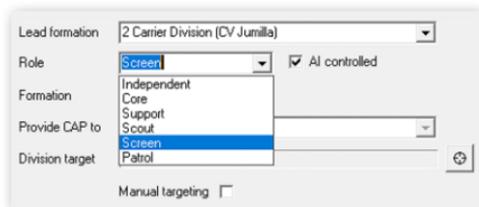
Screen means the ships will spread out to cover an arc in front of the lead division. Used by destroyers or cruisers screening heavier ships.



Formations other than line ahead have a risk of ships getting separated from the division, especially at night or in poor visibility. Heavy ships (heavier than CL) in line abreast will also tend to have their formation disordered after a while.

ROLES

You can also select the role for the division. This will affect how the AI will handle the division:



Independent divisions will not care about other friendly divisions, but they will manoeuvre in the general direction of the force flagship. The force flagship itself is always independent.

Core divisions will follow their lead division. Typically used for battleship divisions in the main line of battle.

Support divisions will follow some distance behind the supported division or on the disengaged side and endeavour to stay out of the line of fire. Typically used for destroyers supporting a battleship or cruiser division. Supporting destroyers will launch torpedo attacks or counterattacks on enemy destroyers when they deem it appropriate.

Scout divisions will place themselves a considerable distance in front of their lead division, and spread out their ships. Typically used for cruisers scouting for a heavier force.

Screen divisions will form a screen a short distance in front of the lead division. Typically used for light cruisers or destroyers screening heavier ships.

Patrol divisions will patrol around their objective. Used for patrolling coastal forces etc, usually not under player control. However, it might be useful to put a player controlled division on patrol if you want it to loiter in an area. Consider using it for aircraft carriers that you want to stay out of the way of the enemy, or if you want a force to guard an area.

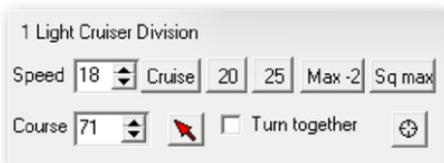
Note that all roles are not available to all ship types, to reflect historical practice. For example, you cannot place a battleship division on scout. Neither can you place a destroyer division on scout unless all its ships are larger than 1500 tons. This is to reflect the historical limitations on early destroyers. WW1 destroyers were small and had poor means of navigation and communication, which precluded their use in scouting. They can be put on screen instead.

Lead division is the division that the above roles relate too. All divisions will have a lead division except independent divisions.

The turn together check box makes it possible to order a division in line ahead to turn together if you for example want to turn away quickly from the enemy or a torpedo attack or similar.

The Division dialog can also be accessed by right clicking on a division in the OOB tree and selecting status from the pop-up menu. It is also possible to centre the map on a division or ship if you cannot find them.

SPEED



There is a temptation to run ships as fast as they can go in tactical battles. You should be aware that there are some drawbacks to running ships at full speed. In the early years

especially, full speed is something that should be saved until it is really necessary.

After a period at full speed, ships will get 'Grates fouled', which will reduce the speed of the ship by one knot. Grates fouled will escalate to 'Stokers exhausted' after an additional period, with a 2 knot speed loss. Coal fired ships are more sensitive to this than oil fired ships, and ships with VTE engines even more so.

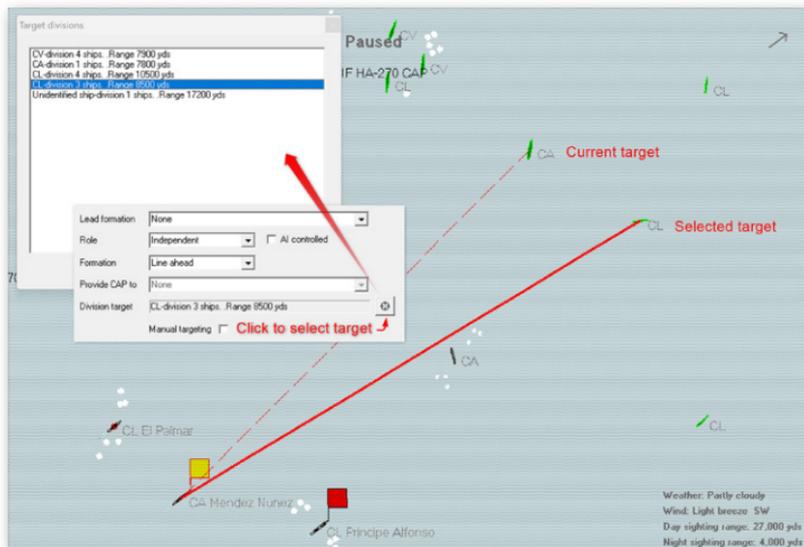
If you lower speed to cruise speed or below, your crew will eventually have cleaned the grates and gotten the engines up to full capacity, but that will take longer than incurring the penalty.

Running at full speed for long periods can also result in engine breakdowns, especially for ships with engines that prioritize speed.

In combat, ships at full speed and above 25 knots will suffer vibrations that give a gunnery penalty, and a division at full speed will leave no margin for ships to catch up, and will often lead to spread out formations. It is generally advisable to keep division speed to a couple of knots below maximum speed.

TARGETING

Your digital gunnery officers will normally handle targeting. However, unless you are playing at Admiral's mode you can set targets yourself for divisions that are not AI-controlled.



If you set a target manually for a division or ship on automatic targeting, it will shoot at that target until the target is out of range or cannot be seen. It will then revert to automatic mode. Note that this might mean that a more important target will be ignored. If you give manual targeting orders, you must also pay constant attention to what your ships are firing at.

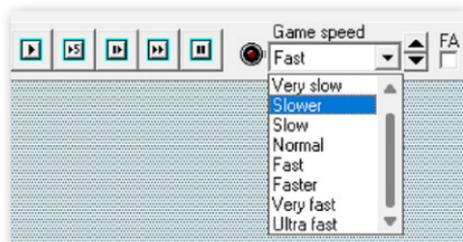
On manual mode, it is entirely up to the player to select targets. If a target is out of range or not visible, the ship will simply stop shooting. This means that constant player supervision is recommended if you put a division on manual targeting.

If you are playing at Rear Admiral's or Captain's mode, you can also order a division to hold fire for 10 minutes or indefinitely, and to abstain from launching torpedoes. Note that ships given hold fire orders might end up being pummelled by the enemy without shooting back, so as with manual targeting, you will have to pay careful attention to what's happening,

Secondary batteries and torpedoes will always have automatic targeting. Occasionally, you might see secondary batteries not firing at targets well in range. The reason is most often that there is already a substantial number of ships firing at the target, and further

guns firing will just complicate observation and lower accuracy, so your digital gunnery officer has decided to hold fire.

PLAYING A TURN



The game moves in one minute turns, though when the game runs, the turns will flow after one another to give an impression of continuous play. The ships are animated to create a smooth movement, but everything

actually happens in the minute turns. The turn button will play a single one minute turn. Run 5 will run the game 5 minutes, and just Run will run the game until something happens which will cause the game to pause, or turn or pause is pressed (or the P key). The game can be run for a variable number of minutes by pressing the number keys, i.e. pressing 7 will run the game for 7 minutes.

The > key is a useful shortcut. It will run the game for five minutes if in contact, or one hour if not in contact with the enemy, and pause if something important happens.

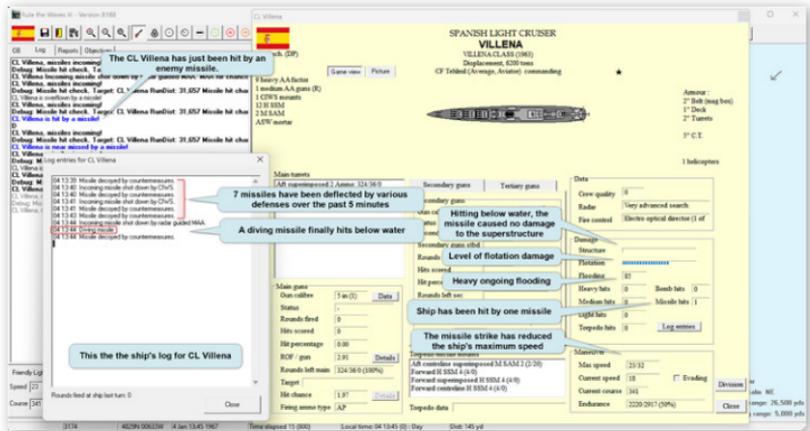
The events that will pause the game automatically are configurable under preferences.

You can adjust the game speed with the game speed control on the toolbar. Speed varies from ultra-fast, which will have game minutes passing by at the rate of several minutes per real life second, down to real time. Normal speed equals roughly one game minute per real life second (varying slightly with computer performance and the number of ships engaged).

If you are playing at slow speeds and press P to pause the game, it will take some time for the game to pause until the current minute is played out. In the meantime, the text "Pause pending" will be shown in the display.

The game will revert to normal if on a faster setting whenever an enemy ship is sighted. You can thus safely up the speed when no enemy is in sight.

HITS AND DAMAGE



Hits will be shown in the event log. Hits on your own ships will be detailed as to location and the part of armour hit. An asterisk * after the hit denotes that the hit penetrated armour. Hits that do not penetrate armour will cause no or slight damage.

Armour types are:

B Belt: The main belt armour

BU Upper belt: Upper strakes of belt armour or armour protecting the upper part of the hull.

BE Belt extended: Armour or armour protecting the ends of the ship as well as boiler uptakes.

D Deck: The main armour deck of the ship.

DE Deck extended: Corresponds to BE above.

T Turret: Main gun turret.

TT Turret top: Roof of main gun turret.

SEC Secondary gun armour.

CT Conning tower.

The range at which the ship is hit will influence whether belt or deck armour is hit, with deck hits being more frequent at longer ranges.

Ships take damage either as structure damage or flotation damage. Flotation damage will affect the speed of the ship and will eventually sink the ship. Structure damage is not directly dangerous to the ship, but extensive structure damage will affect the general performance of the ship, for example, gunnery, rate of fire and damage control.

In addition all individual main turrets can take damage. Turrets can either be destroyed, which is permanent, or disabled, which might be fixed by the crew. Even non penetrating hits can disable a turret, the chance being dependent on the shell size. Turrets can also jam from mechanical failures which are similar in effect to being disabled. A penetrating turret hit might trigger an ammunition flash fire, which might either destroy the ship or burn out two turrets. The risk of this happening is dependent on nationality modifiers, which vary over time.

Engine room hits will in most cases affect the speed of the ship.

Waterline hits or **torpedo** hits can cause progressive flooding, which will gradually cause flotation damage. Damage control will try to limit flooding. The chance of reducing flooding will increase if the ship is at lower speed. Going at high speed with extensive flooding can risk the ship. 10 knots is usually "safe" speed when it comes to limiting flooding.

When ships sink, they will not just turn turtle and disappear. A ship will be in sinking state for up to several hours. Sinking ships might be targeted by your gunnery officers, and there is no way you can know if an enemy ship is sinking or just badly damaged. This is to recreate the conditions under which real admirals had to make decisions.

In the ship details window, you can get a list of all events that affected the ship, including the hits that ship has received, with hit location and if it is a critical hit etc. If a hit has a ## mark, it means the hit was made while the ship was already sinking. During play, you will not see the firing ship name. After the scenario is over, you can see exactly which ship or air unit scored which hit.

When a ship is sunk and the enemy is not too near and friendly light ships are close, you will get a question if you want to detach a ship to pick up survivors. Picking up survivors earns victory points, regardless of which side they are from. Sea battles are supposed to be chivalrous affairs and besides, enemy prisoners are good for propaganda.

HIT LOCATIONS

- ▲ **Near miss:** Might cause flotation damage to un-armoured ships or knock out guns on light ships or un-armoured secondary or tertiary guns.
- ▲ **Turret:** Can destroy or disable the turret. A penetrating turret hit can cause a catastrophic flash fire.
- ▲ **Hull hit:** Will cause flotation damage
- ▲ **Engine room:** Will affect speed and might cause flotation damage
- ▲ **Superstructure:** Causes superstructure damage and might damage un-armoured secondary or tertiary guns.
- ▲ **Torpedo tubes:** Will knock out torpedo tubes and there is a chance of an explosion which might cause further damage. Hits on underwater torpedo tubes might cause bad flooding.
- ▲ **Missile launchers:** Will knock out the launcher and there is a chance of secondary explosions which might cause further damage.
- ▲ **Secondary battery:** Can destroy secondary guns
- ▲ **Critical hits:** Include rudder damage, catastrophic machinery damage, magazine hits, fire control, conning tower and bridge hits, electric system damage and bad waterline hits. Might also cause any mines carried to explode, with catastrophic effects.

Most hits have a possibility of causing some additional superstructure damage



Some hits by AP shells on un-armoured locations can be pass-through hits that don't explode. Such hits will cause minimal damage.

Torpedo hits will cause massive flotation damage and might cause progressive flooding. They might also damage machinery or knock out turrets.

Note that the term "superstructure" is rather loosely applied here. Superstructure damage can really be seen as damage to areas above the main armour deck.

FIRES

As ships accumulate damage, fires may break out. Fires are started by hits, with the chance being larger for HE shells. The risk of fires varies according to ship type, with Carriers, TR, AMC, AV, and B being the ship types most susceptible to fires. Initially, fires don't do much damage, they may either spread or be successfully fought by damage control. Large fires will eat away at the superstructure points of the ship, and might lead to other damage control being hindered or rate of fire affected, or even the ship stopping firing as gun crews and damage control personnel concentrate on fighting the fire. Fire level will be indicated in the ship details window, and also noted in the map pop-ups.

A ship on fire will produce more smoke, contributing more to obscuring lines of fire. A ship on fire will be easier to spot (but not identify) at night.

Fires will be more common during the earlier period of the game, and the risk of fire will also be affected by damage control research. In the early period of the game, it can be a viable doctrine choice to fire HE shells at heavy ships to cause fires, as the penetration of AP shells in this period is rather low.

GUNNERY

A lot of factors affect the gunnery of the ships in the simulation. Gunnery accuracy depends on:

- ▲ Technology (*research level in fire control*)
- ▲ Crew quality
- ▲ The type of fire control installed in the ship

- ▲ Firing ship turning
- ▲ Target ship turning
- ▲ Previous salvo on target
- ▲ Sea state
- ▲ Smoke interference
- ▲ Damage to firing ship
- ▲ Range
- ▲ More than one ship firing on the target
- ▲ Target evading
- ▲ Twilight (*firing eastwards in dusk or westwards at dawn is penalised*)
- ▲ Glare (*firing within 45 degrees of the sun within one hour of sunset or sunrise, provided weather is clear or partly cloudy*).

To sum it up, to obtain the best result from your ships gunnery, keep a straight course with as many guns as possible bearing, and make sure your smoke is not blowing towards the enemy, especially if you have coal fired ships. Of course, keeping a straight course may make you a better target for enemy torpedoes, so you must keep a balance.

Rate of fire (ROF) is dependent on:

- ▲ Technology (*research level in gun mountings*)
- ▲ Crew quality
- ▲ Firing ship turning
- ▲ Sea state
- ▲ Smoke interference (*smoke will not affect loading of guns, but it will affect timely correction of fire*)
- ▲ Damage to firing ship
- ▲ Range
- ▲ Visibility

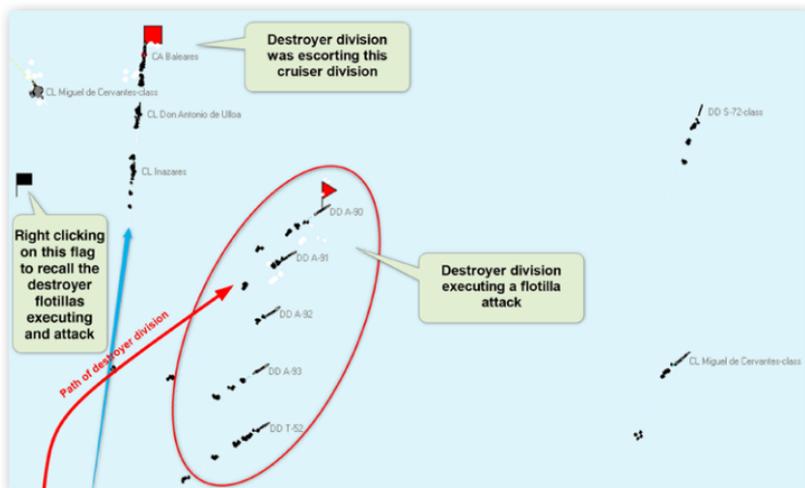
Ships low on ammo will fire more slowly and be more selective about targets to conserve ammo. Your digital fire control officers will also use ammo for heavy guns sparingly when firing at light ships at long range.



Ships firing at a new target will be ranging and fire more slowly and with less accuracy until they have found the range.

You can see detail on all factors affecting accuracy and rate of fire in the ship details screen during battle.

TORPEDOES

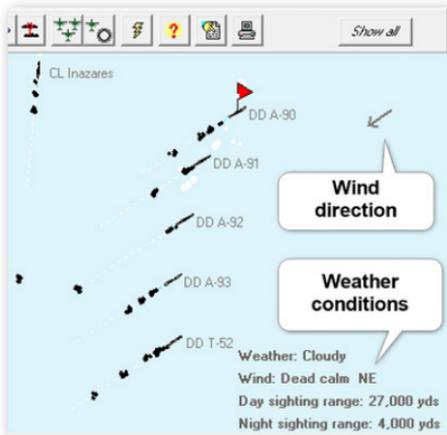


Torpedo firing is normally automated in the game, and torpedoes will be fired by your virtual torpedo officers when a suitable target is in range. Note that underwater torpedo tubes cannot be fired at a speed higher than 25 knots.

At captain's mode (see Preferences below) torpedoes can be fired manually.

Torpedoes can do severe damage to your ships, and you should take care not to follow a straight course for too long when in torpedo range of the enemy. Note also that enemy ships ahead of you and to the beam will have much better torpedo solutions than ships that are slightly behind you.

WEATHER AND VISIBILITY



Visibility will change with the weather. The weather has two parameters that are to a large extent interdependent: sea state and precipitation. These will be shown in the lower right hand corner of the map. The precipitation level will also be shown as a graphic on the toolbar.

Sea state really expresses the wind force, and is given as in the Beaufort scale. Stormy weather will

lower visibility and affect the gunnery of ships, with small ships suffering the most. It might also cause badly damaged ships to founder. Torpedo accuracy and reliability will also be affected by heavy seas. Heavy seas will also limit the speeds of ships, again with lighter ships suffering most.

Precipitation level simulates fog, mist, rain and snow. Mist and rain/snow will lower visibility ranges, sometimes severely.

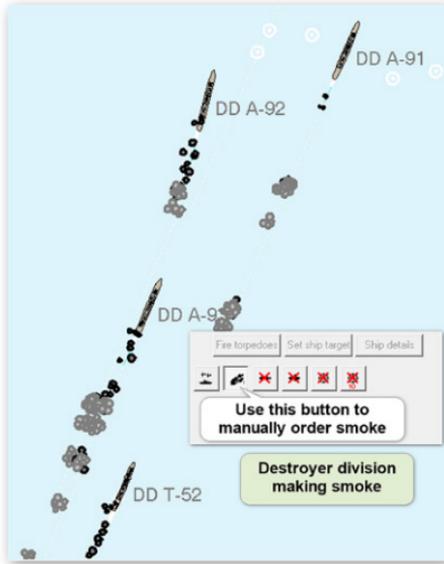
Stormy weather will make fog much less likely, while it will increase the risk of rain.

SMOKE

Smoke had a profound effect on visibility in naval battles during the first half of the 20th century. Coal fired ships emit copious amounts of smoke at full power, but oil fired ships also emit smoke that can interfere with visibility. Smoke is simulated in the game in several ways.

Funnel smoke will degrade gunnery when firing through it, regardless of which ship the smoke is coming from, except normal funnel smoke from the target ship.

Destroyers and light cruisers can lay smokescreens. A smokescreen can be laid for a maximum of 5 minutes. After that, a ship has to wait 20 minutes before it can lay



a smokescreen again. (Extensive smoke generation will foul the boilers). Smokescreens will vary in thickness, and are mostly not fully opaque, but will affect gunnery through it to a larger extent than normal funnel smoke. A smokescreen will affect all gunfire through it, even against the ship laying the smokescreen.

Smoke floats can be deployed by light cruisers in nations having them (through research). Smoke floats will both block line of sight in their densest area, and cause

similar effects to funnel smoke. Smoke floats can be ordered manually in captain's mode, and will be deployed when the carrying ships deem it necessary on other realism levels, generally when the carrying ships or their lead division is disengaging. Each light cruiser will have between 3 and 5 smoke floats. Later these will be superseded by smoke generators.

Accumulated smoke from many coal fired ships moving at high speed and firing guns in a confined area will eventually lower the sighting range for all ships in the area.

Smoke will tend to disperse faster and cause less visibility effect in stronger winds.

MOTOR TORPEDO BOATS (MTB)

If a side has MTB units in an area where a battle takes place, MTB squadrons will appear in coastal areas at night. They are always AI controlled, but will move around and attack enemy ships that they find. They will automatically withdraw during daytime.

In the later part of the game, when anti-ship missiles are developed, MTBs will be replaced by missile boats.

MINEFIELDS IN BATTLE

Minefields can be of two types, “friendly” minefields and suspected enemy minefields. Ships will automatically attempt to avoid both types. In addition, there might be unknown enemy minefields which will come as an unpleasant surprise.

There is a chance that a mine strike will be reported as a torpedo attack, as there was historically often doubt about if the ship had been hit by a torpedo or a mine.

See also Mine warfare.

LAND TARGETS

Land targets are similar to ships except that they cannot move. They are typically either unarmed bombardment targets or coastal batteries. They will be targeted just as if they were ships (though ships will not fire torpedoes at them). Some scenarios will have destruction of land targets as an objective.

Airfields are also land targets, and can be targeted by bombardments. Land targets can often be spotted at longer ranges than visibility range. This simulates that these are usually area targets, and their general location is known beforehand.

SUBMARINES IN BATTLE

Submarines have a patrol area and can attack ships in that area. They will also report sightings of enemy ships, but usually with a substantial delay, as the sub will most likely be forced to dive and stay submerged for some time after an encounter.

Nearby destroyers will protect larger ships from submarine attack. They will make it harder for the sub to attack and more likely that the sub will be spotted before it can attack. There is a possibility that a surface ship with an ASW capability will sink the submarine.

Submarine operations in the early 20th century were severely affected by weather. If the weather is too calm, the submarine will be spotted more easily, and attacks will be harder. If the seas state is too violent the sub cannot keep attack depth and observation will be difficult. A sea state from 2 to 5 is optimal for submarines.

Early submarines were notoriously unreliable and hard to control and integrate into other naval operations. To reflect this, each submarine has a reliability rating that roughly determines how large a percentage of time the submarine will be able to scan for targets.

There were frequent examples of sightings of imaginary submarines and torpedo tracks that sometimes had a profound impact on operations. This is simulated in the game by sightings of non-existent submarines.

It might be a good idea to stay clear of areas where friendly submarines are operating with your surface ships, as there is a risk of mistaken identity with potentially embarrassing results.



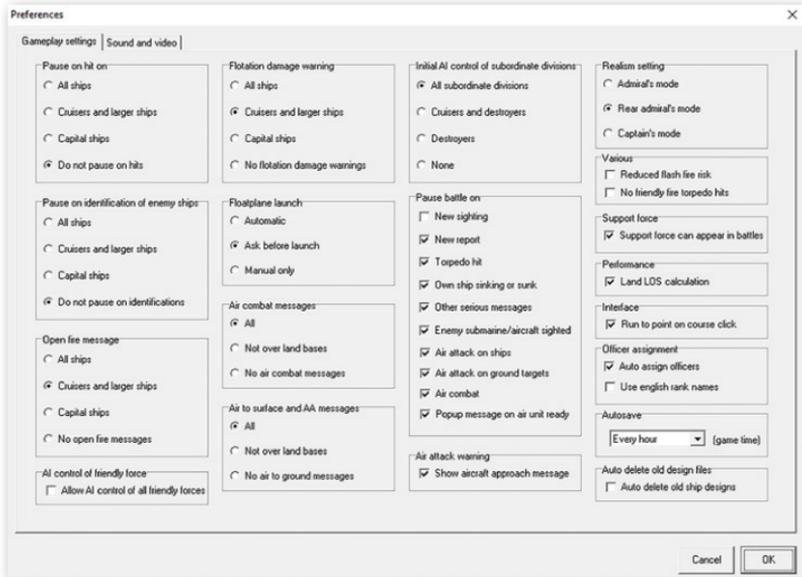
PREFERENCES IN TACTICAL BATTLE

There are user settings for the level of detail in most reports, as well as what is shown on the game map. It is also possible to select what events will pause the game.

In addition, the player can choose between one of three realism levels.

ADMIRAL'S MODE

The ultimate in realism. The player can only give orders to the lead divisions of each force. Other divisions can be controlled only by selecting their role. No manual targeting is allowed. If you want to experience the real limitations of WW1 and WW2 fleet command, this is how you should play.



REAR ADMIRAL'S MODE

The player can put any divisions in his force on manual or AI control as long as they are within sight of the force flagship. The player can give target orders to divisions. Victory points will be reduced by 10%.

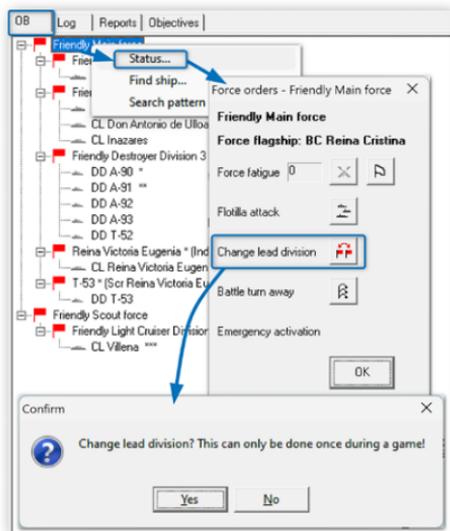
CAPTAIN'S MODE

The player can put any divisions in his force on manual or AI control. The player can give target orders to divisions or ships. Victory points will be reduced by 20%.

Note that many battles have friendly forces that are not under player control. This is not affected by the realism setting.

FORCE ORDERS

Especially under Admiral's mode, force orders offer a possibility to influence your whole force. Right click a force in the OOB tree to open the force orders dialog.



Flotilla attack: This orders a general destroyer attack. Might be used to finish off a crippled enemy force or as a desperate move to cover a withdrawal. Note that the attack might take a few minutes to develop, as it takes time for orders to transmit and commanders to react.

To remind you that a flotilla attack order is in force, a black flag will be shown on the left in the main window. Right clicking the Flotilla attack flag in the main map window will give an opportunity to recall all flotilla attack orders.

Designer's Note: A black flag was hoisted in some navies to signal that a ship was performing a torpedo run.

Rally: This will raise force morale, making a battered force more likely to fight it out. Note that the effect will be temporary if your force has suffered heavy casualties or is low on ammo.

Disengage: This will lower force morale, causing subordinate divisions to tend to increase range or withdraw.

Change Lead division: You can also change the force lead division. This can only be done once in a scenario, to prevent misuse. It can be useful if playing on admiral's mode and you need to change direction of your whole force, or if your battle fleet is deployed in cruising formation and you want to deploy on the opposite column to the lead division. This order is likely to cause quite a lot of confusion in your fleet if it is used to reverse course of the battle line.

Battle Turn Away: If you have developed it, you can use Battle Turn Away, which works somewhat like changing force lead division, except that it will also change the order of ships within the divisions, with each ship doing a 180 degree turn. This manoeuvre is optimised to reverse course of the battle line. Even so, it is still liable to cause some confusion.



SCENARIO VICTORY AND OBJECTIVES

The basic victory levels are dependent on points for damaging and sinking enemy ships. Sinking a ship will earn substantially more points than just damaging it.

The player is given a number of objectives for the scenario that give bonus points when completed. These are usually to sink a number of enemy ships. Important: The ships must be sunk within 100 nautical miles of the objective to count. Also, ships sunk must be at least 600 tons to count. This means that sinking a lowly patrol boat or corvette will not trigger the conditions.

To find the location of an objective, click on it in the objective list and the objective location will be shown on the map.

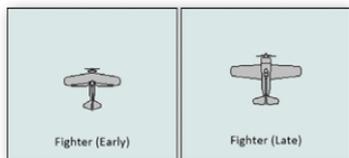
Note: The sections below apply to aircraft operations and radar. Aircraft will only start to have an impact in the game from circa 1916, so if you are a first time player you can stop reading here and revisit the manual when your game reaches the mid-1910s. Radar will only appear in the late 1930s.

AIRCRAFT OPERATIONS

AIRCRAFT AND AIRCRAFT ROLES

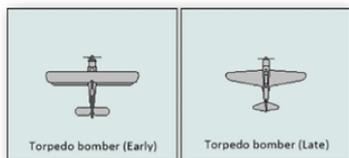
There are several different aircraft roles in the game.

FIGHTERS (F)



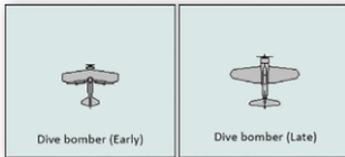
Effective in countering other aircraft, as combat air patrol (CAP) or as escorts. Later models can carry bombs, and with improved glide bombing become reasonably accurate at bombing. With development of rockets they become even more useful in attacks on ships and ground targets.

TORPEDO BOMBERS (TB)



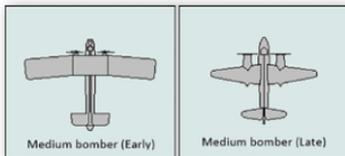
Can be carrier based or land based. Torpedo bombers are the earliest kind of attack aircraft that appear in the game. They can drop torpedoes or bombs. Torpedoes are more effective in sinking ships than bombs.

DIVE BOMBERS (DB)



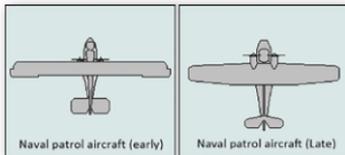
Can be carrier based or land based. Very accurate in bombing of ships, though their bombs are released at relatively low altitude and lack the penetration of bombs dropped from higher altitude.

MEDIUM BOMBERS (MB)



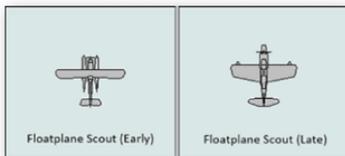
Land based only. Make level bombing attacks that are not very accurate. Some types can carry torpedoes. Bomb accuracy will increase dramatically with skip bombing, but that exposes the bomber to more AA fire. With the invention of guided bombs and missiles, medium bombers become more dangerous to ships.

NAVAL PATROL AIRCRAFT (PB)



Land based only. Initially mainly flying boats of various types. Primarily used for long range scouting. Can carry bombs, but are not very accurate with them. Flying boats contribute to limit the effectiveness of enemy submarines on the strategic level. In the late game, these aircraft can carry missiles, making them more dangerous to ships.

FLOATPLANE SCOUTS (S)



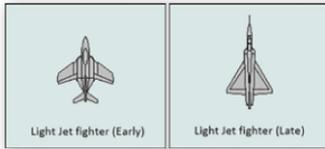
Land or ship based short to medium range scouts. Can be carried on any ship and launched by catapult. Before catapults are invented a launch requires the carrying ship to stop. Later models can carry bombs, but are not very accurate with them. Also help with local ASW.

AIRSHIPS (Z)



Based on land bases. Long ranged and reasonably effective as scouts, but more weather sensitive than airplanes. Can attack ships with high level bombing, but are rather ineffective. Before 1920 airships are the only available really long range naval scouting aircraft.

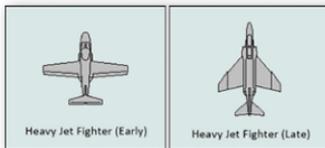
LIGHT JET FIGHTERS (LJF)



These are the first carrier based jet aircraft that will appear in the game. While considerably more deadly in air combat than propeller fighters, they have short range, especially in their early iterations. This makes them less suitable as escorts, and more useful as point defence fighters. Can attack ships with glide bombing, but have limited bomb loads.

Light jet fighters can operate from non-jet capable carriers, but count as 1.5 aircraft against aircraft capacity.

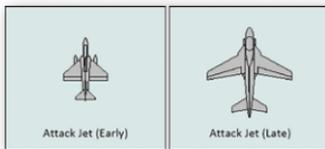
HEAVY JET FIGHTERS (HJF)



Heavier jet fighters with all-weather capability, often with two crew. They are longer ranged than light jet fighters and can carry a heavier bomb load. They can also carry medium anti-ship missiles.

Carriers need to be designed as jet capable to operate heavy jet fighters. On carriers smaller than 40000 tons, heavy jet fighters will count as 1.5 aircraft against aircraft capacity.

JET ATTACK (JA)



Specialized attack aircraft with all-weather capability, often with two crew. Can carry a respectable bomb load and heavy anti-ship missiles.

Selecting coordinated strike will cause the air formations in the strike to keep together, which will improve their chances against defending fighters and AA fire. A coordinated strike will take longer time to form up.

Every ship carrying aircraft has a spotting value (representing a deckload of aircraft). This is the maximum size of strike that can be launched from the ship. If you assign more aircraft than the spotting value, it will be indicated in the strike screen, and you will not be able to launch the strike.

To change the number of aircraft taking part in a strike from a formation, right click the number value for that formation.

Aircraft can perform naval strikes, armed with AP bombs and torpedoes, or land strikes, armed with GP bombs (equivalent to HE shells). To change the type of strike, right click the strike type column value for that formation.

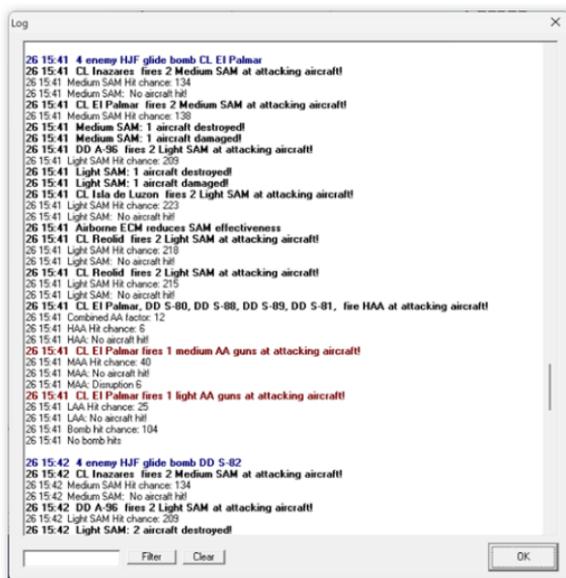
You can also select the loadout for each formation taking part. An aircraft with heavy bomb load will obviously carry more bombs, but that will reduce range and speed, and make it slightly more vulnerable in air combat. As a default, aircraft will select medium load, or torpedoes in a naval strike if they are capable of carrying them.

ANTI-AIRCRAFT FIRE

Ships will defend themselves with anti-aircraft guns against enemy air attack. Anti-aircraft guns are divided into heavy, medium and light. Heavy AA guns (this will be guns with a DP capability on ships) will fire first at enemy aircraft attacking a ship or friendly nearby ships.

Medium AA will fire at aircraft attacking their own ship before enemy aircraft release their ordnance. Light AA will fire at aircraft attacking their own ship either before or after enemy aircraft release their ordnance, depending on a random roll compared to the speed of the aircraft. The faster the aircraft is, the larger the chance that light AA will fire after the aircraft has dropped its ordnance. Thus, light AA guns will be of relatively less value the more aircraft technology advances.

Anti-Aircraft fire has four possible results. Aircraft can be shot down, damaged or made to abort their attack. AA fire also inflicts disruption on the attacking aircraft formation,



which lowers the hit chance of their attack. Note that light AA will always inflict disruption before aircraft attack, even if their fire takes effect after the aircraft have attacked.

Superstructure damage to ships will lower the number of effective anti-aircraft guns.

The accuracy of AA fire will be affected by

- ▲ Technology
- ▲ Number of AA directors (for medium and heavy AA) up to a maximum of 4 AA directors.
- ▲ Radar level
- ▲ Visibility
- ▲ Aircraft speed
- ▲ Crew quality of the ship

Bombing accuracy will be affected by:

- ▲ Technology
- ▲ Volume and accuracy of AA fire
- ▲ Visibility



- ▲ Target ship speed
- ▲ Target ship type
- ▲ Pilot experience
- ▲ Pilot fatigue

The same factors will influence hit rates for air dropped torpedoes, but in a slightly different manner.

AIRCRAFT ON SHIPS

Most regular ships can carry a small number of aircraft for scouting. These will initially be floatplanes, but in the late game, helicopters will be carried for this purpose. Ships specially designed as aircraft carriers have a flight deck to operate aircraft.

CATAPULTS AND OTHER AIRCRAFT ARRANGEMENTS

Floatplanes can take off from the sea, in which case the ship must stop, or can be launched from catapults.

Most ships can have catapults. It gives that ability for a ship to launch aircraft without stopping, but non-carriers must still slow down to recover aircraft.

Hangars provide protection from weather for floatplanes and helicopters and reduce the chances of the aircraft being inoperable at the start of a battle. A hangar is required if more than one helicopter is carried. Note: Aircraft carriers automatically have a hangar.

SEAPLANE CARRIERS

While all ships can carry a limited number of floatplanes, seaplane carriers have carrying and launching floatplanes as their main mission and can carry as many as will fit on board. They can even launch a strike of seaplanes, which can be useful in the period when naval aviation is in its infancy.

Seaplane carriers can be built once you develop the appropriate technology, which is one of the earliest in "Shipboard aircraft operation". Seaplane carriers can only carry floatplanes. Ships without catapults or a flight deck will need to stop to launch aircraft. Ships recovering seaplanes always need to slow down. Seaplane carriers are not restricted in the size of a strike by their spot number - effectively, the ocean is their flight deck - but larger strikes will take more time.

Seaplane carriers with a helipad will embark helicopters instead, effectively being helicopter carriers.

AIRCRAFT CARRIER CONSTRUCTION

Flight installations	
<input type="checkbox"/> Seaplane/helicopter hangar	<input checked="" type="checkbox"/> Angled flight deck
<input checked="" type="checkbox"/> Flight deck	<input type="checkbox"/> Helipad
<input checked="" type="checkbox"/> Deck edge lifts	
Air capacity <input type="text" value="110"/>	weight <input type="text" value="27,200"/> <input type="text" value="29,920"/>
Spot value <input type="text" value="57"/>	<input checked="" type="checkbox"/> Jet capable
Flight deck armour <input type="text" value="3.5"/>	weight <input type="text" value="6,494"/>
Hangar side armour <input type="text" value="2.5"/>	weight <input type="text" value="2,088"/>

Aircraft carriers are ships that have a flight deck. The type and size of the carriers you can build depends on the level of your "Shipboard aircraft operation" tech. After you reach level 3 "Flight Deck", you will be able to convert existing ships into light aircraft carriers

(CVL). With more tech advances you will be able to build purpose built CVLs, then convert

ships to full aircraft carriers (CV) and finally build purpose built CVs. The displacement limit for a purpose built aircraft carrier will be determined by the level of the "Shipboard aircraft operation" tech.

The aircraft capacity determines the number of aircraft that can be operated from a ship. CVLs are limited to no more than a capacity of 34 planes. There is no limit on CV capacity.

Carriers with aircraft capacity larger than 100 aircraft will have reduced aircraft operations efficiency as well as slightly increased cost. This is to reflect historical operational issues discovered by the US navy with very large carriers.

SPOT VALUE

An aircraft carriers has a spot value, which is the maximum number of aircraft that can be readied for a strike (not to be confused with spotting in the sense of seeing things). The spot value is normally half the aircraft capacity, but can be increased by equipment added to the carrier.

FLIGHT DECK CATAPULTS

Carriers do not need catapults to launch aircraft, but flight deck catapults increase the spot value of carriers.

Flight deck catapults also allows launching of CAP and search planes without the carrier having to turn into the wind. This might sound insignificant, but constant turns into the wind to launch and retrieve aircraft have a considerable impact on carrier practical mobility in battle.

Carriers below 10 000 tons must have catapults to launch aircraft with max speed above 120 knots at more than light load.

JET CAPABLE CARRIERS

A jet capable carrier is able to carry and operate heavy jet fighters and jet attack aircraft. This considerably increases the weight needed for each aircraft carried. This is to reflect the larger size of the aircraft and the added arrangements needed for operating jet aircraft, like strengthened decks and elevators, jet blast deflectors et cetera.

A ship must have a displacement of 40,000 tons or more, or have a displacement of 30,000 tons and steam catapults developed, to be made jet capable. On carriers below 40,000 tons, Heavy jet fighters and Jet attack aircraft will count as 1.5 times the number of aircraft against capacity.

You can make an existing carrier jet capable in a rebuild.

Light jet fighters can be operated from any carrier, but they will count as 1.5 times the number of aircraft against capacity, to reflect the added overhead of operating jet aircraft.

AIRCRAFT CARRIER SPECIAL ARMOUR

The flight deck may be armoured, which will provide some protection from plunging fire and bombs to any aircraft aboard.

Aircraft carriers can have hangar side armour provides protection from gunfire, bombs and near misses to aircraft aboard.

Both these types of armour have a considerable cost in weight, and will in practice reduce the number of aircraft that can be carried by the ship.

ANGLED FLIGHT DECK

An angled flight deck decreases the amount of time required to ready and spot aircraft. A carrier must have angled flight deck to operate heavy jet aircraft.

DECK EDGE LIFTS

Deck edge lifts decrease the amount of time required to ready and spot aircraft.

SLOW CARRIERS

Carriers with a speed below 24 knots will have their spot value reduced. This is because a headwind is needed to allow aircraft to take off from a carrier, especially if the much of the flight deck is taken up by spotted aircraft and the distance available for take-off is short.

LAND AIRBASES

You build airbases by in a manner similar to building coastal batteries, though you have to select a specific location within the possession to place the airbase. Airbases start with a capacity of 20 aircraft and can then be expanded in increments of 20, though this is limited by your current technology level. Expand an airbase by right clicking on the airbase in the "coastal fortifications" tab on the main screen, then select the 'expand airbase' menu item.

You can manage the squadrons and aircraft at airbases by selecting the button "air groups" on the main interface. This will open the "carrier air group management" screen where you can add or modify different types and quantities of squadrons to the base or to any carriers you have built. There is also a button to automatically assign aircraft to the base. Note that you only decide on the role of the aircraft in a squadron. The specific type of aircraft will be assigned automatically from your available aircraft (see aircraft types below).

New squadrons will initially have low experience, but experience will grow over time. Re-equipping a squadron or raising the number of planes drastically will lower experience. High combat losses will also lower experience.

FLOATPLANES AND AIRSHIPS

The player does not need to assign squadrons for ships carrying floatplanes or airship bases. This will be handled by the game. Appropriate squadrons of the latest type will be formed automatically.

AIRCRAFT TYPES

You manage your aircraft types using the button "aircraft types" on the main screen. This will bring up a list of all your available aircraft types. You can also look at estimates data for aircraft from other nations by using the compare list in the lower left of the aircraft types screen.

You can use the button, "Request proposals for new aircraft" to ask for new models. This allows you to select an aircraft role (fighter, dive bomber, etc.) and two aircraft traits

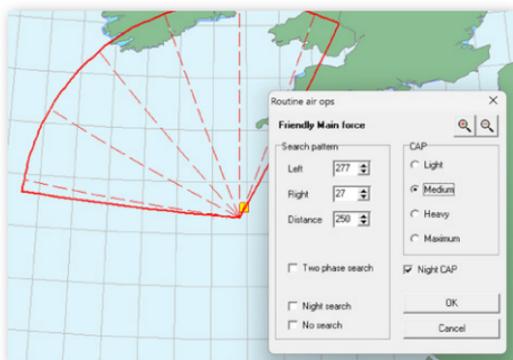
Type	OK/...	Mission	Base	Status	Time	Rema..
JA Gonzalez Gil-Pazo GP-263 B	1/0/0	N strike	CV Jumilla	Unready	-	0
JA Gonzalez Gil-Pazo GP-263(N)	14/4/0	None	CV Jumilla	Unready	-	0
Mixed	16/4/0	Special	CV Jumilla	Unready	-	0
LJF Construcciones Aeronauticas CASA 260 C	12/0/0	Escort	CV Jumilla	Unready	-	0
LJF Construcciones Aeronauticas CASA 260 B	1/0/0	None	CV Jumilla	Unready	-	0
HJF Hispano Aviacion HA-270(N)	11/4/3	N strike	CV Jumilla	Unready	-	0
LJF Construcciones Aeronauticas CASA 260 C	6/0/0	CAP	CV Jumilla	Flying	-	1321
LJF Construcciones Aeronauticas CASA 260 B	6/0/0	CAP	CV Jumilla	Flying	-	1304
LJF Construcciones Aeronauticas CASA 260 B	11/0/0	CAP	CV Jumilla	Flying	-	1312
JA Gonzalez Gil-Pazo GP-263 B	17/0/0	N strike	CV Jumilla	Landing	-	1410
LJF Construcciones Aeronauticas CASA 260 C	1/0/0	None	CV La Carolina	Unready	-	0
LJF Construcciones Aeronauticas CASA 260 C	12/0/0	None	CV La Carolina	Unready	-	0
HJF Hispano Aviacion HA-270	0/3/0	Escort	CV La Carolina	Unready	-	0
JA Gonzalez Gil-Pazo GP-263 B	0/3/0	N strike	CV La Carolina	Unready	-	0
JA Gonzalez Gil-Pazo GP-263 B(N)	0/5/0	N strike	CV La Carolina	Unready	-	0
Mixed	15/4/0	Special	CV La Carolina	Unready	-	0
LJF Construcciones Aeronauticas CASA 260 C	6/0/0	CAP	CV La Carolina	Flying	-	1235
LJF Construcciones Aeronauticas CASA 260 C	11/0/0	CAP	CV La Carolina	Flying	-	1200
LJF Construcciones Aeronauticas CASA 260 C	6/0/0	CAP	CV La Carolina	Flying	-	1183
HJF Hispano Aviacion HA-270	15/0/0	Escort	CV La Carolina	Readingy:Ready	23	1787
JA Gonzalez Gil-Pazo GP-263 B	15/0/0	N strike	CV La Carolina	Readingy:Ready	22	1335
JA Gonzalez Gil-Pazo GP-263 B(N)	13/0/0	N strike	CV La Carolina	Readingy:Ready	22	1335

Show recon
 Show CAP
 Show Unready
 Show land based

Close

The “#” column shows planes in the listed squadrons as 12/3/0 in the format: operational planes / damaged planes / destroyed planes. The “Mission” column shows the mission each squadron has been assigned. The “Status” column shows what each squadron is doing at the moment: Unready, Ready for a strike, Spotting on deck, Spotted, Taking off, Attacking, Returning, Landing, or Striking below. It also shows amount of fuel remaining. This screen can be kept open while operating other controls and screens in a battle.

The button with one aircraft and a gear is called: ‘Handle CAP and search’. This opens a screen allowing you to set the size of your Combat Air Patrol (CAP = the number of



defending fighters that will patrol over their base or home ship) and the vectors used for search. You can set the search vectors for each division separately. You will probably want to visit this screen immediately upon starting a battle to set your search pattern and CAP as

these activities start up very rapidly. After setting the options on this screen the game handles all the air activities associated with search and CAP, including taking off and landing for CAP.

The lightning bolt button will open the screen for setting up an airstrike, more on that below.

PREPARING AND LAUNCHING AN AIRSTRIKE

Select targeted division or target location

Target: 130855N 47E077E
Range (mi): 47 mi

Priority target: Any
Confirm target location when spotted:
Coordinated strike:

Time at target: 1:26:07PM
Landing time: 1:31:00PM

Type	Role	Mission	#	Loadout	Status	Carrier	Spot	Range	Org used	Org buy	Lt bombs	Med bombs	Strap bombs	T	ASM
Constructores Aeronauticas C.	Light jet fighter	None	13	Unready	13/5/0	V	CV La Cañal	13/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	2 x 1000 lb	-
Constructores Aeronauticas C.	Light jet fighter	Escort	13	Unready	13/5/0	V	CV La Cañal	13/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	2 x 1000 lb	-
Hispano Aviacion HA-270	He	Naval strike	0	Light (L)	0/0/0	V	CV La Cañal	13/5/0	505	493	395	1 x 150	2 x 1000 lb	2 x 2500 lb	H (65)
Constructores GP-Pass GP-263 B	Jet	Ground strike	1	Medium (M)	1/0/0	V	CV La Cañal	13/5/0	509	542	445	1 x 200	2 x 2000 lb	4 x 2000 lb	H (65)
Constructores GP-Pass GP-263 B	Sp	Escort	2	Heavy (H)	2/0/0	V	CV La Cañal	13/5/0	509	542	445	1 x 200	2 x 2000 lb	4 x 2000 lb	H (65)
Constructores GP-Pass GP-263 B	Jet	Racon	3	Special (S)	3/0/0	V	CV Jamaica	0/5/0	505	542	445	1 x 200	2 x 2000 lb	4 x 2000 lb	H (65)
Constructores GP-Pass GP-263 B	Jet	Racon	4	Special (S)	4/0/0	V	CV Jamaica	0/5/0	505	452	370	1 x 200	2 x 2000 lb	4 x 2000 lb	H (65)
Hispano Aviacion HA-270	He	Special (S)	5	Special (S)	5/0/0	V	CV Jamaica	0/5/0	505	0	0	-	-	-	-
Constructores Aeronauticas C.	Light jet fighter	None	6	Light (L)	6/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	2 x 1000 lb	-
Constructores Aeronauticas C.	Light jet fighter	None	8	Light (L)	8/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	7	Light (L)	7/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	8	Light (L)	8/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	9	Light (L)	9/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	10	Light (L)	10/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	11	Light (L)	11/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	12	Light (L)	12/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-
Hispano Aviacion HA-270	Heavy jet fighter (H)	None	13	Light (L)	13/0/0	V	CV Jamaica	0/5/0	500	412	307	1 x 600 lb	1 x 1400 lb	1 x 2000 lb	-

Select the division here

Frenchy Carrier 0
Frenchy Carrier 1
Frenchy Light CV La Cañal
Frenchy Battle CV Jamaica
Frenchy Carrier Division 11

Set up the type of strike, number of planes and type of ordnance by left clicking directly on that parameter.

Spot size is the maximum planes that can be launched as a single strike. In this case, 13 planes have been dedicated to the strike, which could be up to 67 planes.

Strike | Spot details | All strike | All heavy | Aircraft data | Stand down | Ready strike | Select ready | Launch strike | Exit

The button with the lightning bolt is the "Airstrike" button and allows you to select squadrons to prepare and send on strikes.

You can either order an airstrike to ready planes and then launch them in one step, or first ready the planes and then send them out when a target is located. The second method is more risky, as it involves loaded and fuelled aircraft sitting on your carriers, but it also allows a faster strike once a target is located. It also requires more hands on control from the player.

To launch or ready a strike you use the "Set up Strike" screen. First select the originating division. Then select the squadrons to use for the strike by checking the boxes for each squadron on the left. When a squadron is selected it will set default settings for loadout and range. You can see the type of ordnance carried under the 'Loadout' column. The 'Number' column shows you operational / damaged / and destroyed planes in the squadron, while the number of planes assigned to this strike is shown in the '#' column.

To change the settings for loadout, range or number of participating aircraft, right click that value and select from the drop-down list.

A useful button is the "Auto select strike" button. This will automatically select aircraft for a strike with appropriate loadout and escort. It is often convenient to use the "Auto select strike" button and then adjust the details you might want to change.

You can set a target for a strike in two ways. Use the 'Target' drop down list to select a specific target that is known or has been scouted and reported (not always accurately). Alternately use the location button to pick any point on the map as your strike target.

If you have a target selected, you can now click on launch strike, and the selected squadrons will now disappear from the "Set up Strike" screen and will ready, spot on the flight deck (or airstrip) and then fly to the target.

As mentioned above, you can also ready planes even if no target is sighted. The selected squadrons will then ready but not launch until you launch them. Note that having readied aircraft on board will severely increase the vulnerability of aircraft carriers. Hits on carriers with loaded and fuelled aircraft are very likely to lead to devastating fires.

After selecting a target you click the 'Launch strike' button to launch your strike. It will then take about 20-30 minutes to spot and launch your strike (so take that into account when setting your target). The squadrons selected will disappear from the strike screen but you can follow their progress on the 'air formations' screen. Once the squadron is completely spotted the planes will take off and fly to the target.

When the planes arrive at the target they will launch an attack and then return to their base or carrier. If they cannot find a target to attack they will search the area for something to attack until they run low on fuel and then return to base. The status of these various activities can be monitored on the 'air formations' screen for each squadron. You will also see a small red icon



moving on the map that represents the approximate location of the squadron. Zoom in far enough and you can see small aircraft icons and a label with the type and number of planes in the strike (there will never be more than three aircraft icons, even if the strike is larger).

Like ships, aircraft icons are oversized on the map). You will get notifications on screen when an air attack is about to start and then notices in the 'Log' tab detailing the action.

SUPPLY OF TORPEDOES AND MISSILES ON AIRBASES AND CARRIERS

Some weapons carried by aircraft were bulky and in limited supply, especially on aircraft carriers but also on airbases. The weapons limited by this in game are anti-ship missiles, torpedoes and guided bombs. The number of missiles is also limited in the early missile age to reflect the relative scarcity of these new and complicated weapons.

Each time you ready a strike, the number of torpedoes and/or missiles on the carrier will be lowered by the number carried by the aircraft. If there are none left, the aircraft can still carry bombs.

Once it has taken off, a strike that does not find anything to attack will jettison the weapons load. This means that torpedoes and missiles carried will be lost.

Ready aircraft that have not been launched and are stood down will return their weapons to the store.

DAMAGE TO AIRCRAFT

Planes can be involved in air-to-air combat and can suffer losses to enemy AA. Planes will also suffer a fair amount of operational damage. You can monitor the damage status of your squadrons on the Air formations screen in the # column. Some damaged planes at bases or on a carrier will be automatically repaired or judged unreparable and marked destroyed.

AIR COMBAT

Defending fighters on Combat Air Patrol (CAP) will attempt to engage incoming strikes. The chance of CAP intercepting incoming aircraft is tied to technology, mainly radar and fighter direction technologies. In the 1930s it can be common for a strike to hit a target without being engaged by CAP, but later CAP can be quite deadly to strikes.

Escorting fighters will attempt to engage enemy CAP and prevent them attacking aircraft they are escorting. Providing a strike with an escort will considerably enhance its ability to withstand enemy CAP.

The air combat capabilities of an aircraft are based on its attributes, speed, firepower, manoeuvrability and toughness. These will also affect the ability of the aircraft to survive to AA fire.

Jet aircraft will be considerably more deadly than propeller aircraft. Also, propeller aircraft will be vulnerable to radar directed AA systems that are developed in the post 1940s period. Torpedo bombers in particular will be chewed out of the sky when attacking ships with modern AA systems.

CARRIERS IN BATTLE

Your carriers will turn into the wind and go to their highest speed when launching or landing planes. This occurs automatically and cannot be interfered with by the player. (You will need to be aware of wind direction and where these manoeuvres will take the carrier if it is near the enemy.)

Carrier divisions have some restrictions on the type of role they may be assigned. Carriers on Support role for carriers will send 1/2 of any fighters it has assigned to CAP to fly a distant CAP over the division being supported.

You will want to be careful about sending your airplanes on missions that force them to land at night. That will cause heavy operational losses. Inclement weather can totally shut down your air operations and it can change rapidly. The AI will send strikes against your ships so be wary of venturing close to enemy airbases or carriers.

At the conclusion of the battle there is detailed information available about aircraft losses and damage inflicted by aircraft.

FLOATPLANES AND HELICOPTERS

Floatplanes and later, helicopters, can be launched by any ships equipped with them. If a ship has catapults, the ship no longer stops to launch a floatplane." If a ship has

catapults, the ship need not stop to launch a floatplane. Ships without catapults need to stop to launch floatplanes, and also need calmer seas to do so. All ships must slow down to recover floatplanes.

Ships equipped with scout aircraft can be useful in battle, as floatplanes can scout and search out the enemy. If you have no carriers, they can at least often find the enemy. In a force with carriers, floatplanes can be used as scouts to save the carrier aircraft for airstrikes.

In the strategic turns, ships equipped with floatplanes or helicopters will be more effective as raiders. They will also be more effective at hunting raiders.

In preferences you can set what method to use for floatplane launch. On automatic, floatplanes will be launched according to the current search plan for the force, as selected by the player in the "Routine air ops" screen.

If "Ask" is selected, the player will be asked to confirm floatplane launches, but otherwise it works like automatic.

On manual, the player must launch all recon floatplanes or helicopters manually via the strike screen.

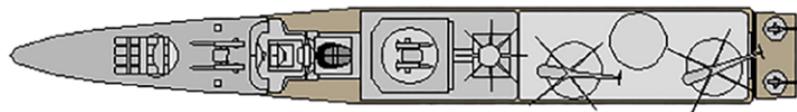
Ships will always ask before slowing down to recover floatplanes.

Land bases and aircraft carriers will always launch search planes automatically according to the current search plan for the force (which can be set to no search, if you want to preserve the aircraft for strike missions).

At the beginning of a battle scenario, aircraft on recon missions can be launched immediately without waiting for readying and spotting. This simulates that a search plan has been arranged before the scenario starts.

Floatplanes and helicopters can be sent on strikes, just as other aircraft, but the most common usage is for recon.

Helicopters carried on AV (helicopter carriers) will act in the same way as floatplanes in recon role, spreading out to cover the search pattern.



Helicopters on other ships will fly out to around 20000 yards and act as local recon. When radar equipped helicopters are developed, ships sighted by helicopters will be sighted by the owning ship as well, in effect extending the radar coverage of the owning ship and enabling missile fire.

Helicopters on recon missions will tend to be wary of approaching enemy ships too closely, as they can easily be shot down.

MISCELLANEOUS AIRCRAFT RELATED ITEMS

ELITE PILOT TRAINING

This gives an elite corps of well-trained pilots. However, the system is more effective in peacetime and hard to keep up in wartime.

PILOT FATIGUE

After pilots have flown two missions they will be fatigued. This is shown by an (F) in the squadron list in the setup strike screen. Pilot fatigue will affect air to air combat and attack accuracy. Fatigue is computed as an average for all pilots in the squadron. CAP and recon also generates fatigue, but at a lower rate than attack missions.

AIR SEA RESCUE

This increases the survival chances of pilots. It helps mitigate adverse effects on pilot experience from aircraft losses.

SUPER HEAVY AA SHELLS

Once these are developed, they can be used to give some AA capability to heavy (> 6 in) guns of ships. You select their use in the doctrine screen. Using super heavy AA shells will lower your available ammunition by 10%.

To represent the doubtful value of these shells in real life, their effectiveness is randomised and highly variable from game to game.

RADAR

Radar is divided into search radar and fire control radar. Search radar makes it possible to detect other ships in poor visibility. Radar detected ships will show as greenish outlines on the map. Early search radars are unreliable and prone to malfunctions. They are easily disabled by hits or even by own ships guns firing.

Fire control radar improves gunnery accuracy, and from level 3 will allow blind fire, where the target is only spotted by radar.

Once radar is invented, a nation will receive a number of radar sets per month. Radar sets will be automatically installed in ships with priority given to larger ships and ships in the active fleet. The player can manually install radar sets in ships, with the drawback that the ship will be unavailable the current turn.

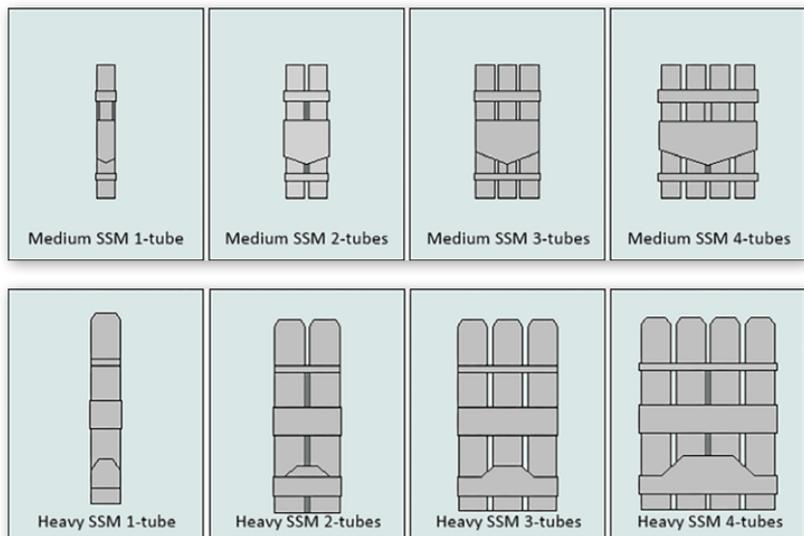
Note: The section below applies to missiles, which will only start to have an impact in the game from circa 1945. If you are a first timeplayer you can stop reading here and revisit the manual when your game reaches the time period when missiles appear.

MISSILES

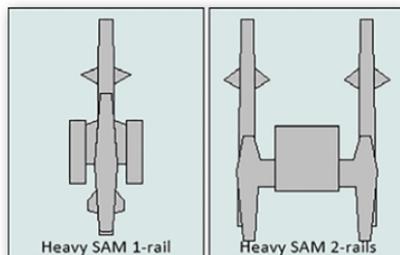
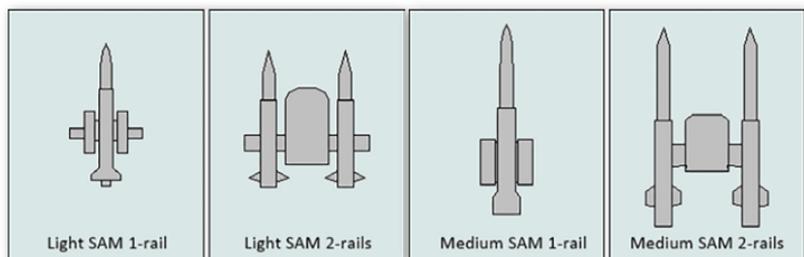
GENERAL

Missiles are of two general types, Anti-ship missiles and anti-aircraft missiles. Anti-ship missiles can be further divided into those launched from ships and those launched by aircraft. The following common abbreviations are used for missiles in RTW.

ASM Air to surface missile (fired from aircraft at ships)



SMS Surface to surface missile (fired from ships at ships)



SAM Surface to air missile (fired from ships or land bases at aircraft)

In the game, ASM and SSM work more or less in the same way, the main difference being the launch platform.

Missiles are further divided into three categories, depending on size and

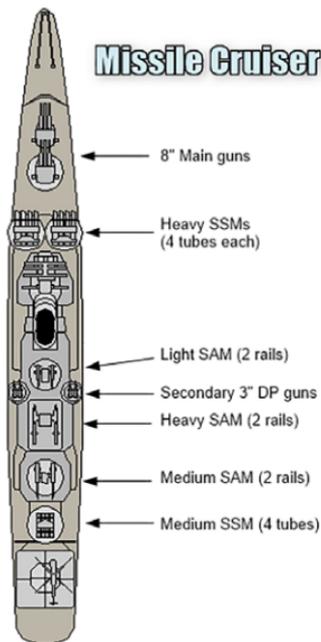
range, Light, Medium and Heavy, abbreviated L, M and H.

Thus a heavy surface to air missile would be abbreviated HSAM in game.

The exact classification of existing missiles can of course be subject to debate, but below are some examples of "typical" real world missiles that would correspond to the classifications used in game:

- ▲ Heavy SAM: Talos.
- ▲ Medium SAM: Terrier or Seaslug.
- ▲ Light SAM: Tartar, Seacat.
- ▲ Heavy ASM: He-293 or KS-1 Komet.
- ▲ Medium ASM: Exocet.
- ▲ Light ASM: Maverick.
- ▲ Heavy SSM: P-15 Termit.
- ▲ Medium SSM: Exocet. Harpoon
- ▲ Light SSM: Penguin or early Gabriel.

Heavy missiles have longer range and can be launched from farther away. They also cause more damage. On the other hand, they take up more space. Heavy ASM can only be launched from larger aircraft.



Medium anti-ship missiles are faster and somewhat more difficult to shoot down than heavy anti-ship missiles.

With the progression of technology, medium and heavy SAM missiles will get a secondary anti-surface capability. This can be advantageous, as SAM systems usually have plenty of reloads and relatively fast reload times, while SSM have limited numbers of reloads and are slow to reload. The range for SAM missiles in anti-surface role is limited to horizon range however, as these missiles did not have the ability to autonomously hit moving surface objects.

Designer's Note: Missile development in the real world included a number of projects in the later part of WW2. With the end of the war, the need for missiles capable of attacking heavily armoured warships disappeared and many projects were cancelled. In the RTW world, it is likely that armoured warships will continue to be present, and it is assumed that missile development would have felt more urgent than was historically the case. Therefore in RTW some technologies that never matured, like missile borne torpedoes or diving missiles, are available.

SHIP DESIGN AND MISSILES

In the design screen, you can add missile systems to your ships in much the same way as main turrets and torpedo mounts, using the same weapons positions. For AA missiles, facing is not important. SSM mounts are limited by facing. Note that heavy SSM in positions F and G will have a more forward facing firing arc than corresponding gun turrets.

Heavy SAM systems are very large and they and their guidance systems take up considerable space aboard ships. They have the advantage of very long range, and can engage and destroy aircraft that are not directly threatening the launch platform.

Note that SSM have a reasonable weight and do not have a very large topside cost. SAM missiles on the other hand, are quite costly in tonnage and use up lots of topside space, and require a large crew to operate them.

MISSILE STORAGE

Having large amounts of missiles in storage is expensive. To reflect this in game, once you reach the missile age, you can select between three levels of peacetime missile storage, minimum, adequate and plentiful, with varying levels of cost. On the two lower levels, there will be a risk of missile shortages during the first 18 months of a war.

LAUNCH AND ANTI-AIRCRAFT SEQUENCE

The various types of AA systems and methods of attack will interact in a sequence when a ship is attacked by aircraft. In the table below you can see in which sequence various attack types and AA weapons fire. AA weapon systems marked with a * will have an effect against air attacks on all ships near the firing ship. Light and medium AA guns will only affect aircraft that attack their own ship.

theatre will be able to fire, depending on your technology level. Thus, a missile salvo can include missiles from surface ships, coastal missile batteries and missile submarines. Missile salvos can be launched both against sighted ships and against reports of more distant enemy ships, if the missiles have the range. The latter method is of course less precise and hits will depend on the reported ships being where they are predicted to be.

The missile fire orders determine the amount of missiles that will be fired. Ripple means single missiles will be fired. Half means that half of all loaded tubes will be fired. All means that all available missiles will be fired.

Your technology will determine how missiles can be fired. After cruise missiles and data link are researched, ships can fire missiles at targets observed by other friendly ships, provided they are in range. With improved data link, the accuracy and range of such missile fire is improved.

The firing of anti-aircraft missiles is completely automated, just like AA guns.

DAMAGE FROM MISSILE HITS

Anti-ship missiles are treated in game as very large HE shells with additional sensor, superstructure and fire damage being applied. Some missile types get SAP warheads once the technology is developed, to simulate the large shaped charge warheads used in some missiles.

SPECIAL MISSILES

Some specialized missiles are included in the game based on technologies that were in the experimental stage in the early missile age but eventually deemed not necessary, as large armoured warships became rare as targets. Their effects are somewhat irregular.

The missile torpedo is modelled on the US Petrel weapon. It was an aerial standoff torpedo that was carried by a missile that then dropped the torpedo when close to the target. It can only be launched by MB and PB aircraft in game.

The diving missile is modelled on the Swedish Rb 302/303. It was similar in concept to the bomb torpedo in that it was intended to dive at the last moment and continue through the water to hit the target below the armour. Damage effects are as for a light torpedo.

AA GUNS IN THE MISSILE AGE

With technological advances, medium AA guns can be upgraded to radar controlled MAA. These will have much better capabilities against jet aircraft, and some ability to engage incoming missiles. They use much more space than earlier MAA, but they will be worth it. Old style MAA is not very effective against jet aircraft and ineffective against missiles.

When radar directed MAA becomes available, large numbers of MAA are not needed. More than 4 radar directed MAA on a ship will give diminishing returns, and more than 8 is (more or less) redundant.

Similarly, LAA can be upgraded to Close in weapons systems (CIWS) that have an ability to shoot down incoming missiles. These also use much more space than previous



LAA, but by this time the old WW2 style massive LAA batteries will be of limited effectiveness.

Like radar directed MAA, CIWS are not needed in large numbers. More than 6 on a ship will tend to be redundant, and 4 will usually do the job.

QUESTIONS AND ANSWERS (Q&A)

How do I select torpedo type for my ships?

Torpedo quality is dependent on research. Your ships will always have the latest torpedoes that you have developed, and old ships will be automatically upgraded. This means that as heavier torpedoes are introduced, the weight of torpedo tube installations go up with time.

Why is there no oil in Borneo/Libya wherever?

The oil fields in the game are those that were in or came into production in the early years of the 20th century. Many well-known oilfields today were not discovered at the time of the game.

Why is not Grenada/Easter Island/Bali a possession in the game?

The possessions in the game are there to represent important pieces of territory for naval purposes or colonies that needed some form of naval presence. However, there is no attempt to include every island or minor colony in the game. That would just clutter up the map to no purpose, so a selection has been made where those that figured prominently one way or another has been included.

How do I break a blockade?

Blockade status depends on the force ratio in a nations build area. You must whittle down enemy strength or add more forces in your home area until the force ratio has changed enough.

Why do I get my worst ships selected for a battle? Why is my force structure so idiotic? Why can't I select the ships I want for the battles?

The battle generator is made to put the player in various situations that can arise in real life. Real admirals seldom had the luxury of fighting with the ideal forces they would like to have. Some of the best ships might be in dockyard, off refuelling or have suffered a mechanical breakdown. There are lots of examples of the least modern ships in a navy having to fight battles, and the game seeks to simulate those situations too.

You can define permanent formations in the game, and these will have the function of ensuring that ships placed in the same formation will most often fight together.

PLAYER NOTES AND TIPS

One of the first things you must be aware of is that technical development in the game is fast, especially so in the first and last parts of the era covered. As the build times of ships are several years, this means that many ships will be obsolete by the time they are in service. This might be frustrating at first, but it affects your opponents as well. You will have to learn to live with it.

Once you have realized this, the temptation is to put off building new ships until you have researched better technology. The problem with that is that the Navy League or Kaiser will demand ships for national prestige, and a foreign policy crisis might arise much faster than ships are built, leaving you with insufficient forces. As ships take a long time to build, you will have to fight with the navy you have when war breaks out.

You should try to think of the role and context in your navy when designing a ship. Take cruisers for example. If you have a nation with widespread colonies and interests around the world, you might consider a colonial cruiser. This would be equipped for colonial service, it would probably be best to optimize engines for reliability, and you would want it to have long range. That will cost weight, so it probably won't be very fast, but, we'll get a sturdy workhorse that can show the flag in the colonies and still be useful when war comes to chase down raiders.

On the other hand, there might be a need for dedicated fleet cruiser as a scout for the battle fleet. High speed is desirable, of course, but we can live with cramped accommodation and short range, as it will only be operating in home waters. We can even be bold and optimise engines for performance, accepting the risk of the occasional breakdown. This is the opposite of the workhorse above. Here we have the temperamental racehorse, optimised for one mission, but sensitive and picky.

Yet another cruiser type might be the raider. We would want reliable engines to be able to operate for long time away from friendly bases, and long range is desirable. Speed should be enough to avoid heavy enemy patrolling ships, but we could build her strong enough to defeat what she cannot run from.

These considerations are similar for larger ships. If you are playing Austria-Hungary for example, you have no colonies and no interests outside the Mediterranean. You can go for smallish battleships with low range, cramped accommodation and low freeboard, thus saving weight to make them compact but capable. Keeping down the displacement keeps down costs, so you can build more of them, and you will hopefully be able to fight an opponent with far larger resources but with worldwide obligations that requires him to equip ships for service anywhere in the world.

There are some specialist ships that you should not neglect. The lowly 400 ton corvette is actually an essential unit in any navy. It can patrol the coasts against submarines and its presence in an area will reduce the risks of mine strikes for larger ships. Having a decent number of small corvettes avoids having to use destroyers as ASW patrols, which could denude the battle fleet of destroyers.

Another ship to consider for nations with large colonial interests is the colonial gunboat. This will be a corvette with 1500 tons displacement or so, equipped for colonial service. This makes it good for fulfilling obligations to have tonnage on foreign stations, freeing up cruisers. If equipped with a couple of 5 or 6 inch guns, it can even put up a fight against a raiding light cruiser.

APPENDIX 1

SHIP TYPE DEFINITIONS USED BY THE GAME

These are the definitions used by the game for defining ship types. Anything falling outside these parameters is considered an illegal ship type. The reason these type definitions must be enforced by the program is that the AI relies heavily on ship type for decision making. It also prevents players from building unrealistic ship designs.

These ship type classifications in the game tend to be somewhat undercut by historical developments in the post WW2 era. In the real world, destroyers become very large after the 1950s. Ships are sometimes classed as light cruisers and sometimes as destroyers, even though they are of similar size. And today we have navies that designate ships that are larger than a predreadnought battleship as destroyers (no names mentioned). Thus, some ships that are classed as destroyers in the real world will be light cruisers in the game.

DESTROYER (DD)



Displacement less than 2000 and speed more than 19 knots. A destroyer must have torpedoes and cannot be armoured. Destroyer maximum displacement will change in game depending on your technological progress. In the late game destroyers can be up to 3800 tons.

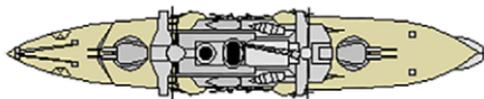
LIGHT CRUISER (CL)



Displacement larger than 2000 and less than 8000. Speed must be more than 16 knots and main gun calibre cannot be larger than 6 inches. (Exception: Protected cruisers can have guns in single mountings up to 8 inches). The maximum displacement of a light cruiser will increase later in the game.

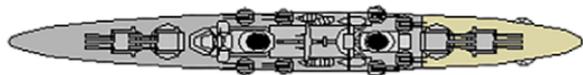
In most of the game light cruisers must have armour, but in the late game with research of the missile cruiser technology, you can build light cruisers without armour.

PREDREADNOUGHT BATTLESHIP (B)



Displacement must be at least 5000 and it must have belt armour at least 6 inches. Main gun calibre must be larger than 6 inches and speed less than 20 knots. It cannot have more than 2 main turrets.

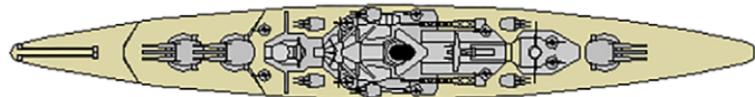
ARMoured CRUISER (CA)



Displacement must be more than 4000 and speed greater than 19 knots. It must have more than 2 inches of belt armour but no more than 12 inches. Main guns must be at least 6 inches calibre and cannot be more than 11 inches.

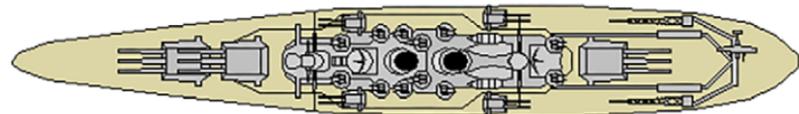
In the 1920s, the Armoured Cruiser will morph into the Heavy Cruiser, using the same CA designation.

BATTLECRUISER (BC)



Must have main gun calibre larger than 10 inches and speed more than 23 knots, or three main gun turrets and speed more than 21 knots. In some borderline cases armour thickness can be the difference between a BC and a BB. Note: The speed requirement for a ship to be defined as a battlecruiser rises with time, as fast battleships develop.

DREADNOUGHT BATTLESHIP (BB)



Must have at least 3 main gun turrets, displacement over 8000 and belt armour of more than 6 inches. Main guns must be more than 10 inches.

CORVETTE (KE)



This definition includes all kinds of minor combatants without torpedoes.

Displacement less than 2500 and belt armour 2 inches or less. Gun calibre can be maximum of 6 inches. Cannot have torpedoes.

Corvettes of 500 tons displacement or smaller are assumed to be civilian trawlers and similar craft impressed for wartime duties, and can only be built during wartime. They can be built quickly if you find that you rapidly need ASW or minesweeping craft. They will be automatically sold off after a war, like AMCs.

ARMED MERCHANT CRUISER (AMC)

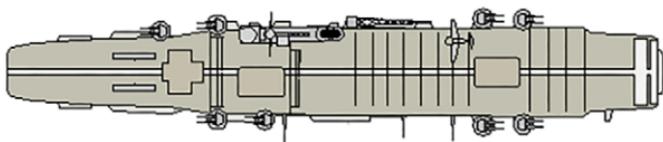


Displacement more than 1700, no armour and gun calibre no more than 6 inches. You may

build up to two armed merchant cruisers in peacetime. This is to simulate auxiliaries, minelayers or civilian ships prepared for rebuilding to warships (carriers or seaplane carriers for example). After a war, all AMCs will be automatically sold off to civilian shipping companies.

In the game, each nation can build up to two fast AMC with speed up to 25 knots. These can be used as fast raiders or as candidates for carrier conversion. The limit of two is set as the number of suitable liners for conversion is assumed to be limited.

AIRCRAFT CARRIER (CV)

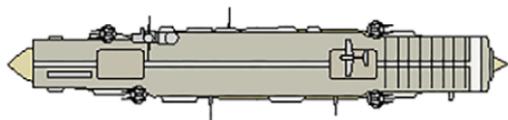


A full size aircraft carrier must have

an aircraft capacity of more than 34 aircraft. The maximum displacement of an aircraft carrier will increase over the game and depends mainly on your technology in shipboard

aircraft operation. The invention of super-carriers (ship design) will substantially increase the maximum size of carriers.

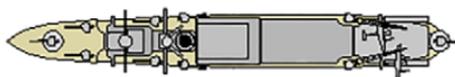
AIRCRAFT CARRIER, LIGHT (CVL)



A light aircraft carrier must have an aircraft capacity of at least 4 aircraft and can carry no more than 34 aircraft. It can

have a maximum displacement of 16 000 tons (this does not apply to conversions of other ships to CVL).

SEAPLANE CARRIER (AV)



Initially, small seaplane carriers are developed. They can carry three or four aircraft and must

be less than 5000 tons displacement. When large seaplane carriers are developed, a seaplane carrier can be up to 14 000 tons.

With the development of helicopters, AV type ships can also be built as helicopter carriers. An AV equipped with a helipad will carry helicopters instead of floatplanes.

APPENDIX 2:

EXPLANATION OF VALUES USED IN SHIP DESIGN

Below is a fuller explanation of how to use the ship designer and the meaning of the different data fields. Note that some features can only be used when researched.

- ▲ **Class name:** A unique name that distinguishes the class. This is used as filename when saving the class.
- ▲ **Enemy class name:** This is the name that the enemy will be told in scenarios. Generated by the program.

- ▲ **Misidentified class name:** This is the name the enemy will be told if they have misidentified the ship generated by the program.
- ▲ **Displacement:** Standard displacement of the ship in tons.
- ▲ **Belt:** Belt armor in inches. Note. The program assumes that the belt is thickest in the center of the ship and at the magazines, and thinner at the ends.
- ▲ **BU:** Upper belt: Upper strakes of belt armour protecting the upper parts of the hull.
- ▲ **BE:** Belt extended: Armour protecting the ends of the ship, steering machinery and boiler uptakes.
- ▲ **D:** Deck: The main armour deck of the ship.
- ▲ **DE:** Deck extended: Corresponds to BE above.
- ▲ **T:** Main gun turret and barbette armour.
- ▲ **TT:** Turret top: Roof of main gun turret.
- ▲ **SEC:** Secondary gun armour.
- ▲ **CT:** Conning tower armour.
- ▲ **Belt coverage:** Can be used to denote narrow belt in classes with narrow belt coverage.
- ▲ **Speed:** is the maximum designed speed of the ship.
- ▲ **Torpedo defence:** The level of torpedo protection the ship has.
- ▲ **Fire control:** The fire control equipment. This is important for the gunnery accuracy of the ship, especially at long range.
- ▲ **Fire control positions:** This is the number of fire control positions on the ship. The reason to have more than one is redundancy. Fire control positions are fragile and can be shot away.
- ▲ **Main gun calibre:** Rounded to inches.
- ▲ **Increased elevation:** Will give extra range to the main guns.
- ▲ **Gun quality:** This is the gun quality of that calibre. It is given by your research and cannot be changed. Gun quality affects range and penetration, and for some older guns, rate of fire. It can vary between -3 (short barrelled old guns, slow to reload) and +2 (an excellent gun with good range and penetration).
- ▲ **Cross deck fire:** Check this if the guns of the wing turrets in positions F, G, K, or J should be capable of cross deck fire, like in for example the historical Indefatigable or Kaiser classes.

APPENDIX 3

SHIP SIDE VIEWS

You can optionally designate a picture for your ship designs. Pictures to be used should be placed in the save directory for the game (Save1, Save2 etc) under the 'RTW\Save' directory. Pictures for ships should be 640 x 160 pixels and in jpg or bmp format.

You can change the picture for an existing ship class by using the change picture function on the popup in the main ship list.

There is also an option to automatically generate a ship picture and add detail. This can be done via the generate picture function on the popup in the main ship list, or from the graphics step of the ship design screen.

USING THE SHIP PICTURE GENERATOR

The ship side view generator is optional to use. It is a way of generating nice side views of your ships.

Select the set of ship elements you want to use. Originally there will be only one set, but graphically gifted players may make their own and add for example lighter or darker versions or even camouflaged sets.

First select the background you want and then the type of bow and stern etc and press "Generate" to generate the hull. You can change your settings and redo the generation any number of times. When you are satisfied, go to the next tab to place superstructure and details. Note, you should not redo the hull generation once you have started placing details.

To place a ship element on the ship, click on the element and then move the mouse over the ship. Click again where you want to put the element. Ship elements should be placed in the order from left to right, that is start with masts, then decks, then superstructure and last accessories.

To fine tune placement, after moving it to the right area but before clicking on the ship picture, use arrow keys to move the element one pixel at a time, finish by pressing return.

Masts, decks and superstructure will be shown behind hull and turrets. That means that you can regulate the height of masts or superstructure by sinking them into the hull. Accessories will be shown in front of everything else. Use the deck panels under accessories to connect raised decks to barbettes, to make them show in front of the barbettes.

When you are finished, select use and exit and your picture will automatically be assigned to the selected ship class. You can check it by double clicking on the ship in the ship list.

The output is a bitmap that will be stored under the save directory of the current game. It will be named Classname + NationNumber + .bmp. If you want to make some adjustments or improvements to the finished picture, you can do so in any picture editor.

APPENDIX 4

HOTKEYS IN TACTICAL BATTLE

1-9: Runs the game that many minutes.

Enter: Runs the game until paused

Space: Runs one minute

<: Runs game 5 minutes if in contact with enemy, 60 minutes if not in contact.

P: Pauses and unpauses game

Z: Zooms map out

Pg Up: Zooms map out

-: Zooms map out

X: Zooms map in

Pg Dn: Zooms map in

+: Zooms map in

F: Zoom to view all ships

C: Increase game speed

V: Decrease game speed

A/S/D/W: Scrolls map

Mouse wheel: Zooms the map

HOTKEYS IN SHIP IN SERVICE TAB

F: foreign stations

A: active duty

M: move command

D: select all ships in the division, and all ships in subordinate divisions

T: trade protection

HOTKEYS IN SHIP DESIGN GRAPHICS

S: snap angle (45° degree)

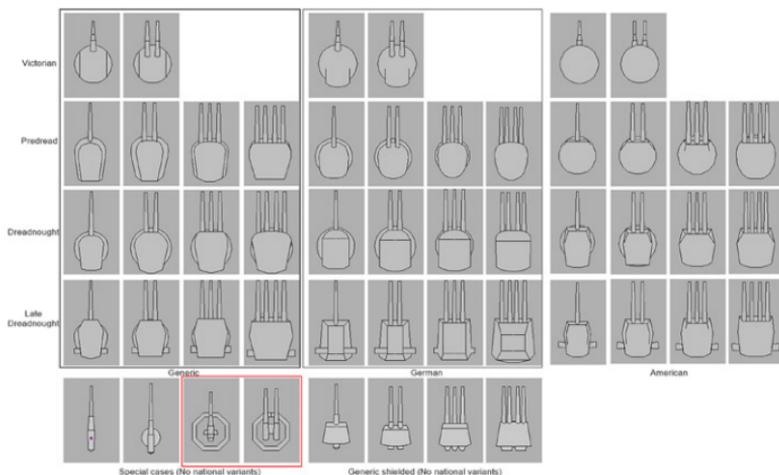
D: delete last point

CTRL: hold to show alignment lines

ALT: force placement on ship centreline

APPENDIX 5

CREATING TURRET FILES



Here is some additional information about how to create a turret file:

Turret files are drawings that are used by the game to represent the wide variety of guns and gun mounts used by the game's nations over different time periods. Any player can create their own turret files using the rules below. A turret file placed in your local Graphics directory will automatically be used by the game.

THE TURRET FILE NAME

The turret file name regulates how the turret will be used by the game. Let's examine the file name format using the file name XDHT2.tus as an example. Here is a brief explanation with more detail explained below.

X = Nationality (X is a universal design that can be used by any nation. It is the default and will be used if no national version is available.)

D = Era ("D" is for the dreadnought era. The dreadnought era is the default version and will be used if other eras are not available.)

H = Size ("H" stands for a heavy gun.)

T = Turret type ("T" indicates the mount is turreted.)

2 = Number of guns in the mount.

So, this file represents a heavy 2-gun dreadnought era turret that can be used universally.

Turret files are located here: RTW3/Data/Graphics

They have this extension: *.tus

NATIONALITY

This identifier is used to create gun mounts that have a distinct national visual look. If you are drawing a new gun turret it is up to you to make the turret look like a turret from a particular era and used by a specific nation. When its nationality is selected in the "Ship design/Graphics Tab/Turret nation style" drop down list, a turret of the appropriate nationality will be used, assuming there is a turret file available. If there is no turret file with the selected nationality, then a universal mount (X identifier) will be used instead. Note that, when you are designing a ship, there is no restriction on using a particular national turret type - you may use any nation's mounts on your ship design.

List of national identifiers:

A = Austro-Hungarians

B = British

F = French

G = German

I = Italian

J = Japanese

Q = Chinese

R = Russian

S = Spanish

U = American

X = Universal (default) These turrets will be used if no national version is available.

ERA

The era identifier is used to allow different visual appearances for gun mounts over the years. There is no restriction on which era you choose to use for your design. The era only affects the visual appearance of the mount; it has no impact on in-game functionality. In the designer you set the era for this design only in the "Ship design/Guns tab/Turret era" drop down list. The dreadnought era is the default era; if no mount file is available for a particular era, the dreadnought era version will be used.

There are 4 era identifiers. Gun mounts have been modeled for the Victorian era, the pre-dreadnought era, the dreadnought era and the late dreadnought era.

V = Victorian era. These represent ships from the early to mid 1890s.

P = Pre-dreadnought era. These represent guns up to about 1905.

D = Dreadnought era. These represent guns used from the early 1900s through about the 1930s.

L = Late dreadnought era These represent guns from the late WW2 period through the end of the game.

SIZE

This value is used to identify the size of the gun that the file represents.

There are 3 turret sizes.

S = Small guns up to 5".

M = Medium guns from 6" to 11".

L = Large guns 12" and above.

See the note below about sizing your turret drawing.

TURRET TYPE

Gun mounts should be drawn in two variations: shielded or turreted. The game decides when it will use the shielded or turreted version of a gun drawing based on the size of the mount and the amount of armor applied to the turrets in the ship design. There is no specific version of an unshielded gun, though you can certainly draw one if you wish and then identify it as either turreted or shielded in the name.

NUMBER OF GUNS

The last digits in the turret file name indicates the number of guns in the mount, 1 though 4. As with most other parameters, if the game is told to load a mount with 3 guns and there is no version available the game will default to using the universal dreadnought version of a 3-gun mount.

GENERAL RULES

Turret files are located here: RTW3/Data/Graphics

They have this extension: *.tus

SPECIAL CASE TURRET FILES

There are four special case turret files:

XVHS3 is an open top single barbette gun

XVHT3 is an open top double barbette gun

XVHT4 is an unshielded single gun

XVHS4 is used for casemate guns

SUPERSTRUCTURE LAYERS USED FOR TURRETS

When creating turret files, you can use two layers. The game will use any drawings found in layers 5 and 6 for the turret. The color of the drawing may be changed while making the turret, but it will always be saved with a neutral graycolor. The color is restricted because the game itself colors turrets to indicate damage or destruction of the turret.

SIZING THE TURRET

The game has a function that automatically resizes each gun based on the caliber of the gun. When drawing guns, you should draw the gun to match the size of a 12" gun. (That is a 6" gun should have similar dimensions to a 12" gun when it is drawn. More specifically, you should probably match the overall length of the gun you are drawing to the length of a 12" gun from the same era. The best way to handle this is to first load a 12 " gun for comparison. My default gun for this purpose is XDHT2.tus. When you make the gun equivalent in size to the 12" gun, the game will resize the gun to the appropriate dimensions when it is loaded into the game.

SPONSONS

Any gun mount may be assigned to use a "sponson" when it is placed on a ship design. For this reason, you do not need to draw a sponson or barbette for your gun mount as these can be added during the ship design process. Visually, a sponson is simply a ring drawn under the gun mount. The intent is to visually simulate actual sponsons that were used to house many light and AA guns; however they can also be used to visually imply the mount's barbette, which was often visible, especially in pre-dreads and dreadnoughts. You can add a sponson during the design process by using a gun mount's right-click menu for a main gun or by simply setting a sponson radius for secondary and tertiary guns. You can set the width of the sponson by using the "Sponson radius" setting on the Guns tab of the ship designer.

APPENDIX 6

OFFICER CHARACTERISTICS

Speed enthusiast: This officer will get that extra knot of speed out of his ship, especially if new.

ROF enthusiast: This officer will get his crew to improve ROF, at the cost of a slight increase in the risk of flash fires, as he is prone to overlook safety measures in the quest for higher ROF.

Gunnery expert: This officer will improve the gunnery of his ship.

Torpedo expert: This officer will improve torpedo firing of his ship.

Disciplinarian: This officer goes by the book. His crew will improve relatively fast, but attention to rules and regulations will stop the crew from becoming really good.

Music lover: This officer will put much effort into improving the performance of the ship's band, which can have its advantages and disadvantages.

Sportsman: This officer loves sport, and will put much effort into the physical fitness of his crew.

Lucky: This officer will somehow evade many critical hits to his ship.

Aggressive: This officer will take a more aggressive stance than most of his colleagues.

Timid: This officer will take a more careful stance than most of his colleagues.

Well connected: This officer has connections in high circles. He will be more costly to remove or reassign.

Wily: This officer is a master of evasive tactics. He will reduce the chance of his ship being hit.

Poor Admin: Ships under this officer are more likely to miss signals or get lost in battle.

Poor shiphandler: More likely to get into collisions or other mishaps.

Loose cannon: You never know what this officer will be up to. He may perform brilliantly or poorly, and may get into all kinds of trouble.

Good administrator: Reduces maintenance cost of his ship.

No connections: This officer lacks connections or patrons, and will get promoted more slowly.

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