

# SUPREMACY AT SEA

## USER MANUAL



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NAVAL WARFARE SIMULATIONS

# **Supremacy at Sea - WW2 (v1.1)**

## **User Manual**

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*Note: Complete help is also available in-game, via an indexed full help guide as well as context help pages. These help pages are fully hyperlinked. This manual is a hierarchical structuring of the main help pages, and is provided for those players who like to refer to a printed manual. It is not a replacement for the in-game help, which many users may find more convenient to use.*

*The moral is: please do not be discouraged by the apparent size of this manual. The in-game help is designed to simplify things by presenting you with the help you need when you need it.*

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# Overview

SAS re-creates the drama of conflict between the Great Naval Powers of World War 2: the United States, Japan, Great Britain, Germany, Italy and France.

A campaign is played out between any two of these countries, although, in a feature added in version 1.1, you can also support the efforts of either or both sides by nominating any remaining countries as allies. (See [making alliances](#)).

The theatres include the Pacific, Atlantic and Mediterranean. By selecting from campaigns provided or creating your own – varying the countries, theatres and other parameters - you can play an endless variety of historical or hypothetical wars. See [available maps](#) and [creating campaigns - an overview](#) for more information.

As your country's Supreme Naval Commander, and the Supreme Theatre Commander in the selected theatre, you have full control over naval resources and considerable control over aircraft and troops as well.

You play for nothing less than ultimate victory or defeat. And you also play for posterity, to be remembered as the greatest Admiral of all. Your chosen opponent - another player or the computer - is playing for the same goal.

This is a game that can be played at all levels: strategic, operational, and tactical.

You make the biggest decisions: what ships to build, infrastructure and technologies to develop, aircraft to construct and troops to raise. Then you plan the operations that determine their deployment and rules of engagement. And as if this were not enough, in response to *hourly* reports on enemy forces, you can change fleet courses and speeds and rules of engagement, as well as air strike targets and payloads.

When surface battles occur, re-playable footage shows your ships in action as they follow your rules of engagement and fight shell by shell, torpedo by torpedo. All targeting, damage effects, flooding and ship movement are re-calculated by the minute.

Naval missions include convoys, amphibious assaults, shore bombardments, offensive and defensive patrols, blockades and interdictions, mine-laying and sweeping, and reconnaissance.

Naval forces include battleships and battle cruisers, heavy and light cruisers, destroyers, destroyer escorts, corvettes, submarines, and fleet and escort carriers. The ships are historical but include some planned but never completed – like the USS Montana. Best of all, with just a few mouse clicks you can modify them or create your own, setting size, gun calibre and number, armour, speed, range and so on. There are over two million design possibilities. Build battleships up to 130,000 tonnes that dwarf the Yamato and equal the biggest battleship ever conceived (by Germany, in its ‘Z’ plan)! More modestly, why not remedy some deficiencies? E.g., as the British player, you could up-gun the King George V class. The choices are endless, but you are always in charge.

Troop units range in size from company to army group, and have varying levels of equipment, mechanization, training and morale, thus covering the range of possible fighting capabilities.

Over 400 actual classes of carrier and land-based aircraft are available, including the main jet aircraft from late war and up to the late 1940s. By developing aircraft technology aggressively you can take earlier advantage of these superior aircraft. Aircraft characteristics that are modeled include firepower, bomb load, ASW detection and attack capability, maximum speed and cruising speed, endurance, ruggedness and maneuverability, plus special abilities such as carrier, night fighting and dive-bomb capable.

Behind everything lies the grim reality of your war economy, which must be sustained through production and trade. Everything has a cost. SAS models real-world constraints on your ability to wage war and in the process simulates the need to run convoys to maintain your industry, or supply your naval bases and troops in the field. (See [the economic model in SAS](#) for more information.)

Yet this rich game play never sacrifices playability. You are ably assisted by a 2-I-C of your choice, a legendary Admiral. For example, as the American player, you can choose a Spruance, King, Halsey or Mitscher, who range in approach from very cautious to very

aggressive. With a click of the mouse he can make any decision for you – such as designing your whole navy, planning a whole turn's operations or managing your budget. This frees you to concentrate on handling just the areas you are interested in or want to manage.

## Simultaneous turn-based action

SAS is a turn-based simulation with a difference. The moves of both sides are calculated simultaneously, instead of one after the other as in most turn-based games. This allows for 'real-time' events and tactical responses on an hourly basis, giving SAS more realism and a genuine tactical dimension. In this way, SAS has elements of real-time strategy whilst remaining turn-based to properly allow for deep strategic play.

## The strategies

As Supreme Naval Commander, you take the big decisions. What sort of navy do you want? Big-ship heavy, balanced, or centred on the small ships - fast torpedo armed ships and submarines?

What sort of ship characteristics do you want - raiders for fast, long range hit-and-run operations; or slower, well armoured ones that can defend as well as attack?

How large a merchant fleet do you need – for trade and for transport of troops and supplies?

How many and what kind of troops do you need to raise for defensive and offensive operations? How many and what types of aircraft?

How much do you spend on other assets - port infrastructure and industry, naval intelligence, fleet training or technology, and what research priorities do you set for technology R&D?

The options are endless but your resources are not, so trade-offs are necessary.

To help make these big decisions, you - and your opponent - has a default strategy: either very aggressive, aggressive, cautious or very cautious. The strategy is set during campaign creation but can be modified any time during game play. The strategy helps your 2IC make coherent decisions on your behalf in many many areas - from choosing the best aircraft, ship and troop types to construct or raise and the most effective infrastructure to build, to the most appropriate mix of fleet deployments and tasks to create. You can override any of your 2IC's decisions; but at least you know that his efforts will be a rational attempt to implement your overriding strategy. (See [strategies](#) for more information.)

## The operations

You also plan the big operations. What do you want to concentrate on? Protecting the precious convoys vital to your economy, or that transport troops or the supplies they need; running offensive sorties deep into enemy territory; bombarding enemy ports; mounting amphibious assaults; conducting offensive or defensive patrols by surface ships and submarines, or mine-laying and sweeping in home or enemy waters?

These operations should be in mind when you design your ships, so that you have the capability you need. Then you assemble the ships into fleets and give them their orders.

If all this sounds daunting, remember that you can delegate key decisions to your 2-I-C and keep just the areas you want to handle. Playing the game can be as simple as you want. You can grow your areas of command as you get more experience. (See [how to deploy ships](#) for more information.)

## The tactics

SAS is predominantly a strategic and operational simulation. Nevertheless, very important tactical play is also supported.

You have complete freedom every hour and in response to the unfolding situation, to:

- Order the movement of your fleets (either to set points or to intercept, follow or avoid nominated enemy)
- Control the return to base of ships that are too damaged or low on fuel or ammunition.
- Control the degree of risk they will voluntarily accept.
- Control the targeting and profile of air strikes.

During surface battle, the movement and targeting of ships is controlled via the Rules of Engagement (RoE) which you gave them. The RoE are very flexible and allow you to set up fleets for pure reconnaissance, for light raids intended as nuisance value or for full scale fleet actions.

The RoE very effectively help your fleets to maximise or minimise damage - as desired - because each surface battle is calculated according to sophisticated rules that track the movement, orders, and battle condition of each ship. Every shell and torpedo hit is calculated. Minute-by-minute records are kept of damage to main turrets, superstructure, fire control, bridge, fuel spaces, machinery spaces, main magazines, and progressive flooding and leaking from underwater belt hits and torpedo hits. Ships make decisions to open, close or maintain the range based on their orders and their condition.

All the action is re-playable shell-by-shell in the special battle viewer. Even so, for those grognards who need to be ships' captains as well as 6 star Admirals, a future release of SAS will support tactical control of surface battles.

You also have significant direct and indirect control of air strikes: setting policy preferences affecting how your 2IC prioritises targets and sets numbers of aircraft; and you can nominate airfields and carriers for closer control, changing targets and amending strike compositions and bombloads.

See [tactical play options](#) for more information.

## The game-play

You play by making key decisions for each game turn and then letting the computer calculate the result, taking into account the enemy decisions that are executing in parallel.

During calculation, all fleet movements and events of significance are shown on the map as they occur. You can respond to enemy fleet sightings by accepting or amending emergency fleet response orders. After the turn is calculated, you can replay the whole turn and watch it all again, including watching full action replays of all surface battles.

Your opponent can be the computer, or another player via “hot-seat” play or play by email. (See the [Play By Email](#) help file for more information).

## Map scales

A campaign theatre of action can be small scale – on a small Mediterranean-sized map, or it can be much larger – similar in size to the Atlantic or even Pacific theatres.

To allow varying size maps to be displayed without map hexes becoming too small, the size of the map hexes themselves can be of varying size - from 48 nautical miles across, for small maps like the Mediterranean, to double that size for the Pacific and Atlantic.

## Campaign "size"

A campaign may commence with navies of any size: from very small, through to enormously big navies of nearly 3 million tones - with 30 or more battleships and carriers, 50 or more cruisers, and hundreds of escorts and submarines. Then, growth during the war may multiply these numbers several fold again, so you can end up commanding extremely large navies indeed. The only artificial limit to the size of the navies you can have is your computer's memory.

## Playability



Irrespective of the theatre scale and number of ships, making your decisions for a single turn can take as little as a few minutes - if you let your 2-I-C help you as much as possible. Or you can choose at any time to exercise greater hands-on control.

SAS can therefore be either a 'beer and pretzels' game, playable easily in a single sitting, or a seriously challenging game played over a longer period. The time taken will reflect how much of the decision-making you are doing, how big the game is and how easy are the starting odds.

## Wining and Losing

The odds you face are set when a new campaign is created. Each country has historical strengths and weaknesses. But these characteristics can be varied to make a harder or easier game.

Though an easier game is recommended for beginners, a harder game is more rewarding and - just as importantly - if you do well, your place in history will shine even brighter.

The game calculates your performance annually based on your relative economic success and the starting odds. In a difficult game, your mistakes are more forgiven, your victories more praised.

A campaign can be played for as long as you want until a forced end occurs.

All campaigns must end when the year gets to 1950. (Beyond that, technology changes made WW2 style naval weapons and combat outmoded).

A forced end can also happen earlier, based on your performance. In January of every year (except the first) your performance vis-à-vis the enemy is reviewed. Your Situation Report includes extra information about the enemy economy. This data is evaluated by your country's leader. He assesses the growth you have achieved compared to the enemy, as well as the value of any supply targets that you have failed to meet. He then moderates the result for the odds you faced at the start of the war.

# Player customizations

In addition to being able to create your own campaigns of varying size and complexity, and make decisions at all levels of game play - strategic, operational and tactical, you can also make many, many other customizations that affect your gaming experience.

You can:

- Change the strategic and operational timescales, so that a turn can represent as little of a week of action, right up to a number of months, thus allowing you to set the speed at which you can progress through an entire war. (See [player options - timescales](#))
- Control the amount of information you see when a turn is being calculated or replayed - by enabling or disabling event messages. (See [options when running and replaying a turn](#)). You can also enable or disable special dynamic visual maps of the airpower that you (and your enemy) can project across the entire theatre. (See [enabling air power maps](#))
- Change any of 18 settings that affect combat of all kinds - such as the damage and accuracy of shells, torpedoes, depth charges and mines, as well as the probabilities of fleet sightings by air and surface ship (visual and radar). (See [editing combat settings](#))
- Turn theme music on or off. (See [enabling/disabling sound](#))

## More information

Please follow these links to learn about what the game offers, and how to play it:

- [How to play](#)
- [How to get in-game help](#)

# **Scenario "Pacific 1"**

This is a full-scale historically-based campaign between the United States and Japan in the Pacific, commencing in June 1942.

As with all **SAS WW2** scenarios, you can play for either side against the computer, or another player; and you can swap sides at any time during game play. For the US, you play as Alfred Mahan II, a descendant of the greatest US naval strategist of all time; for the Japanese, you carry the name of your grand father, the glorious victor at Tsushima who showed that Japan had truly arrived as a naval power of the first rank.

In the game, the Japanese are at the historical limit of their expansion, but are still pursuing a very aggressive strategy under the influence of Isoroku Yamamoto; so do not be surprised to see a computerised Japanese opponent push for more! In fact, the campaign starts with the moves for both sides already done, and unless players modify the moves for either or both sides before the turn is run, there will be a LOT of action in the first turn, and some very aggressive moves by the Japanese.

Note: By default, **SAS WW2** campaigns have 'emergency tactical responses' enabled for players. If you are inexperienced in **SAS WW2**, or just want a quicker game, you will need to disable some or all of the emergency tactical response options. See [tactical responses](#) for help on this topic.

The starting naval forces, including ships then under construction, are historically accurate. Each side has a large navy of over 1.5 million tonnes; but the Japanese have more of theirs available at the start. (The US has a greater proportion still building or commissioning). The US forces include a small Australian and Dutch contingent.

Players can of course add to the specified construction programs as resources allow, so this campaign can result in very large navies indeed by war's end.

The odds are rated as "quite easy" for the US and conversely "quite hard" for the Japanese. The US starts at somewhat of a disadvantage, but over time, as its enormous production capacity kicks in, the tide will turn unless the Japanese can continue to inflict disproportionate losses and/or, somehow maintain their rich convoys to the Dutch East Indies and Malaya. This will be difficult, as the Japanese start with low levels of ASW capability and will be vulnerable to roving attacks from a large and effective US submarine force unless they quickly develop better ASW capability.

The Japanese will also struggle more than the US to replenish their losses of aircraft. As the Japanese player, you can help overcome this by progressively funneling more resources into aircraft production.

The map size is huge - over 28 million square nautical miles, stretching from the US West Coast to

Singapore, and from Brisbane in the south to the Aleutians in the far north.

Both sides start with historical levels of technology. With proper resourcing and focussed priorities by the US, expect to see US developments in radar especially; the Japanese will do well to increase their ASW capabilities. The US should also seek to improve the performance of their torpedoes at the earliest opportunity. The US has better construction techniques and is able to build ships more quickly and cheaply. This is also an area that the Japanese may wish to invest in.

Troops are included in this scenario. The US is set to develop strong amphibious capabilities and forces but it will be a while before combined operations of any strength can be mounted against Japanese positions that are well defended by strong disciplined troops and, for the most part, very well-prepared defences.

Both sides have very sizeable air forces; and carrier and land-based air strikes will feature very prominently indeed in the many battles to come.

GENERAL SETTINGS

Countries	US, Japan
Start Date	June 1942
Map	Pacific. 69 * 45 hexes; hex scale = 96nm.
Land-based air?	Yes
Carrier-based air?	Yes
Design your own ships?	Yes
Troops?	Yes

COUNTRY-SPECIFIC SETTINGS

	US	JAPAN
Ports	<div><div>*San Francisco (Home Port)</div><div>*Pearl Harbour</div><div>Dutch Harbor</div><div>Johnston Is.</div><div>Wake Is.</div><div>Palmyra</div><div>Samoa</div><div>Kanton</div><div>Bora Bora</div><div>Fiji</div><div>Noumea</div><div>Efate</div><div>*Brisbane</div><div>Townsville</div><div>Darwin</div><div>Fremantle</div></div>	<div><div>*Tokyo Bay (Home Port)</div><div>*Truk</div><div>Rabaul</div><div>Okinawa</div><div>Iwo Jima</div><div>Manila</div><div>Brunei</div><div>Guam</div><div>Palaus</div><div>Manus Is</div><div>Lae</div><div>Biak</div><div>Hollandia</div><div>Guadalcanal</div><div>Tarawa</div><div>Surabaya</div></div>

Port Moresby

Jakarta  
Singapore

(\* = has ship construction and repair facilities)

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Starting Naval Forces	:	
Battleships	8 ready 1 repairing 6 building/ commissioning/ yet to be deployed to the Pacific	12 ready
Aircraft Carriers	5 ready 1 repairing 2 building/converting	8 ready 1 repairing 10 building
Cruisers	31 ready 7 building	30 ready 1 building/commissioning
Destroyers/Escorts	94 ready 20 building	111 ready 3 building
Submarines	60 ready 6 building	17 ready.

#### Notes:

- Construction times for ship building are accurate except where they are longer than the game engine allows for ships of the type. In these cases, the maximum permitted construction time has been used instead.
- Ships still commissioning, or not transferred to the Pacific, are shown as 'building' until they were ready.
- The two US *Portland* class heavy cruisers - Indianapolis and Portland - are categorised here as *New Orleans* class.
- US *Bristol* class destroyers are classed as *Fletchers*.
- US *Clemson* class destroyers are categorised as *Wickes* class vessels.
- The two *Narwhal* class US submarines are not represented in the game: their design does not fit the constraints of the game engine's ship designer; and they were employed in secondary roles anyway, not being very successful ships. The *Argonaut* - a large, specialised mine-layer and then transport vessel - also does not fit within the design constraints.
- The US *Cachalot* and *Dolphin* class submarines are not represented - they were outdated by the start of the war and used mainly for training.
- The obsolete Japanese *Tenryu*, *Yubari* and *Katori* class light cruisers are not represented in the game.
- The representation of the many variants of the *KD* class of Japanese submarines has been

simplified - all are categorised here as of the 'Kaidai' class, with a standard specification.

***Good Luck, Admiral!***

# Scenario "Atlantic 1"

This is a full-scale historically-based campaign between Britain and Germany in the North and South Atlantic, commencing in September 1940.

As with all **SAS WW2** scenarios, you can play for either side against the computer, or another player; and you can swap sides at any time during game play. For the British, you play as Harry Nelson, a descendant of the greatest British Admiral of all; for the Germans, you are Max von Tirpitz, with the blood of the Tirpitz and the von Spee families flowing in your veins.

The campaign starts with the moves for both sides already done, and unless players modify either or both sides before the turn is run, there will be a LOT of action in the first turn!

Note: By default, **SAS WW2** campaigns have 'emergency tactical responses' enabled for players. If you are inexperienced in **SAS WW2**, or just want a quicker game, you will need to disable some or all of the emergency tactical response options. See [tactical responses](#) for help on this topic.

The starting naval forces are historically accurate but with one important exception - for added interest, the Germans begin with around 350,000 tonnes of capital ship and cruiser construction already advanced on the slips - elements of Grossadmiral Raeder's famous 'Z' Plan. It will take between a few months and more than 2 years to complete these ships - which include two of the very large 'H' class battleships and some interesting new battlecruisers; they will give added punch to a navy whose main weapon remains the U-Boat. Two carriers - the *Graf Zepellin* and the *Peter Strasser* are also on the slips.

The British also have a very large construction programme in the pipeline - which reflects the programme they actually had as at September 1940. But both sides will be able to freely add to the construction schedules already laid down, as soon as resources permit. In just a few short years, there is potential for each side to have a very large navy indeed!

Remember though that there is a difference between absolute and effective numbers. For various reasons, many of your ships will be unfit for duty at any one time - mainly due to being low on fuel or damaged. Play-testing confirms the truth that only a fraction of the available U Boat tonnage at any time is actually able to be employed. (For example, in the last quarter of 1942, the Germans had nearly 400 U Boats, but only around a quarter were operational, and not all of these could be employed in the Atlantic). The German player would do well to keep an eye on his 2-I-C's deployments; there could be room for some optimisations.

The map size is huge - over 33 million square nautical miles, stretching from the US East Coast to Archangelsk in Russia's far north west, and as far south as Montevideo in Uruguay.

The starting odds, especially given the boost in surface forces for the Germans, are rated as 'extremely difficult' for Britain and, conversely, 'almost unloseable' for Germany, which means that the German player has to work much harder for the same performance rating. Britain has the stronger initial position, yet strategically is much more vulnerable to attack. Germany is able to operate from the very well-placed and newly-acquired French and Norwegian ports. Most importantly, it has a very strong industrial base, shielded by large airforces. It will be quite some time before the British can muster sufficient carrier-based airpower to threaten Germany's homeland. (In this campaign, the effects of the massive land-based bombing effort against Germany have been abstracted out, to allow you to concentrate on the war at sea).

The game allows the Germans to more aggressively deploy surface raiders in the North and South Atlantic - despite what happened to the *Graf Spee*. The campaign settings allow the Germans to build stronger surface forces, and the opportunities for success, especially against the Russian-bound convoys, are very real. Yet the campaign is *mainly* about the classic U-Boat vs convoy battles in the North and South Atlantic. These convoys are needed for three purposes:

- Materials for processing as well as finished goods must be convoyed from the US East Coast ports to Londonderry and especially Liverpool, to maintain British industry. Gibraltar is also a valuable pick-up point for raw materials, which are assumed to have been shipped through the Mediterranean from India; these will be an important supplement to the war effort.
- Approximately 30000 tonnes of supplies must be transported to Gibraltar every month to support the war effort in the Mediterranean theatre, which is not otherwise represented in this campaign.
- From July 1941, Britain is also required to maintain similar monthly total supply levels to the Russians via Murmansk and especially Archangelsk.

Failure to maintain convoys to Londonderry and Liverpool will choke off the British war effort. Failure to maintain supplies to Gibraltar or the Russian ports will deduct victory points from the British; and in any case Gibraltar is a strategically placed naval base that needs supplies to continue operating effectively.

Britain starts with the much larger navy in the theatre - over 2.6 million tonnes compared to around 900,000 tonnes for Germany. But the campaign settings allow for a massive German industrial build-up that can see them catch up progressively. Their naval construction strategy favours the U-Boat, as it did historically once Grossadmiral Raeder assumed command of the Kriegsmarine. But the campaign also allows for Germany to build up their surface forces more aggressively than they did, resurrecting parts of the 'Z' plan: it is assumed for this scenario that Hitler has allowed the diversion of serious resources to the navy. But it will be quite some time before the German player will see new large battleships enter the game.

Note that this campaign assumes an increased shipyard infrastructure for the Germans - part of the assumed better resourcing of the Kriegsmarine. The German player will find he can build ships, especially U-Boats, a little more quickly than was the historical rate. In particular, the explosion in U Boat strength is set to take off in earnest around February 1942, as a large amount of new construction now on the slips becomes ready for service.



Both sides start with historical levels of technology. With proper resourcing and focussed priorities, it is likely that both sides will achieve a technological arms race just as they did in WW2. German advances in submarine propulsion and wolf pack tactics can be countered by better ASW and convoy tactics; but it will be up to the player to get the most from the possibilities of technology.

Troops are NOT included in this scenario. The focus is quite deliberately on the war at sea.

Both sides have sizeable air forces; and as British carriers come on-stream, their power will be increasingly felt. But the poor weather that affects northern latitudes including the North Sea will restrict the role of airpower in this game to a degree. The surface ship and submarine enthusiast will find plenty of opportunity to empty the gun and torpedo against the enemy!

GENERAL SETTINGS

Countries	Britain, Germany
Start Date	September 1940
Map	North <i>and</i> South Atlantic. 61 * 59 hexes; hex scale = 96nm.
Land-based air?	Yes
Carrier-based air?	Yes
Design your own ships?	Yes
Troops?	No

COUNTRY-SPECIFIC SETTINGS

	UK	GERMANY
Ports	<div><div>*Scapa Flow (Home Port)</div><div>*Liverpool</div><div>Londonderry</div><div>Gibraltar</div><div>*New York</div><div>*Boston</div><div>Halifax</div><div>Norfolk</div><div>Bermuda</div><div>Pernambuco</div><div>Montevideo</div><div>Freetown</div><div>Capetown</div><div>Reykjavik</div><div>Murmansk</div><div>Archangelsk</div></div>	<div><div>*Kiel (Home Port)</div><div>*Hamburg</div><div>*Wilhelmshaven</div><div>*Danzig</div><div>*Lubeck</div><div>Narvik</div><div>Trondheim</div><div>Bergen</div><div>Stavanger</div><div>Brest</div><div>St Nazaire</div><div>La Rochelle</div><div>Bordeaux</div></div>

(\* = has ship construction and repair facilities)

Starting Naval Forces	:	
Battleships	8 ready 1 repairing 6 building/commissioning/yet to be transferred to the Pacific	1 ready 10 building 3 repairing (Numbers include 8 ships from the 'Z' Plan on the slips, plus 2 'pocket battleships')
Aircraft Carriers	2 ready 5 building/converting	2 building
Cruisers	22 ready 24 building 4 repairing	3 ready 3 building/commissioning 1 repairing (Numbers include 4 'M' class cruisers from the 'Z' Plan)
Destroyers/Escorts	135 ready 145 building/re-fitting 12 repairing (Numbers include 45 Candian ships)	30 ready 33 building/commissioning 1 repairing
Submarines	16 ready 14 building 1 repairing	41 ready 106 building (Numbers include 10 Italian boats that were progressively introduced to the Atlantic from September 1940.

## Notes:

- Construction times for ship building are accurate except where they are longer than the game engine allows for ships of the type. In these cases, the maximum permitted cosntruction time has been used instead.
- Ships still commissioning, or not transferred to the Atlantic, are shown as 'building' until they were ready.
- Type VIIB and VIIC U-Boats are both represented in the game as 'VIIC' as the design differences were not significant
- The Italian submarines represented in the game are all depicted as of the *Marconi* class, although there were actually several classes of Italian submarine involved. Their design differences were relatively minor however.
- The *Dorsetshire* and *London* class heavy cruisers are depicted as of the *Kent* class, as the design differences were not major.
- The re-modelled 'C' class British cruisers with 4 inch AA guns cannot be represented in the game due to constraints within the ship design programme.

- The small number of *M Class* British destroyers are referred to as *L Class* as the designs were essentially the same.

***Good Luck, Admiral!***

# Scenario "Med 1"

This is a full-scale historically-based campaign between Britain and Italy in the Mediterranean, commencing in July 1941.

As with all **SAS WW2** scenarios, you can play for either side against the computer, or another player; and you can swap sides at any time during game play. For the British, you play as Richard Howe, a descendant of one of Britain's most successful Admirals; for the Italians, you carry the name of your distant famous relative Francesco Carraciola, successful Admiral *and* Prince!

The odds are rated as "about even" for both sides.

The campaign starts with the moves for both sides already done, and unless players modify the moves for either or both sides before the turn is run, there will be a LOT of action in the first turn!

Note: By default, **SAS WW2** campaigns have 'emergency tactical responses' enabled for players. If you are inexperienced in **SAS WW2**, or just want a quicker game, you will need to disable some or all of the emergency tactical response options. See [tactical responses](#) for help on this topic.

Axis forces have captured Greece and Crete. Rommel's Afrika Korps has recently chased the British Western Desert Force all the way back to the Egyptian border. Only the small town of Tobruk holds out, garrisoned by tough Australian troops. All of Egypt - including the major port of Alexandria - now is like a ripe plum to be picked in the next Axis offensive. Malta lies battered under tons of Axis bombs.

The stage is set for a classic contest: the allies must strive to maintain the lifeline of convoys between Gibraltar, Malta and Alexandria; the Axis is determined to support and strengthen their forces in Libya, ready for the next offensive.

On paper, the Italians have the more powerful navy, a much larger airforce, and a strategically superior position. But they are prone to cautious moves. The better trained, more aggressive British navy is ready to accept the fight.

The starting naval forces, including ships under construction, are historically accurate except for the inclusion of three aircraft carriers for the Italians: the *Aquila* and an escort carrier, the *Sparviero*, have been completed ahead of time; while a sister to the *Aquila*, the *Guisepppe Miraglia*, is still under construction. Yet these carriers will do little to improve the fighting power of the Italian fleet - the Italian doctrine remains defensive, and the carriers are equipped with aircraft suited mainly to fighter defence.

Each side has a navy in the theatre of just under 1 million tonnes, and a merchant navy of over 200,000 tonnes. The British have a slight advantage in capital ships; the Italians, a substantial superiority in

numbers of destroyers and especially submarines.

Players can of course add to the specified construction programs as resources allow, so this campaign can result in large navies by war's end.

The Italians start with nearly 1500 aircraft deployed, including over 200 German combat aircraft of Fliegerkorps X and Fliegerfuhrer Afrika, based in Sicily and Libya. The Sicilan-based aircraft in particular are especially suited to anti-shipping attacks and give the Italians a powerful punch. But they will not be replaced as they are lost - Hitler has the Russian Campaign on his mind and is diverting all important resources to that theatre.

Against that, the British can muster less than half that number; but they are well trained and the carrier-based aircraft are mobile and will remain a serious thorn in the Italian side.

The map covers over 2.6 million square nautical miles - which at around one tenth the size of the Pacific and Atlantic maps represents a relatively small-scale theatre.

Both sides start with historical levels of technology.

Troops are included in this scenario. For both sides, the supply and transport of troops to North Africa is the major strategic driver. Good play can see either side bring the land campaign in North Africa to a favourable conclusion. The loss of Alexandria would be a fatal blow to the British. The loss of Libya for the Italians less so. Both sides are re-building their ground forces after the failure of allied Operation Battleaxe to relieve Tobruk, which still holds out, encircled by strong Axis forces.

GENERAL SETTINGS

Countries	UK, Italy
Start Date	July 1941
Map	Mediterranean. 43 * 27 hexes; hex scale = 48nm.
Land-based air?	Yes
Carrier-based air?	Yes
Design your own ships?	Yes
Troops?	Yes

COUNTRY-SPECIFIC SETTINGS

UK	ITALY
----	-------

Ports	*Gibraltar (Home Port) *Alexandria Malta Tobruk	*La Spezia (Home Port) *Venice *Taranto Naples Palermo Cagliari Messina Piraeus Rhodes Iraklion Tripoli Benghazi Sallum
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(\* = has ship construction and repair facilities)

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Starting Naval Forces	:	
Battleships	6 ready 1 yet to be deployed to the Mediterranean	4 ready 2 repairing 2 building
Aircraft Carriers	3 ready 1 yet to be deployed	2 ready 1 building
Cruisers	13 ready 2 yet to be deployed	14 ready
Destroyers/Escorts	48 ready 2 yet to be deployed	92 ready
Submarines	9 ready	36 ready.

#### Notes:

- Construction times for ship building are accurate except where they are longer than the game engine allows for ships of the type. In these cases, the maximum permitted construction time has been used instead.
- Ships still commissioning, or not transferred to the Mediterranean, are shown as 'building' until they were ready.
- Only the '600' class Italian submarines are represented at the start - other submarines were of older, less capable design, or were larger and employed in the Atlantic.
- The various *Pilo* class Italian torpedo boats are represented in the game as of the *Orsa* class.

***Good Luck, Admiral!***

# Scenario "Intro"

This is an introductory, hypothetical scenario set in the Pacific - the US vs Japan. It is similar to the full-scale 'Pacific 1' scenario but with much reduced forces and a simplified number of bases to make the scale of play easier for a beginner. Both sides also have 'aggressive' strategy settings in order that there will be some action for you to see in the very first turn.

It is designed as a support tool, to be used with the [how to play a turn in 5 minutes](#) help page. But you can continue to play the game for as long as you want. Its small scale makes it useful as a practise campaign.

As with all **SAS WW2** scenarios, you can play for either side against the computer, or another player; and you can swap sides at any time during game play. For the US, you play as Alfred Mahan II, a descendant of the greatest US naval strategist of all time; for the Japanese, you carry the name of your grandfather, the glorious victor at Tsushima who showed that Japan had truly arrived as a naval power of the first rank.

In the game, the Japanese are at the historical limit of their expansion, but are still pursuing an aggressive strategy; so do not be surprised to see a computerised Japanese opponent push for more!

The starting resources are intentionally small - enough to build a navy on each side of a few hundred thousand tonnes - just a quarter to a fifth the historical size.

The odds are rated as "extremely easy" for the US and conversely "extremely hard" for the Japanese, mainly due to America's far superior industrial production, the influence of which will progressively be felt as new ships enter the game.

But the US player cannot exactly sit back and do nothing - the Japanese have a very lucrative trade with the Dutch East Indies and Malaya, and if left unimpeded, will also be able to develop resources at a strong rate.

The map size is huge - over 28 million square nautical miles, stretching from the US West Coast to Singapore, and from Brisbane in the south to the Aleutians in the far north.

Both sides start with historical levels of technology. With proper resourcing and focussed priorities by the US, expect to see US developments in radar especially; the Japanese will do well to increase their ASW capabilities. The US should also seek to improve the performance of their torpedoes at the earliest opportunity. The US has better construction techniques and is able to build ships more quickly and cheaply. This is also an area that the Japanese may wish to invest in.



Troops are included in this scenario. The US is set to develop strong amphibious capabilities and forces but it will be a while before combined operations of any strength can be mounted against Japanese positions that are well defended by strong disciplined troops and, for the most part, very well-prepared defences.

Both sides have sizeable air forces; and carrier and land-based air strikes will feature prominently in the many battles to come.

GENERAL SETTINGS

Countries	US, Japan
Start Date	June 1942
Map	Pacific. 69 * 45 hexes; hex scale = 96nm.
Land-based air?	Yes
Carrier-based air?	Yes
Design your own ships?	Yes
Troops?	Yes

COUNTRY-SPECIFIC SETTINGS

	US	JAPAN
Ports	<div><div>*San Francisco (Home Port)</div><div>*Pearl Harbour</div><div>Dutch Harbor</div><div>Wake Is.</div><div>Palmyra</div><div>Noumea</div><div>*Brisbane</div><div>Townsville</div><div>Darwin</div><div>Fremantle</div><div>Port Moresby</div></div>	<div><div>*Tokyo Bay (Home Port)</div><div>*Truk</div><div>Rabaul</div><div>Manila</div><div>Guam</div><div>Biak</div><div>Guadalcanal</div><div>Surabaya</div><div>Singapore</div></div>

(\* = has ship construction and repair facilities)

***Good Luck, Admiral!***

# Create a Campaign - An overview

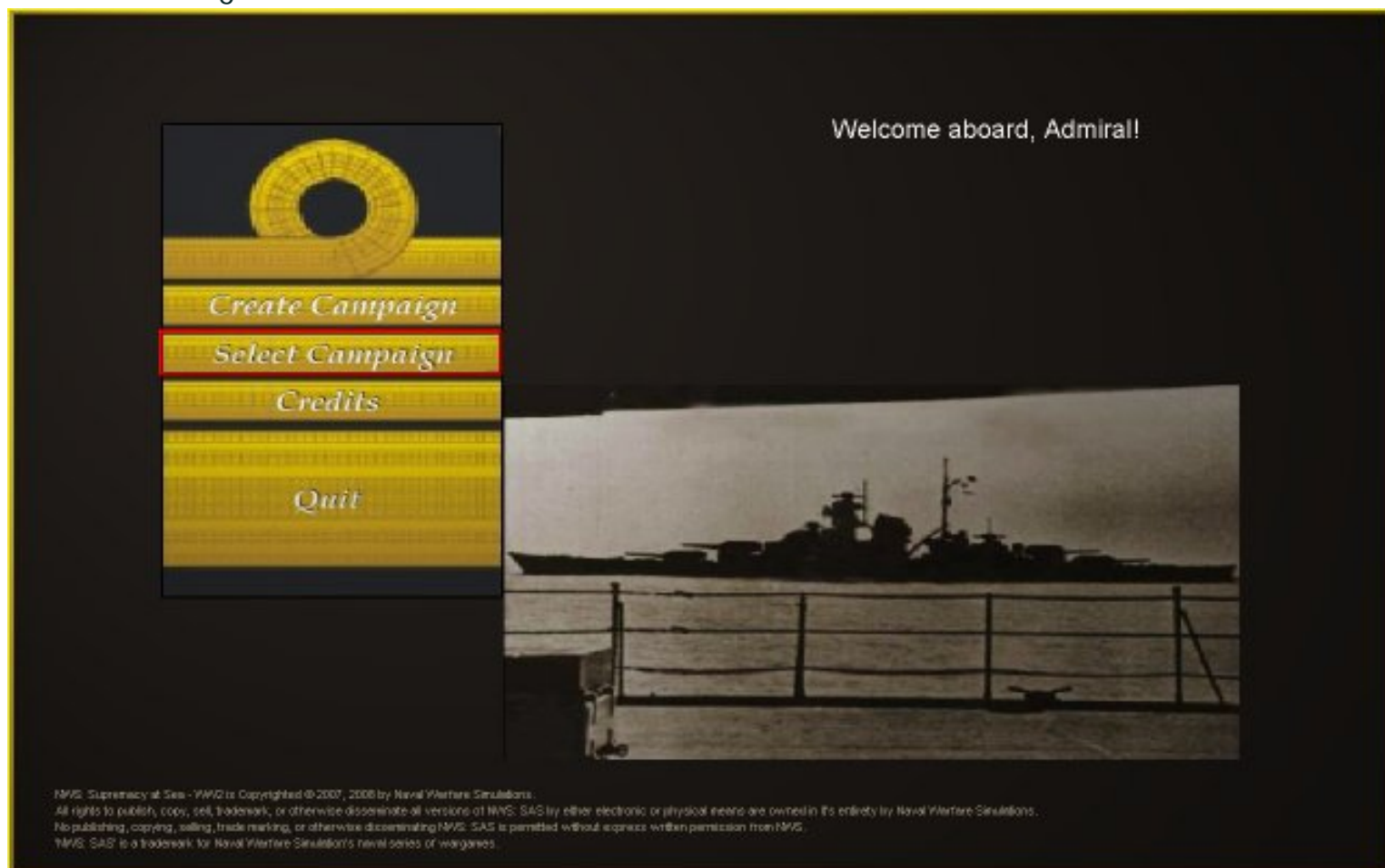
**SAS WW2** comes with three campaigns 'out-of-the-box': the US vs Japan in the Pacific, the UK vs Italy in the Mediterranean, and the UK vs Germany in the North and South Atlantic.

Using the campaign builder, you can create an infinite variety of additional campaigns, choosing the countries involved, the theatres, and the options and starting conditions - which affect the scope and scale and difficulty level of the game.

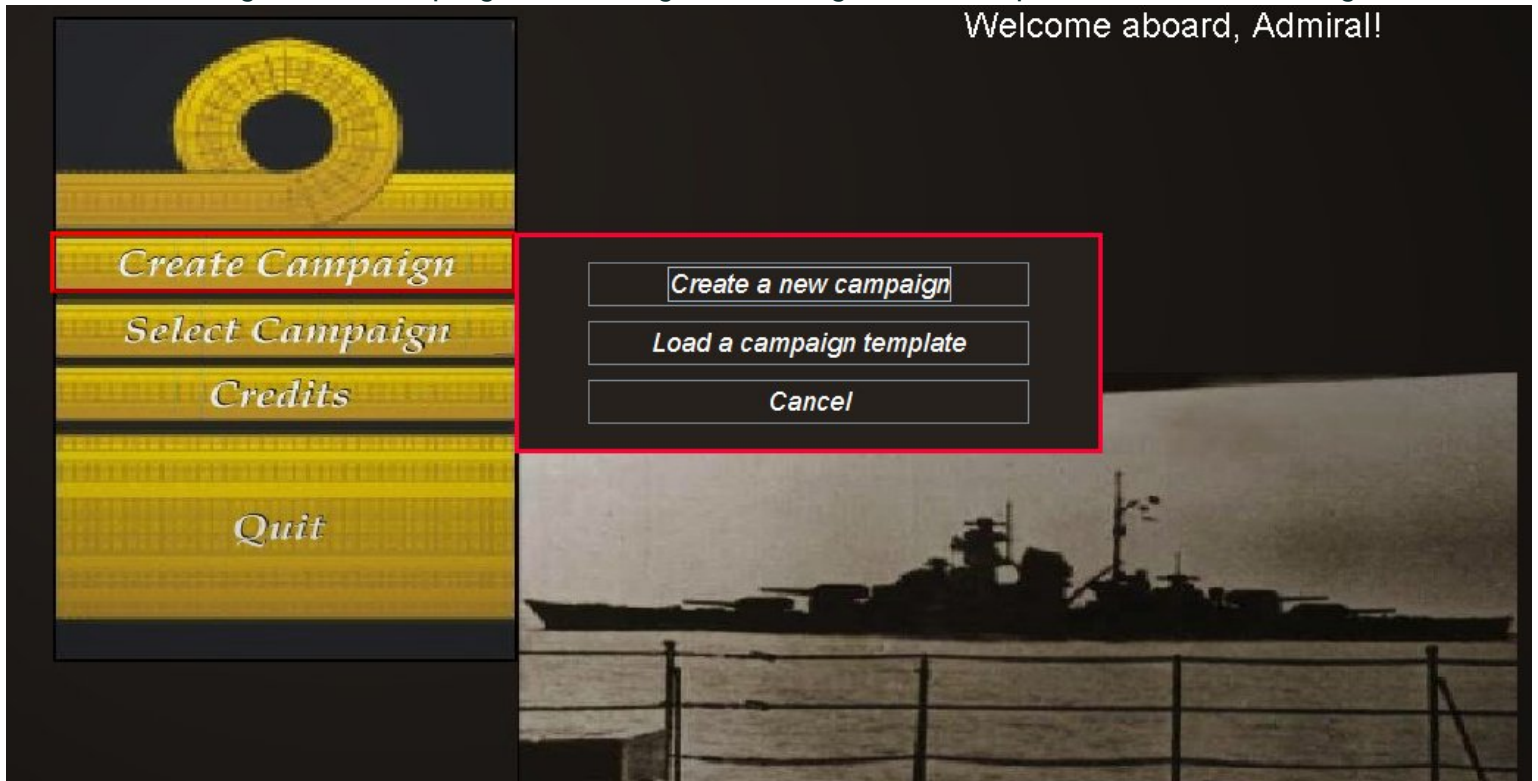
You can save a campaign at any time whilst it is being created; this allows you to quit, and re-load the saved, unfinished campaign for further editing. Saved unfinished campaigns are called 'templates'.

## Starting the campaign builder

You need to begin from the **SAS** start screen, which looks like this:



Click on the 'Create Campaign' option. You will now see this sub menu, giving you the choice between starting a new campaign or loading an existing saved template for further editing:



Loading a template is only possible after you have first created at least one, and the process of editing is the same as creating a new campaign from scratch. So help will be shown first on creating a campaign from scratch.

## Creating a new campaign

Follow these links to learn how to use the campaign builder:

- [Start the campaign builder](#)
- [Choose the two countries involved](#)
- [Set parameters - Part 1](#)
  - [Select the theatre map](#)
  - [Enable aircraft](#)
  - [Enable troops](#)
  - [Set ship design options](#)
  - [Set port parameters](#)
    - [Rename a port](#)
    - [Set port as home or advanced port](#)
    - [Remove the port from play](#)

- [Swap ownership of the port](#)
- [Set starting RPs](#)
- [Set the raw materials index](#)
- [Set the domestic materials index](#)
- [Set troops](#)
- [Set port infrastructure](#)
- [Set technology levels](#)
- [Set naval and airforce training levels](#)
- [Set army training levels](#)
- [Set intelligence levels](#)
- [Set parameters - Part 2](#)
- [Save a campaign template for later editing](#)
- [Complete the campaign to be ready to play](#)
- [Create notes for the campaign](#)

## Loading a campaign template

Once a campaign has been saved during creation as a template, it can be re-loaded for further editing.

See [loading campaign templates](#).

## Creating new campaigns from existing ones

**SAS** also allows you create new campaigns from existing ones. This is an entirely separate function. It does not use the campaign builder. Rather, from an existing campaign that you have started to play, you can elect to create a new one. The new campaign starts as an exact clone of the existing campaign, at the point in time when it is created. You can use this feature to, among other things, timestamp your campaigns at critical points. You can return to these points at any time, and re-run the campaign using different strategies, operations or tactics, thereby playing out multiple alternate scenarios. See [creating new campaigns from existing ones](#).

## Editing campaigns during play

Finally, **SAS** also allows you to edit certain campaign parameters during game play. You can

change various port parameters, and the way in which game odds are calculated.

Editing should be done with care! There are controls on this feature for PBEM games. See [editing a campaign](#).

# **Making alliances**

There are six major powers represented in **SAS**: Britain, the United States, Japan, Germany, France and Italy.

A campaign is played out between any two of these countries.

In a feature added in version 1.1, you can now also support the efforts of either side by nominating allies.

An ally is one of the six countries, currently non-aligned, who goes over to your side. An 'ally' is not therefore *necessarily* a country that in WW2 had an historical allegiance to the so-called 'allied' cause. The so-called 'axis' powers: Germany, Japan and Italy can also have their own allies.

An ally can contribute aircraft and ships of their own nationality. BUT - and this is a big but - they all must be paid for out of existing resources. You do not get any free lunch with allies. Just the ability to have their assets fighting in the war with you.

This can be advantageous especially with aircraft. Some nations simply had better aircraft; and the computer will automatically try to obtain the best aircraft possible, whenever the resources allow. (See [how to build aircraft](#) for more information.

With ships, there is also an advantage. Although you can already manually design and build the best ships you can think of, the ships built for you *automatically* (ie when your 2IC does this for you) are limited to those available (or those that might have been available) to your country in WW2. If you are a British player, you will need to manually design a Yamato-type battleship if you want one. But, if Japan were an ally, and you had the resources, your 2IC will try to 'obtain' a Yamato class ship whenever he judges that the balance of your naval ships requires such a big powerful battleship.

## Adding and removing allies

Allies can be added, and removed:

- When first creating a new campaign - .
- At any time during play - see game options - allies

# ***The economic model in SAS***

This help page gives an overview of the economic model used in **SAS**.

In particular it summarises the information you need to know when creating campaigns and setting the economic factors at various ports that drive production and sea trade.

It also summarises how the computer AI assess things when your 2IC creates convoy missions for you, and gives a schedule of how resource points (RPs) can get expended or lost.

## Resource Points (RPs) are the 'currency'

Almost every activity in **SAS** has an economic cost. In real life this was measured in things like dollars and gold as well as in usage of key war material such as steel and oil fuel and of course usage of manpower.

In **SAS**, all costs are reduced to a single scale - the resource point (RP). You produce RPs in your factories from materials available locally or convoyed in. You expend RPs in many ways, and can also 'lose' them directly and indirectly as enemy attacks cause damage to key assets and facilities.

## The value of ports

In **SAS**, ports are the key to economic prosperity. Ports not only provide bases for building, repairing, rearming and refuelling your ships, and usually have operational airfields nearby for offensive and defensive aerial operations; they also are the **only** source of continuing economic wealth generation for you.

Apart from the resource points (RPs) you start with at the beginning of the game - that are stockpiled at your ports - you gain further RPs solely from production by factories in and 'around' your ports.

In the simplified economic model in **SAS**, factories use raw materials to produce war material.

These raw materials are of two kinds:

- Materials suited for 'domestic' production - ie production by factories close to the sources of the materials.
- Materials suited to export, for production by industries suited to using them.



Any of your ports can be both a source of materials as well as having factories for production. The capabilities of each of your ports are set initially, when a campaign is created, and then during a game those capabilities - or **infrastructure** - can be improved through investment as well as degraded by enemy attack. The help file [what port parameters you can change](#) tells you **what** you can configure, and **how** to do it. This help file explains more of the **why**.

## Domestic materials production

The domestic industry levels at your ports, together with the accompanying domestic materials indices (DMI) are used by the computer when it calculates the total value of your economy.

Changing the industry levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

Your domestic industry factories at each port produce RPs every turn. Any domestic materials available locally get converted to RPs. The formula is:

number of RPs =  $10 * \text{the port's domestic materials index} * \text{the port's current domestic industry index}$ .

This formula assumes that the **strategic** turn is the standard 30 days (one month). The RPs produced are directly increased or reduced by increases or reductions in the length of the strategic turn.

To make this clearer, an example from the 'Pacific1' campaign may help. For the Japanese player, Tokyo Bay starts with a DMI of 4 and a domestic industry index also of 4. So, every month, it produces  $10 * 4 * 4$  RPs, ie 160 RPs. If you were running this campaign with say two week strategic turns, it would produce half that per turn.

## Export materials production

The export industry levels at your ports, together with the accompanying export materials indices, are used by the computer when it calculates the total value of your economy. The value of every possible convoy route between your ports is calculated, and a weighting is also applied based on how short the route is: shorter routes are worth more because more goods can be carried in a given amount of time.. The value of a route is directly and inversely proportional to its length.

Changing the industry levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

Your export industry factories at each port produce RPs in two ways:

- Every turn, any export materials locally available at the port get converted to RPs. The formula is:  
number of RPs =  $10 * \text{the port's export materials index} * \text{the port's current export industry index}$ .

This formula assumes that the **strategic** turn is the standard 30 days (one month). The RPs produced are directly increased or reduced by increases or reductions in the length of the strategic turn.

- Every time a convoy unloads tons of export raw materials at the port, the factories go to work. The formula here is:

number of RPs = tons of export materials unloaded \* the **average** export materials index value(1) \* a standard conversion factor of .0005.

(1) The average index value is calculated by recording the value and tonnage of the materials loaded at each port that the convoy loaded at before arriving at the port for unloading. For example if the convoy loaded 10000 tons of value '2' cargo, and then another 10000 tons of value '6' at a different port, the average value is '4'.

To give an example, again from the 'Pacific1' scenario. Tokyo Bay has an export industry index of 4, but its export materials index (EMI) is zero - in other words, industry servicing the port is totally reliant on convoys. Let's assume that a Japanese convoy has loaded 10000 tons of export materials at Surabaya (with an EMI of 4), and 8000 tons at Brunei (with an EMI of 3). The **average** value per ton would be 3.55.  $((10 * 4 + 8 * 3)/18)$ . If unloaded at Tokyo Bay, the 18000 tons of materials would result in production of 127.8 RPs  $(18000 * 4 * 3.55 * .0005)$ .

## How the AI creates convoy missions

The AI generally tries to maximise the value of cargo carried. Every turn, at every port where enough merchants and escorting ships can be assembled to create a convoy (subject to other mission priorities), the computer calculates the most valuable destination for the convoy to sail to. It does this first by calculating the theoretical value of every trade route between the current port and every other friendly port, based on the export materials indices and export production indices at each end, and then dividing by the route length. These calculations are dynamic, ie they take into account the **current** industry levels at all ports - so damage by enemy attack or improvements through infrastructure investment can change the way convoy routes are assessed.

If no suitable port can be found, it does a secondary calculation, looking for the port that is the most valuable source of export materials, but again dividing by the route length. (The reason for taking route length into account is to simulate the fact that shorter routes have quicker turn around times, ie they allow more trade for a given volume of shipping).

Therefore, when creating campaigns, the best way to simulate active trade routes that the AI will try to stick to is to have some ports with highish EMIs and low or non existent export industry and other ports with highish export industry but lowish or non existent EMI. The 'Atlantic1' campaign is modelled this way - to simulate the convoy traffic between the US east coast and Britain, and also between South American ports and Britain.

Note that the AI also has other priorities than pure economic convoys to think about. It also tries to maintain minimum RP balances at your ports - so sometimes preference is given to convoys that simply transport RPs (ie finished war material) from a port with a surplus to one with a forecast need. (The forecasting of needs is itself quite sophisticated and includes calculations of likely RP usage by garrison troops).

## How RPs get used

Finally, an overview of RP usage in the game - the expenditure side of the balance sheet - may be useful.

Almost every activity in **SAS** has a cost. The following table summarises how these costs are calculated.

Activity	RP Cost
Ship building	1 RP per 100 tonnes full-load displacement (eg a battleship of 45000 tonnes full-load costs 450 RPs to build)
Ship refuelling	1 RP buys 500 tones of high-grade fuel for naval ships (Merchant ships are assumed to use diesel, the consumption of which is not costed)
Rearming of shells	Equipping a 45000 tonne battleship with a full complement of shells costs 20 RPs. Costs for other ships are scaled according to displacement
Rearming torpedoes	Torpedoes cost 1 RP for every 4
Rearming mines	Mines cost 1 RP for every 30
Maintaining troops	Here, there are two scales of costs: normal and combat; and RP costs increase substantially for troops that are better equipped and especially for those that are more mechanised. For example, a totally non mechanised unit of 10000 men, with very poor equipment requires only around 4 RPs normal supply (for a 90 day period), and .12 RPs per day combat supply. The same sized unit with average degree of mechanisation and equipment would require over 12 RPs normal supply and nearly 1 RP per day combat supply. If the unit was totally armoured and equipped extremely lavishly it would require over 25 RPs normal supply and nearly 2 RPs per day in combat. For troop supply, 1 RP equates to 1000 tons of supplies of all kinds - food, ammunition, fuel, medical supplies and so on.
Building aircraft	Cost reflects size and complexity of the design. A small very simple aircraft may cost less than a fifth of an RP. Big heavy bombers may cost close to over 1 RP each. The cost is an amortised cost of not only the materials and labour to produce each aircraft, but the set up costs for the factories themselves.
Repairing ships	Damage to ships is shown in most dialogs in the game as a percentage of the cost to build the ship. For example a '50%' damaged 5000 tonne cruiser would need 25 RPs to repair. The relationship between actual damage and the percent damage figure is somewhat complicated but accounts for flooding, structural and non-structural damage, damage to turrets and machinery, and so on.
Building docks infrastructure	It takes 200 RPs to raise the docks infrastructure level by one, at any single port

Building port defences	It takes 50 RPs to raise the port defence level by one, at any single port
Building airfield infrastructure	It takes 20 RPs to raise the airfield infrastructure level by one, at any single port
Building industry	It takes 100 RPs to create a level one industry from nothing. It gets increasingly more expensive to increase industry by one level as industry gets bigger and more complex. For example, it would take 1000 RPs to raise industry from level 9 to the maximum level of 10 at any port.

## Other causes of RP Loss

RPs are lost when

- Enemy attacks on port storages cause damage.
- Ships carrying supplies (which are RPs by another name) are damaged or sunk.
- Ships are captured by the enemy.
- In the 'Atlantic1' scenario - when the British player is required to use RPs 'out-of-theatre', ie to transfer RPs to Russia and the Mediterranean in order to meet broader war aims.
- The RP value of port assets: dockyards, defences, airfields and industry - are damaged by enemy attack.
- Damage to port industries also causes future loss - ie the loss into the future of RPs that would have been produced had the industrial capacity not been reduced.

# **Strategies**

Strategy is defined in the Compact Oxford English Dictionary as "1. a plan designed to achieve a particular long-term aim. 2. the art of planning and directing military activity in a war or battle".

As the ***Supreme Naval Commander*** you make the strategic decisions: where to direct your resources and, what sort of navy, airforce and troops you want that will best achieve victory.

You also make the grand tactical decisions -deploying your ships in fleets and giving them operational orders,as well as deploying aircraft and troops for defensive or offensive operations.

To help you, you have a 2-I-C who will follow one of four pre-defined strategies -very cautious, cautious, aggressive or very aggressive.

Each of these strategies has a favoured approach to the kind of resources you build and how they are deployed.

Follow these links for more information:

- [Very cautious strategy](#)
- [Cautious strategy](#)
- [Aggressive strategy](#)
- [Very aggressive strategy](#)

You can change your strategy at any time, but first you should be aware of the need to avoid unwanted effects from too much change. Follow the links above to understand what the effects would be of a change in strategy.

# ***How to form and deploy fleets of ships***

**SAS** is primarily a naval game, and your main power is projected through your ships (and the aircraft they may carry). Where you deploy them and the orders they have are the most crucial elements in winning the game.

Ships are organised into fleets, and each fleet is given a mission - a purpose if you like - that is the rationale for the type and number of ships in the fleet, where the fleet is sent and what its rules of engagement are. There are over a dozen types of mission, including reconnaissance, patrol, bombardment, convoy, ready reaction, and so on. See the [overview of missions](#) for more information.

**SAS's** very flexible command and control interface makes the task of creating missions as simple or as complex as you want. You have a very able, computerised 2-I-C who is there to help with any aspect that you don't want to handle.

Follow these links to learn all you need to know about forming and deploying fleets.

The links are arranged in order from the simplest to the most complex option.

[Option 1](#) - this is the simplest - just let your 2IC handle everything. He creates all the missions by assigning the most suitable ships, calculating fleet movement orders and setting rules of engagement.

[Option 2](#) - this is the same as option 1, but, after reviewing in the ***Mission List*** what the 2IC has done, you can cancel any or all of the missions, returning the ships back to the available pool.

[Option 3](#) - this is almost as easy as the above - while still letting your 2IC make the decisions you can change any of the default settings he relies on, such as the list of approved mission types, and their priority for obtaining the necessary shipping.

[Option 4](#) - this is one step more detailed again. Your 2IC still does the detailed planning

but you exercise more control by vaying certain parameters for selected mission types. The most important parameter is setting your own objective hexes (instead of leaving this decision to your 2IC).

Option 5 - here you can elect to edit the actual missions your 2IC creates, after he has created them. For any mission, you can swap ships in or out and change the fleet movemement orders or the rules of engagement.

Option 6 - lastly, you can use the same knowledge you exercised in option 5 to create your own missions from scratch. You can do this for all missions, or just for the ones your most care about, leaving your 2IC to handle the rest. Examples where this could be useful are minelaying and convoying: setting these missions up can be a little tedious and they may not be your most important priority. So, you can create your own "sexy" missions, such as offensive patrol, bombardment or close blockade, while leaving minelaying and convoys to your 2IC. **However**, if you are an experienced player you may want to manually create all missions without any reliance on your 2IC. This is the most satisfying and potentially the most beneficial option (if you trust your planning above your 2IC's abilities!). But it is also compex and more time-consuming and is best tried only after you have mastered all previous options.



# **Tactical Play Options**

SAS is predominantly a strategic and operational simulation. Nevertheless, very important tactical play is also supported.

During turn calculation, amendments to the plans you made in the deployment stage are often necessary - the unfolding situation will present many threats and opportunities requiring deviations of fleet courses and speeds, and often, the early return to base of damaged ships. Targets for air strikes will frequently present themselves, requiring almost constant evaluation of priorities.

**SAS** gives you a very large range of options for rolling up your sleeves and making tactical decisions during turn calculation - but only to the extent you want.

## The movement of fleets

You can have varying levels of both direct and indirect control over changes of fleet movements during calculation.

The simplest and quickest level of control is **reactive** control - you selectively review and amend your 2IC's changes of orders when he makes them. Just nominate any of your fleets for your own attention. You will then be advised whenever your 2IC wants to change their orders. The changes are simplified as responses to known enemy threats and opportunities: your fleets will want either to deviate to avoid the enemy, or to intercept or shadow him. You will see pop-up dialogs asking you to confirm (or change) these orders.

Sometimes, your 2IC needs to send ships prematurely back to base - eg because they are too damaged, or low on fuel. If enough important ships need to return, the whole mission may need aborting. You can also get involved in these decisions for selected fleets. You will be advised whenever ship departures are recommended, and then you can amend your 2IC's orders as necessary.



In addition, if you really want to get into the thick of things, you can exercise *proactive* control - just pause the calculation at any point, review the relative status and location of your fleets and the enemy's and then *initiate* new movement orders - either the hard way, by re-plotting courses and speeds yourself, or more simply and quickly - by nominating new general orders (such as fleet A to intercept enemy fleet B) which your 2IC then turns into new detailed course and speed instructions.

## The behaviour of fleets in surface battles

Each of your fleets has default rules of engagement (RoE) appropriate to the type of mission. The RoE dictate how eager the fleet will be to enter a battle, and to remain in combat, given the enemy's strength. The RoE also control the aggressiveness of individual ships - the priority they put on self preservation vs attacking the enemy.

Though you cannot (as yet) command any ships in a battle once it has started, you can ensure that the behaviour of your fleets and ships meets your expectations by amending the RoE for any fleets - at any time. You can do this in the deployment phase, as well as at any time during calculation (by pausing the calculation and selecting a fleet for a change of RoE).

RoE are a simple and effective way of getting your fleets to fight at the tactical level in the way that accords with your operational and strategic goals. For example, as the German player, you can send raiders like the Graf Spee on historically-based missions with orders to avoid combat with equal or superior enemy, and to engage from safe distances. Or you can take the bull by the horns and give much more aggressive orders - the choice is yours.

## The launching of air strikes

More than any other facet of combat operations, the launching of air strikes requires the greatest level of attention because new threats and opportunities constantly present themselves, and there are many factors to consider.

**SAS** has taken all the pain out of this very complex area of command by automating it all for you. But it also allows you almost complete freedom to review and amend the decisions made for you - at any time during calculation. New features introduced in ver 1.1 give unprecedented flexibility of control.

At a general level, you can proactively change any of a large number of policy preferences used by your 2IC when creating strikes. These preferences affect which enemy fleets and ports are targeted, how many bombers and fighters are sent and from where, how bombloads are set, how many aircraft are retained for defensive combat air patrols, and much more.

Additionally, you can select any carriers or airfields for closer control and can view and amend the targetting and strike profile for strikes as they are being formed up, or simply abort them or order the airfield or carrier to hold back from launching strikes until further notice.

## More information

The help file on [how to set rules of engagement](#) covers this important area. You can do this at any time - during planning as well as during turn calculation.

Other tactical play options are all available from the [Run Turn screen](#), i.e. while the turn is being calculated. See [tactical responses](#) for an overview of tactical play functions available during calculation.

## Limitation on Tactical Play in PBEM games

A PBEM game is typically played on physically separate computers. Each player runs their turn calculation separately. Yet the calculation **MUST** guarantee that the results are the same for both, otherwise the game would quickly get 'out-of-synch'.

The tactical play options mentioned above that can occur during turn calculation are designed for play-against-the computer mode and are automatically disabled in PBEM games.

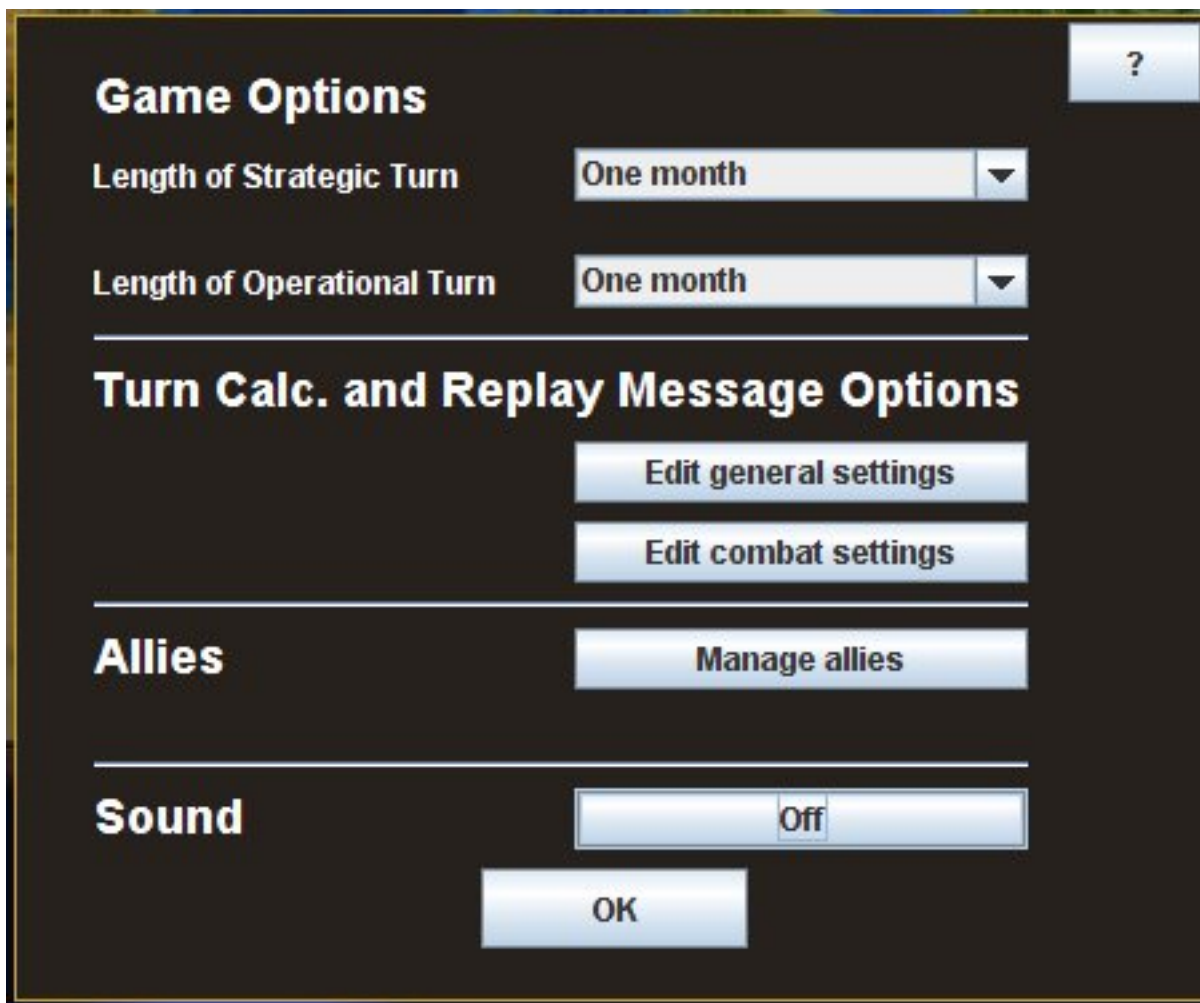
# ***Game Options***

During game play you can change various game options.

To bring up the edit screen, from your Admiral's Office, move the mouse over the filing cabinet drawer labelled 'Options' on the right-hand side of the screen:



Now click on the drawer. The screen for editing game options will appear:



## Length of the strategic turn

Strategic time is relevant to ship construction, technology R&D and infrastructure development. At the strategic level, a turn can be set to between one week and twelve months.

As an example – if strategic time is three months per turn, it would typically take twelve game turns (representing three years of 'real time') for a new battleship to be constructed and launched. (Ships selected at the start of a game become available immediately unless their commissioning is deferred. Construction rates only affect ships laid down afterwards).

With a 3, 6 or even 12 month turn length, you would move through a campaign pretty quickly, maybe completing it in one or two sessions. This setting could appeal to a player looking for a 'beer and pretzels' style quick game.

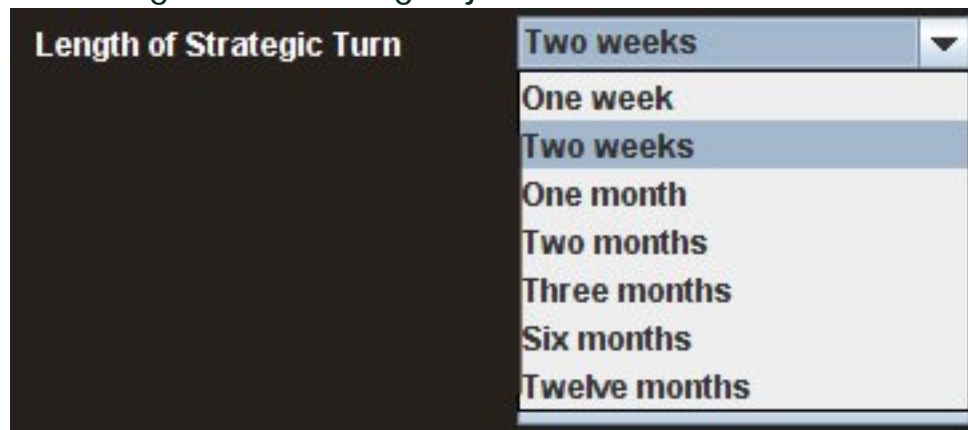
Alternatively, with a very short turn length of say one or two weeks, it would take many turns to complete a few years of war; but you will be able to exercise a much finer degree of control over the outcome.

Like many things in **SAS WW2** you have the choice of strategic turn length.

The length of the strategic turn is first set when a campaign is created. (See [create a campaign -setting turn lengths](#)).

But you can freely change it at any time during gameplay, either to speed things up or else to slow them down (eg if things are getting to a very critical stage).

To change the turn length, just select a different value from the drop down list:



## Length of the operational turn

Operational time is the amount of time in a turn for fleet movements, sightings, battles and so on. Operational time can be set to one week, two weeks or one month.

Normally, it is best for operational time to be the same as the strategic time, so everything remains 'in synch'. However, operational time can not be longer than one month or greater than the strategic time.

When operational time is less than strategic time, we have time compression. In other words, strategic events are speeded up relative to the rate at which operations occur.

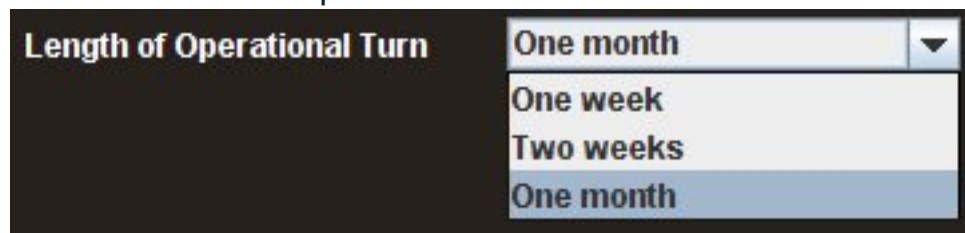
Why would a player want operational time less than strategic time? There are several situations when this could be an advantage:

- Whenever strategic time is more than one month, operational time must be less because it can't be more than one month.
- When strategic time is say one month, it can take a few minutes - up to 10 minutes or so, to calculate a full month's worth of operations. Impatient players may want to 'speed things up' by calculating only part of the action before advancing to the next turn.

It may be clearer to take an example. if strategic time is one month but operational time is one week, the planning of fleet orders and so on is unaffected but fleets only get to do one week of their actual moves for every game turn. A fleet sailing say between Alexandria and Malta in the Mediterranean might leave port on the first day - say the 1st of June. By the end of the week, the fleet may be half way to Malta. Now, the turn ends. Strategic time advances one month. It is now July. The fleet has not 'warped' anywhere. It starts the new turn where it ended the last, and it continues as per its orders. But the first day of the new turn will now be 1 July, not the 8th June. Only the dates have warped - nothing else.

Operational time is set when a campaign is created. (See [create a campaign -setting turn lengths](#)).

But you can change it any time during game play using this screen. Just select a new value from the drop down list:



## Turn calculation and message replay options

For ease of use, this screen has a button for linking to the same screen you can see

during turn calculation and also during replay.

See [options when running and replaying a turn](#) for more information.

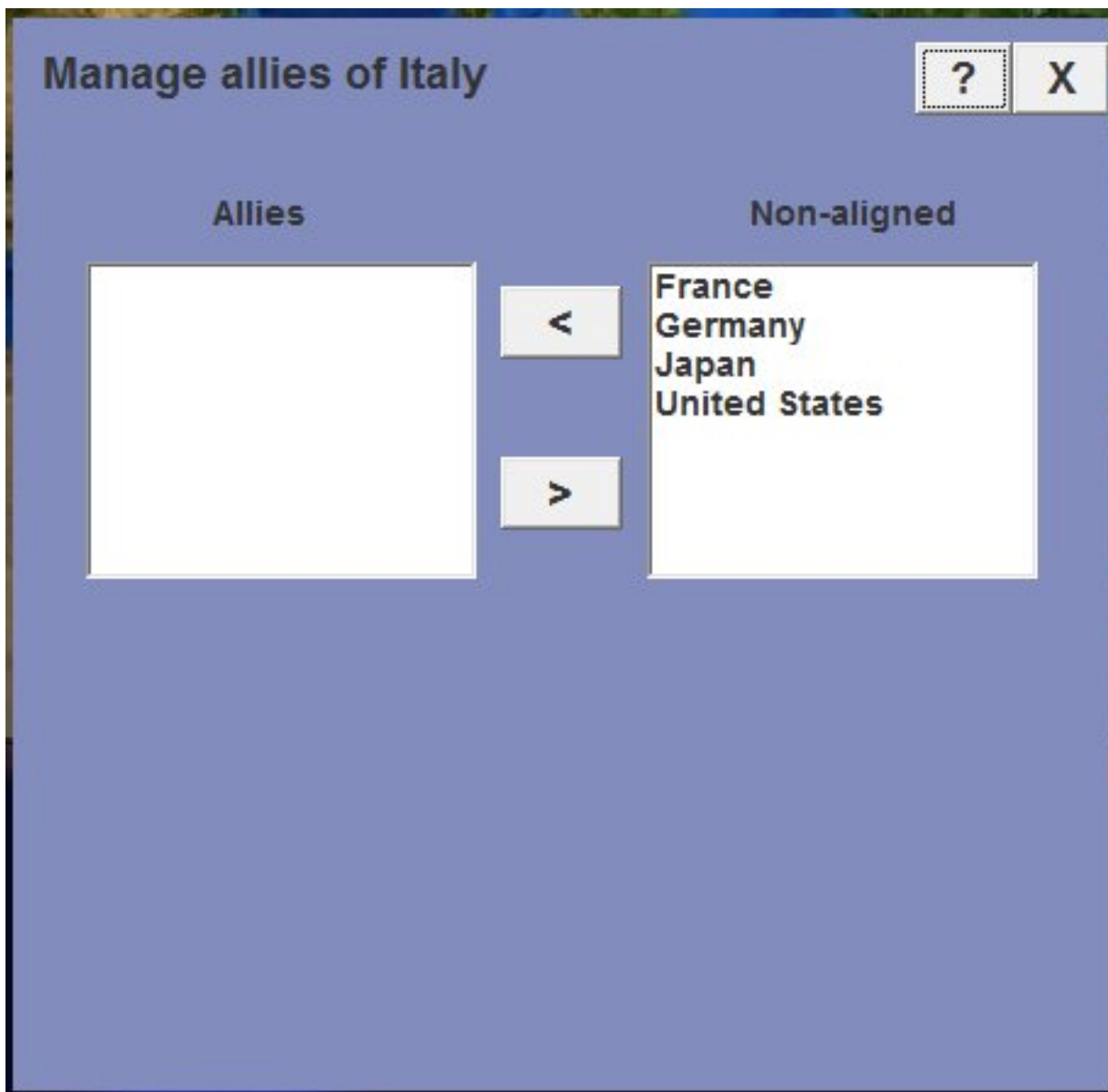
It also has a button for editing combat settings. See [editing combat settings](#) for more information.

## Allies

You can add to (or remove) allies for the country you are currently playing by clicking on the 'Manage allies' button. Note that the term 'allies' does NOT here imply a country with allegiance to the 'allied' cause in WW2; it is any country that has an allegiance to the country you are playing. The so-called 'axis' powers: Germany, Japan and Italy can also have 'allies' of their own. (See [making alliances](#) for general information on allies.)

Clicking on the 'Manage allies' button brings up a screen like this:





The screen allows you to add or remove non-aligned countries as allies.

An ally can start contributing aircraft and ships to your cause, but they must be paid for from your existing resources. See [making alliances](#) for more information.

Close the screen when you are finished by clicking the 'X' button.

## Enable/disable sound

The theme music can be enabled or disabled using the 'Sound' button.

# Options when Running and Replaying a Turn

The Options screen pictured below allows you to enable or disable the event messages you see when running and replaying a turn.

You get to this screen by clicking on the 'Options' button or the 'o' hot key from either the Run Turn or the Replay Turn screen.

If you are running the turn (and not just replaying it) it also allows you to enable or disable the ability to make hour-by-hour tactical responses for your fleets and air strikes.

Information and Control Options

?

X

Information options:

Event messages 'pop-ups':

See

Stop for

See

☒ Surface Battles starting

☐

☒ A/C Operations

☒ Surface Battles

☐

☒ Emergency Fleet Orders

☒ Air Strikes

☐

☒ Emergency Ship Departures

☒ Air Interceptions

☐

☒ Encounters avoided

☒ Aerial ASW

☐

☒ Ship Launchings

☒ Sub Battles

☐

☒ Cargo Handling

☒ Bombardments

☐

☒ Ship Refuelling

☒ Land Battles

☐

☒ Ship Repairing

☒ Enemy Fleet Sightings

☐

☒ Minelaying & sweeping

Control options:

☐ Control fleet tactical responses

Select fleets for control

☐ Control fleet returns to base

Select airfields for control

☐ Control air strikes from airfields

Select carriers for control

☐ Control air strikes from carriers

Edit air strike preferences

## Closing the screen

Click on the 'X' button or the 'q' hot key to close the screen. If running the turn, calculation will resume; if replaying it, the replay will resume.

## Persistence of the options

The options you select are saved at the end of the run turn calculation or when you manually save a game, and will be in force when next you run or replay the turn. You can change the options again at any time of course.

## Tactical responses

These are available during turn calculation, but not during replay.

When you tick any of the four control options at the bottom of the screen, the turn calculation will stop whenever necessary - in response to updated intelligence of the enemy - to show you a dialog box for changing tactical response or return to base orders for your fleets, or for aborting or amending planned air strikes.

See [tactical responses](#) for more information.

## Event messages

### Seeing messages

When the turn is being calculated or replayed, not only will you see your fleets move on the map, you will also see enemy fleets highlighted when they are spotted, and will see many different kinds of event messages telling you what is happening hour-by-hour.

Some players will want to see all or most messages; others may want to keep the "noise" to a minimum, concentrating on a selected few messages, such as reports of battles. As always in **SAS**, the choice is yours.

To see any type of message during calculation or replay, tick the relevant 'See...' tickbox. Note that all message types are ticked by default.

### Stopping on messages during turn calculation

The 9 message types listed on the left of the screen are special - they are the more significant events, usually battle reports, for which the added option of a 'stop for' during turn calculation is available. Tick any to force the calculation to stop whenever a message of this type is displayed. The default is for no stops to be enabled.

### Stopping on messages during turn replay

Whilst stops only occur during calculation when these are explicitly enabled, the default behaviour during replay is for **all** events to cause a stop. You do not explicitly enable these stops - they are enabled by default.

You can cancel all stops by unticking the 'stop' tick box on the control bar for the replay screen.

### Moving the messages

The messages appear on the map in one or more popup boxes. They are all moveable if needed if they are currently obscuring parts of the map that are of interest. (Or the map can also be dragged around).

The message boxes appear by default in the top left of the screen.

To move a box if you want to see beneath it (instead of just moving the map instead) just click on the box and drag it.

To return it to its default position, just move the mouse off it. The box will "snap" back to its default position.

## Message text

The message boxes have scrollable text, and also point to the map location of the event. Make sure you scroll down to get the full text.

## Message colour coding

The boxes are colour coded: red boxes are for critical events such as battle reports (aerial; surface; submarine; bombardment and amphibious assaults) as well as ship sinkings and mine damage. Black is for enemy signal intercepts, while pale red is for enemy sightings and emergency fleet orders. Other colours are for less critical events: brown boxes show air strikes as they move; yellow boxes show cargo handling, and green boxes are used for everyday events such as ship refuelling and repairing.

## Message types

See [event messages](#) for an overview of the nearly thirty different messages you can see during turn calculation and turn replay.

# **Editing combat settings**

**SAS** allows you to edit a range of settings affecting combat calculation for the campaign you are playing.

Any changes you make only affect the current campaign.

You can make changes at any time. The change applies to the next (and all subsequent) turn calculations.

## Controls over changes for PBEM games

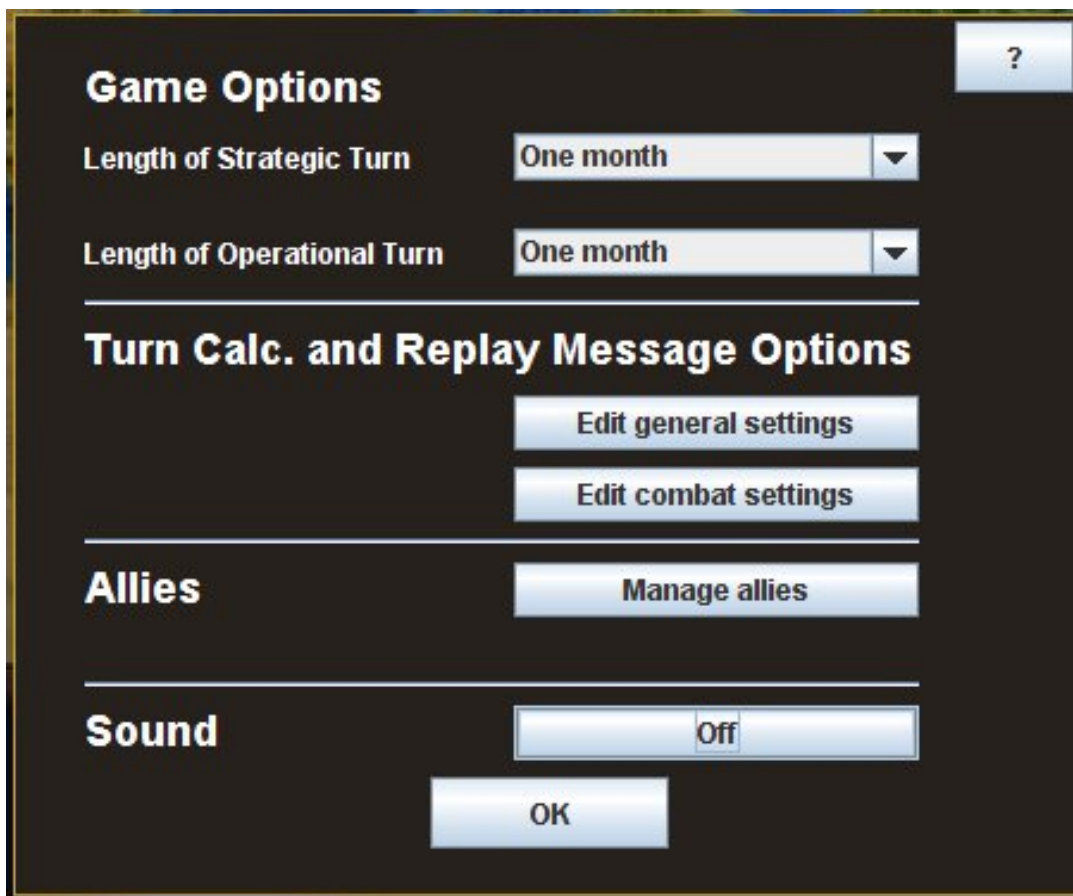
There are controls over this feature when playing by email. In PBEM games, changes in any particular setting are only applied during calculation if both players have made exactly the same change. If they have not, the default value is applied.

## Making changes

From your [Admirals Office](#), click on the filing cabinet drawer labelled 'Options'.



You will now see several options, including a button to 'Edit combat settings':



Click on the 'Edit combat settings' button. You will now see this dialog:

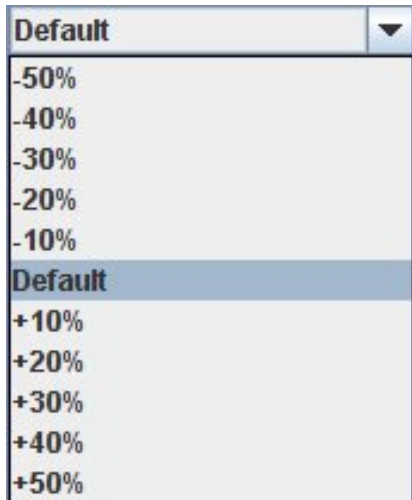
## Miscellaneous settings affecting combat calculations:

Bomb damage:	Default	▼
Bomb accuracy:	Default	▼
Shell damage:	Default	▼
Shell accuracy:	Default	▼
Torpedo damage:	Default	▼
Surface torpedo accuracy:	Default	▼
Submarine torpedo accuracy:	Default	▼
Aerial torpedo accuracy:	Default	▼
Flooding rate:	Default	▼
Depth charge damage:	Default	▼
Aerial Depth Charge damage:	Default	▼
Depth charge accuracy:	Default	▼
Aerial Depth Charge accuracy:	Default	▼
Mine damage:	Default	▼
Mine hit probabilities:	Default	▼
Air to surface sighting probabilities:	Default	▼
Surface to surface (visual) sighting probabilities:	Default	▼
Surface to surface (radar) detection probabilities:	Default	▼

There are quite a large number of settings that you can adjust, if you want to.



Each setting has a 'Default' value. You can vary the value for any setting within a range from -50% to +50% of the default value, using the drop down selector:



For example: If you adjust the 'Bomb damage' setting to +30%, this means that all bombs cause 30% more damage than they would under the default setting.

Note that some settings have a cumulative effect. For example, increasing the 'torpedo damage' to a +20% level effectively means that the torpedo not only causes 20% more damage generally to the hull but also blows a 20% bigger hole, allowing 20% more water inflow. If you also increase the 'flooding rate' (ie the rate at which ships flood) by 20%, then a torpedo hit will, all else being equal, cause flooding at a rate 1.44 times faster than under the default settings.  $1.2 * 1.2 = 1.44$ )

## A note on the changes

Quite often, making a change may not have quite the effect you hoped for *in the turn you are observing*. This is because **SAS** is a complex simulation and the slightest change can have a cascading effect over time as the calculation progresses. To take just one example: increasing flooding rates *may mean* that a fleet heads for home earlier than otherwise. It may then not be involved in battles it otherwise would be, and enemy forces affected by those battles could be employed elsewhere. All you can say with regard to the effect of changing combat settings is that *all else being equal* (which it never is in **SAS**), the changes will have the effect you wanted.

**SAS** has pseudo randomness built into almost every routine to some (realistic) extent. And the sequence of events affects what follows. Watching **SAS** in calculation mode is a demonstration of the truth in the Gaia principle!

The meaning of each of the settings is now explained.



## Bomb damage

Bombs can cause damage to ship superstructures, turrets and hulls - including magazine and machinery spaces (if they pierce any armoured main deck). Bombs also damage ground installations (storage facilities, airfield and port infrastructure, aircraft on the ground etc). Increasing or reducing the value increases or reduces by the set amount the damage every bomb would have caused under the default setting.

## Bomb accuracy

This setting affects the probability of every bomb - whether dropped in level flight or by dive bombing - hitting its target.

## Shell damage

This setting affects the amount of damage caused by every shell of any calibre.

## Shell accuracy

This setting affects the probability of every shell hitting its target.

## Torpedo damage

This setting affects the damage caused by every torpedo - whether launched from the air, surface ship or submarine.

## Surface torpedo accuracy

This setting affects the probability of every surface ship launched torpedo hitting its target.

## Submarine torpedo accuracy

This setting affects the probability of every submarine launched torpedo hitting its target.

## Aerial torpedo accuracy

This setting affects the probability of every aerial torpedo hitting its target.

## Flooding rate

This setting affects the rate at which a ship will flood from all damage causing water ingress, after allowing for any pumping capability. Changes in this setting are likely, more than any other single setting, to change the proportion of ships that sink from damage compared to those that survive to live and fight another day.

## Depth charge damage

This setting affects the amount of damage done by every surface ship launched depth charge that hits or explodes 'near enough' to its target. It also has a corresponding affect on the probability of a near explosion, because damage to subs was often cause by pressure from near explosions, and the greater the level of the explosion, the greater the damage radius.

## Aerial depth charge damage

This setting is the same as the above, but relates to depth charges dropped from the air.

## Depth charge accuracy

This setting affects the probability of a pattern of depth charges launched by surface ship exploding on or near enough to the target.

## Aerial depth charge accuracy

This setting is the same as the above but relates to depth charges dropped from aircraft.

## Mine damage

This setting affects the amount of damage caused by mine hits.

## Mine hit probabilities

This setting affects the probability of a ship being hit when it is a minefield of any given size.

## Air to surface sighting probabilities

This setting affects the probability of a fleet being spotted by enemy aircraft.

## Surface to surface (visual) sighting probabilities

This setting affects the probability of a fleet being spotted by an enemy fleet by visual means.

## Surface to surface (radar) detection probabilities

This setting affects the probability of a fleet being detected by an enemy fleet with operable radar.

# **Enabling air power mappings**

A feature new to version 1.1 is the ability to get maps of your air power, and the enemy's, across the whole theatre as well as from selected airfields and carriers.

Note that the enemy maps are based on your intelligence, so are estimates only, and prone to error. Because no estimates of enemy air power are available at the start of the game, you can only see enemy maps during calculation of a turn, or on the theater map from the start of turn 2 of a campaign

You can see these maps during turn calculation (*so long as the calculation is paused*), as well as when viewing the theatre map during the build and deploy phases.

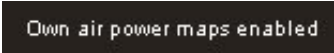
## Enabling air power maps.

### From the Run Turn screen

The 'a' hot key toggles between three modes:


- No maps at all.
- Mappings of your own air power.
- Mappings of the enemy's air power.

When your own air power maps are enabled, you will see this message in the control bar at the bottom of the screen:



Own air power maps enabled

When enemy air power maps are enabled, you will see this message instead:



Enemy air power maps enabled

When neither is enabled, neither message will appear.

Remember that the calculation must be paused to see the maps

### From the Theatre Map

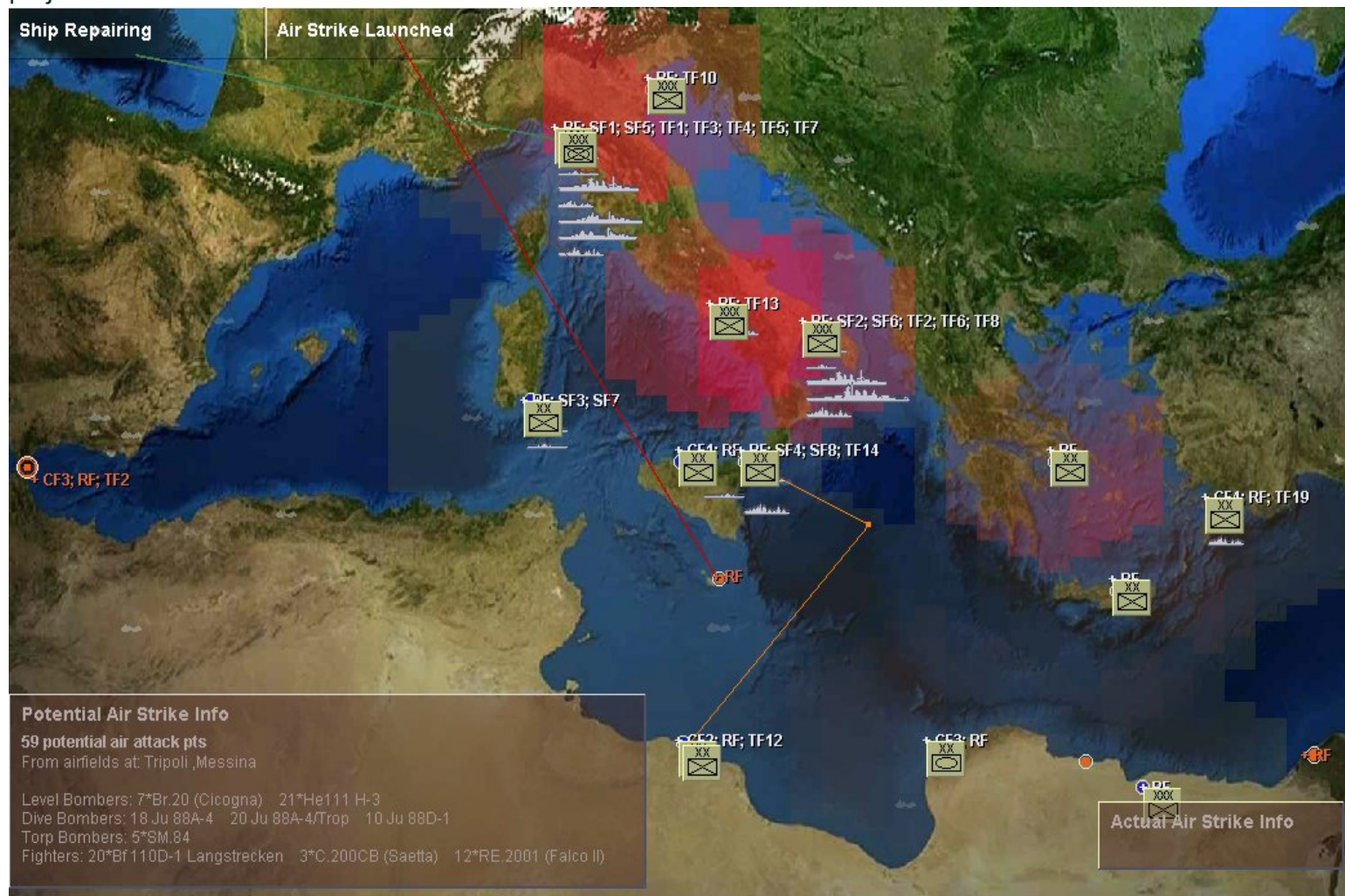
Two new tick boxes have been added to the top of the screen - 'Own air power' and 'Enemy air power'. Both are un-ticked by default. You can select one or the other, or neither.

## Own air power maps

## Whole theatre map

When in the mode to see your own air power, and the mouse is currently *not* over one of your airfields or carriers, you will see how your air power projects into every hex on the map. Air power here means the theoretical total bomb attack points you can deliver from *all* airfields with aircraft that have the range to attack the hex.

The picture below shows an example: the Italian player in a Mediterranean scenario is viewing how his air power projects:



The level of your air power is shown pictorially - the greater the level of air power, the deeper the reddish color shading. But the air power is also shown precisely for the hex where the mouse currently is. A 'Potential Air Strike Info' panel shows this information:



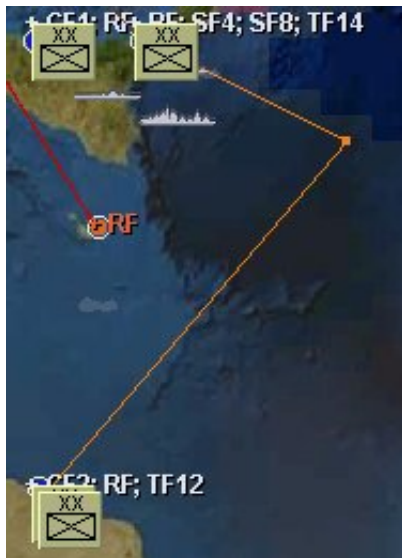


The panel tells you:

- The total bomb attack points that can be delivered into the hex.
- The airfield(s) and/or carrier(s) from which the aircraft could come.
- The number and type of aircraft that have the range to reach the hex, grouped by general category: Level Bomber, Dive Bomber, Torpedo Bomber and Fighter.

Note that the panel is draggable - you can move it around the map by clicking and dragging.

The map traces with orange lines from the hex where the mouse is, back to the location(s) where the aircraft could attack from:



As you move your mouse, you will see the panel information change.

You will also see the color shadings change as calculation progresses because your air power maps are taken

every hour and reflect the current state of your air power.

When plotting course changes for any fleets, it can help to have the map zoomed in and hexes turned on. This way, you can clearly see any corridors where your power is weak or nonexistent, or conversely, strong:

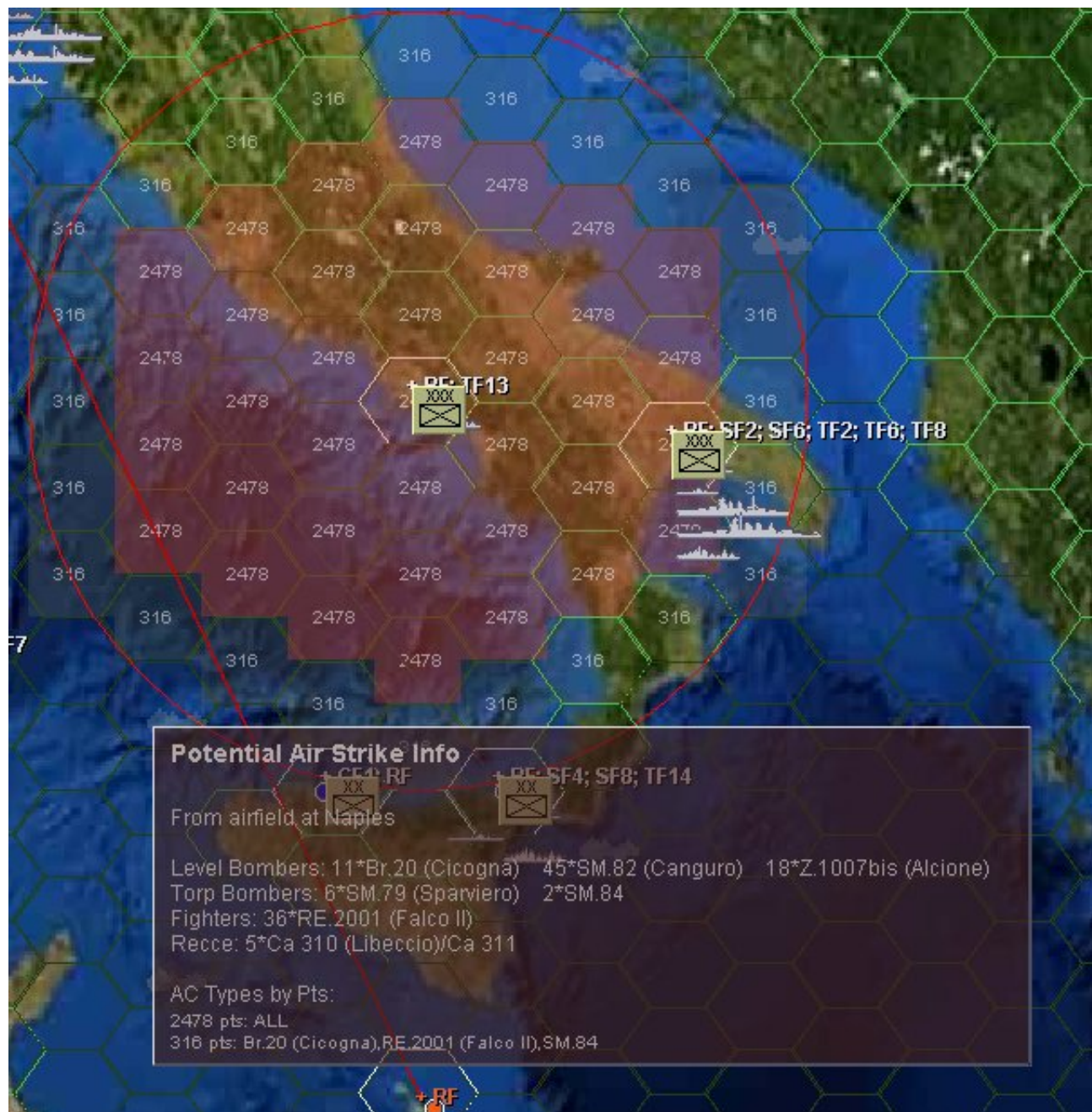


## Map for selected airfields and carriers

When you move your mouse over a hex where any of your airfields or carriers are, the map changes to show information specifically for the aircraft from that airfield or carrier(s).

The example below shows how the Italian map might look for aircraft from Naples:





You can see that:

- The maximum combat radius of aircraft from Naples is shown with a red circle.
- Within that circle, the actual air power level for each hex is shown, both with colour shading and by actual number.
- The information panel has some added information - it shows which aircraft could reach every hex in the radius. For example, you are told that all aircraft can reach any hex with an air power level of 2478 points, whilst for the hexes at the outer edge of the radius, only the Br 20 (Cicogna), RE 2001 and the SM 84 have the range, and the attack points are correspondingly reduced (to 316).

## How attack points are calculated

Note that for the purpose of these maps, the calculation of attack points is theoretical. The *maximum* bomb



load which every aircraft could carry to each hex is tallied. But the difference in cruising speeds of all the aircraft concerned is not considered. In other words, the calculation is less exact than the the calculations done by your 2IC when he comes to consider actual air strikes. At that time, he has to take cruising speeds into account, and these affect the combat radius of many aircraft because their speed will be reduced to that of the slowest aircraft in the strike.

For the purpose of the air power map, one attack point is equivalent to 100kg of bombs. In other words, dividing the figure by ten gives the bomb weight in tonnes.

## Air strike information

In addition to the maps shown previously, you can also get summary information about your air strikes when they are in the air.

This information supplements what is available from the standard event messages and strike markers. The map shows strikes by a unique number, and the event messages tell you when particular strikes are launched, searching or returning. But if you want to know more about particular strikes while they are en route, you can use this feature.

When you pass the mouse over a hex where one or more of your strikes currently are, you will get a 'Actual Strike Info' panel:



Note that the panel is draggable - by clicking and dragging it around the map.

## Enemy air power maps

When in the mode to see enemy air power, you will see very similar mappings. But the colour shadings are slightly different (more blue than red); AND you don't get the detailed breakdown of air power from selected airfields or carriers or information about enemy strikes in the air.

Remember that all enemy air power calculations are based on estimates and are prone to error.

Using enemy air power maps, when the map is zoomed in and hexes turned on, can be very useful when plotting routes during calculation or during the deployment phase.. You can readily see weak points in the enemy's air defences, as in this example showing to the Italian player weaknesses in British air cover in the Mediterranean:



Note that for the purpose of the Theatre Map, enemy air power is a one-time snapshot, taken at midday on the last day of the turn calculation. Use it as a guide only. Also note that on the theatre map, you do not see the orange source lines because normally they would point to the location of any carriers; but because the data is taken at a fixed time, the exact location may not accord with the very latest intel you have on enemy fleet movements. Given this, the source lines may be confusing.

# Installing SAS

**SAS WW2** is a java application and requires the Java 2 run-time environment Standard Edition. The **SAS WW2** installer includes and automatically installs the Java run-time to your computer for you.

## System requirements

Release 1.1 of **SAS WW2** requires Microsoft Vista or XP.

Support for Linux and Macintosh systems is under consideration in a future release. Do not attempt to run this current release except on Windows XP or Vista. *No support can be given to users who attempt to run this application on other systems.*

Allow at least 500 MB of hard disk space for the game files plus saved game data.

A mouse is necessary.

Minimum and recommended system specifications are as follows:

	Minimum Specification (Note 1)	Recommended Specification
CPU	Single core processors: a 2.0+Ghz Pentium 4 or AMD Athlon 64	Fast dual-core processors such as a 2.66+Ghz Dual-Core Pentium 4 or the Athlon 64 X2 5000+ (Note 2)
RAM	512Mb under Windows XP 768Mb under Vista	1+Gb
Screen Resolution	1024 * 768 pixels	1280 * 960 pixels in normal (4:3) aspect, or 1280 * 800 pixels in wide screen.
Colour	16 bit	24 bit
Video card	Any 2D/3D video acceleration card (64+Mb video memory)	Any 2D/3D video acceleration card (128+Mb video memory)

Footnotes:

1. The performance of larger scenarios is likely to require greater than the minimum specification, especially RAM. Nevertheless, see the troubleshooting guide for tips on getting the best performance from the hardware you have.
2. **SAS WW2** is a multi-threaded application and dual-core chips will show better performance than single-core chips with the same theoretical clock speed.

The screenshots in this manual are all taken at a resolution of 1280 \* 800 on a Toshiba Satellite Pro laptop.


# Installing **SAS WW2** from Disc

- Insert the game disc into your DVD drive.
- If autorun does not work for some reason, double-click the file called 'SAS\_Install.exe' that is on the game disc.
- When prompted, enter the licence key you will have been provided with, when you purchased **SAS WW2**.
- Then, follow the remaining on-screen instructions. The program will install the **SAS WW2** files first. Then, the installer for the Java run-time should automatically launch. You can exit from the Java run-time installer if you already have the same or a later version of the run-time installed. The Java run-time installer is also on the game disc as its own file, called 'jre-6u5-windows-i586-p-s.exe', and you can run it separately at any time if you wish by inserting the game disc and double-clicking it.

## Updating to version 1.1

The disc has version 1.0. Version 1.1 has many many enhancements and a number of bug fixes. You must now update to version 1.1. To do this, go to the NWS web site and download the update installer.

## Running **SAS WW2**

On a Windows PC, you must click on the icon on your desktop (that looks like this: ) to run **SAS WW2**.

Do NOT try to run SAS by simply double clicking on the SASWW2.jar file in the folder where it was installed. **SAS WW2** MUST be run using the desktop shortcut, because this shortcut includes command line instructions that set the required amount of memory for the java run time when running **SAS WW2**.

## Uninstalling **SAS WW2**

On a Windows PC, navigate through Start->Programs->SAS-WW2 and click on the "uninstall" option. This removes all game files, including saved game data.

You will not need to reboot after the game is uninstalled.



# **How to play SAS**

Welcome to your one-stop-shop for instructions on playing **SAS**.

Playing **SAS** is as simple or complex as you want to make it. There are deep strategic and operational challenges; but you can automate any or all major tasks (steps 3 to 8 below) by using your computerised 2-I-C.

You can play a whole turn in just a few minutes by using all the automated help features. This is the best way to quickly start playing **SAS WW2**. It is recommended that you first read the [how to play a turn in 5 minutes](#) help page. And the length of the turn itself is variable' - it can be anywhere from 1 week to 6 months of 'real time'.

Then you can follow these links at your leisure to learn how to play the game in more depth. You will discover that **SAS WW2** gives you unparalleled flexibility by allowing you to take control of just the areas you want. This way, you can ease into the game play at your own pace, and according to your own areas of interest. Some players will want to design their own ships and select the best ships for their navy. Some will want to learn how to control operational orders - to varying levels of detail. Some will want to control spending on infrastructure, troops and aircraft more closely. Some will want to do all of it.

Follow these links, in the recommended order, to learn everything you need to know:

1. [Your Admiral's Office](#)
2. [Load a game](#)
3. [Get briefings](#) on your situation
4. [Build infrastructure](#)
  - [Overview of infrastructure](#)
    - [Technologies](#)
  - [How strategy affects infrastructure](#)
5. [Design and build ships](#)

- Option 1 - Full automation
- Option 2 - Change strategy
  - How strategy affects shipbuilding
- Options for modifying or designing your own ships
  - Option 3 - Add or replace with your own ship designs or selections
  - Option 4 - Start with your own ship designs or selections
  - Option 5 - Full manual control

## 6. Construct aircraft

- How strategy affects aircraft construction

## 7. Raise troops

- Your 2-i-C's plan
- Enemy info
- Adjusting the plan

## 8. Deploy fleets of ships, with appropriate mission orders

- Option 1 - Full automation
  - Types of missions
  - The Missions List
- Option 2 - Cancel missions
- Option 3 - Change strategy
  - How strategy affects fleet deployments
- Option 4 - Change mission parameters
  - How the 2-I-C calculates fleet movement
- Option 5 - Full manual control
  - Create a fleet
  - Assign ships
  - Set rules of engagement
  - Set movement path

## 9. Deploy aircraft to carriers and airfields

## 10. Run the Turn!

- Making **hourly** tactical decisions



- [Returns to base](#)
- [Responses to enemy fleets](#)
- [Full manual control](#)
  - [Fleet status information](#)
  - [Controlling movements and orders](#)
    - [Rules of engagement](#)
    - [Edit fleet movements](#)
- [Air strike preferences](#)
- [Controlling air strikes](#)
  - [Fine tuning air strikes](#)
- [Options when running \(or replaying\) the turn](#)
  - [Event message types](#)

## 11. [Replaying the Turn](#)

In addition, you can save your game file at any point prior to running the turn. This allows you to exit SAS and come back to the same point when you want. See [Loading and saving files](#) for more info.

You can also play games by email - see the [Play by Email](#) help file.

# ***How to play a turn in 5 minutes***

This overview guides you through playing a turn of the ***Intro*** campaign, which is a simplified, hypothetical Pacific scenario. In this scenario, a turn represents one month of real time.

(Note: the 'Intro' scenario is purely for demonstrating the most basic mechanics of game play. It makes no attempt at play-balance or historical accuracy. Players should move on to one of the more realistic scenarios as soon as possible.)

This quick walk through will get you going in the minimum time. Many screens will be featured only cursorily. Later you can learn how to use the screen information and controls more thoroughly. Almost every screen has a '?' button, usually at the top-right side. Clicking this will bring up context help for that screen. You can use this feature during this walk through any time you want. But be aware that this will extend the time it will take to play the first turn.

You should be at the ***Start Screen***:



## Load the ***Intro*** campaign

Move your mouse over the 'Select Campaign' option on the ***Start Screen***. The option will now be bordered in red:



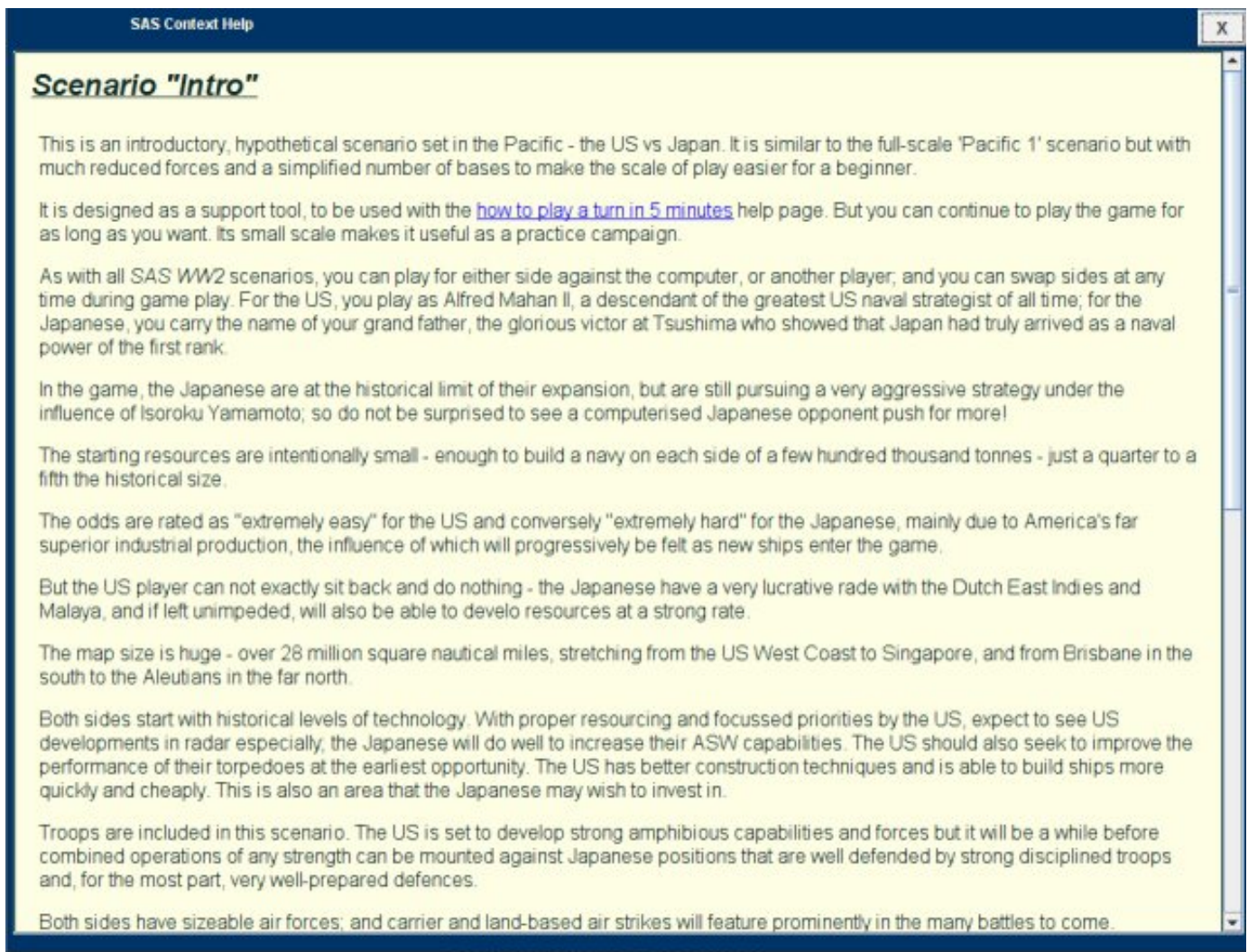
Click on the option. A new screen will now appear, where you select the campaign you want to play:



To select the *Intro* campaign:

- Click on 'Intro' in the top-left list, where it says '*1.Choose Game*'.

You will now see a short description of the *Intro* campaign in a pop-up help page:



After reading the page, close it by clicking on the 'X' button at the top right of the screen:



- Click on 'United States' in the middle list where it says '**2. Choose Side**'. This selects the United States as the side to play for in this introductory walk-through.
- Click the 'Continue Game' button at the bottom-right of the screen, where it says '**3. Load File**'.



(Use of the separate 'Re-start Game from beginning' option is explained in [how to load a game](#)).

You are now in your *Admiral's Office*, ready to start the game for the United States. Your *Admiral's Office* is your command centre for giving orders and reviewing information:





Playing one turn of the game involves doing four things in sequence. This help page sequentially takes you through all of them:

1. Reviewing your current situation
2. Building new resources: infrastructure, ships and - if these are enabled for the current campaign - aircraft and troops
3. Deploying your ships, aircraft and any troops being transported, using operational orders that include rules of engagement for your fleets
4. Running the turn (without making any tactical interventions).

## Reviewing your current situation

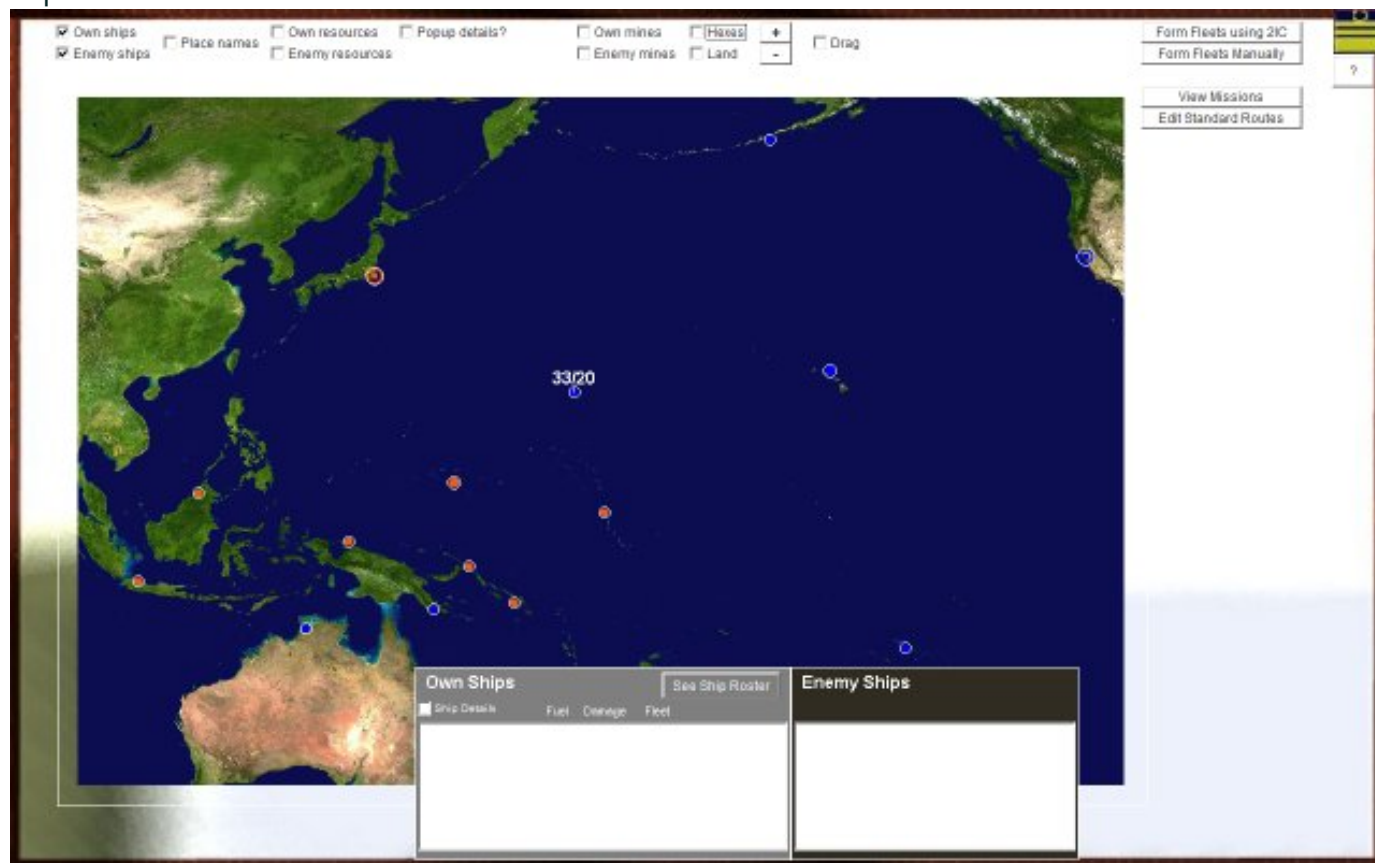
There are three kinds of information available to you:

- Information on the Theatre Map.
- Information in the Briefing Report.
- Information in the Turn Replay.

For this 5 minute walk-through you will learn how to access this information. Later you can learn how to make use of it.

### Theatre Map

*To access the Theatre Map*, click on the big wall map on the wall of your Admiral's Office. The map will expand to full screen size. It should look like this:



The map shows the geographic location and status of your own fleets and known enemy fleets and ships, as well as your own and enemy troop and aircraft strengths. You can see detailed mappings of how your air power currently projects into every hex of the theatre map; and you can do the same for the enemy's air power (as known to you from your intel). You can also see your own minefields and suspected enemy minefields. And you can link to detailed information about the current orders for all of your fleets.

The map includes controls for enabling or disabling the display of various kinds of information.

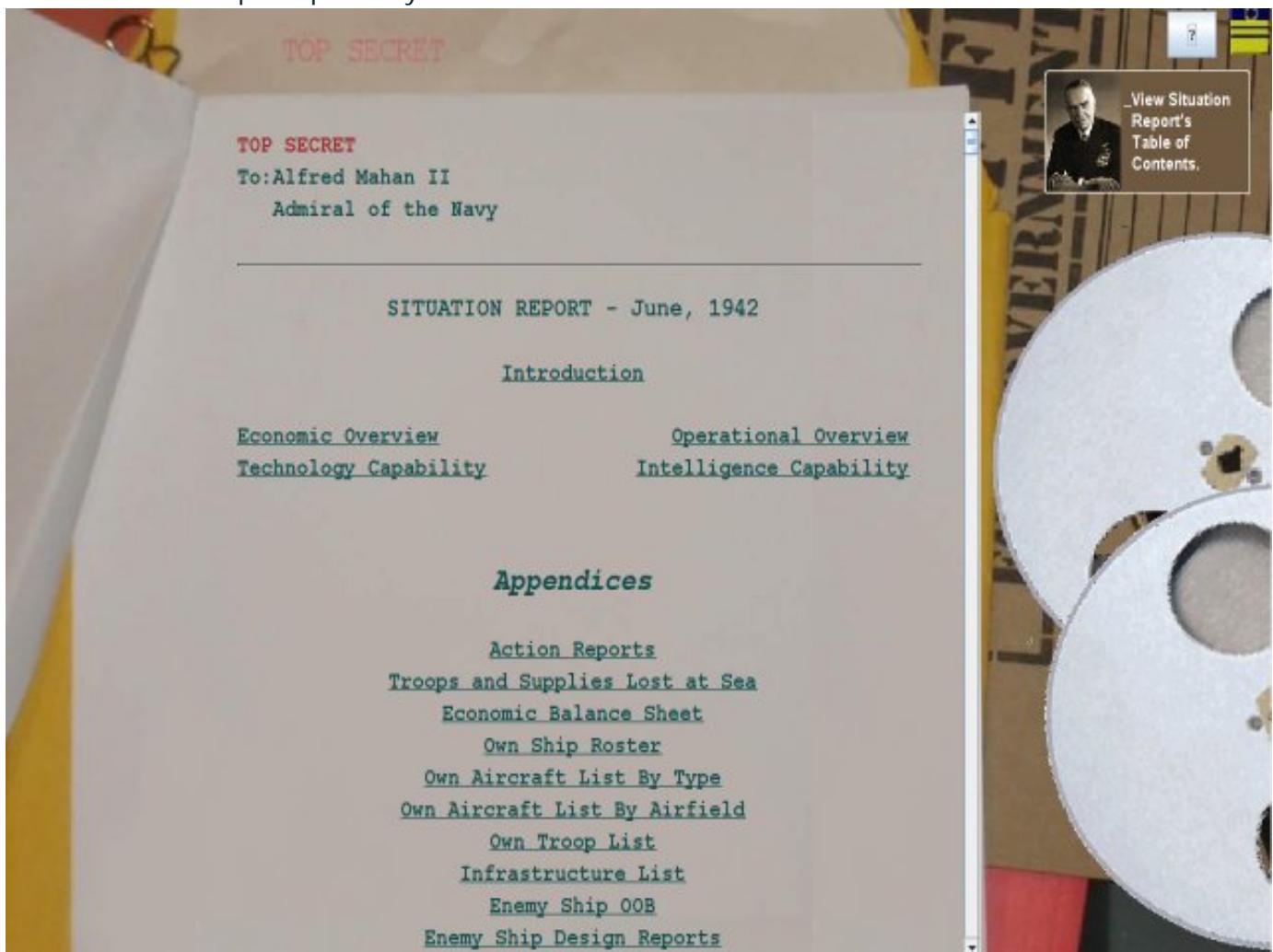
Close the map by clicking on the top-right **SAS WW2** icon .

## Briefing Report

*To access the Briefing Report*, click on 'Briefings' on the blackboard to the left of your Admiral's Office:



You will see the report open on your desk. It will look like this:



Except for the first turn, the report gives an overview of action from the last turn with links to any battles and summary information on losses of ships, troops and aircraft and a detailed economic balance sheet. Enemy intelligence is also summarised - their technology, current order of battle for their navy, and intel on their ship characteristics. Details of all your own resources - ships, troops, aircraft and infrastructure at your ports and airfields are provided, as are summary service records for your fleets and ships.



You can jump to sections in the report using the links on the first page table of contents; and you can also just scroll through the report.

## Turn Replay

The turn replay is not available at the start of the game. You will see the replay later on in this help guide.

Close the *Briefing Report screen* by clicking on the **SAS WW2** icon  at the top-right of the screen. This returns you to the *Admiral's Office*.

---

## Building resources

You can now add to your ships, aircraft, troops and infrastructure by building more.

Automated help is available for all these tasks, so it takes a few seconds only to do all of this if you use the help to the maximum extent.

The recommended order of play is to build in this order:

- Build infrastructure.
- Build ships.
- Build troops.
- Build aircraft.

Click 'Build' on the top-left blackboard:

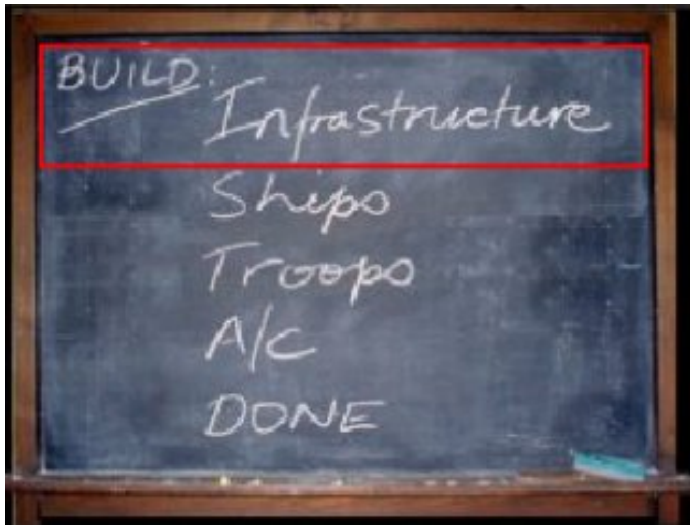


You will now see the *Build Menu* on the blackboard:

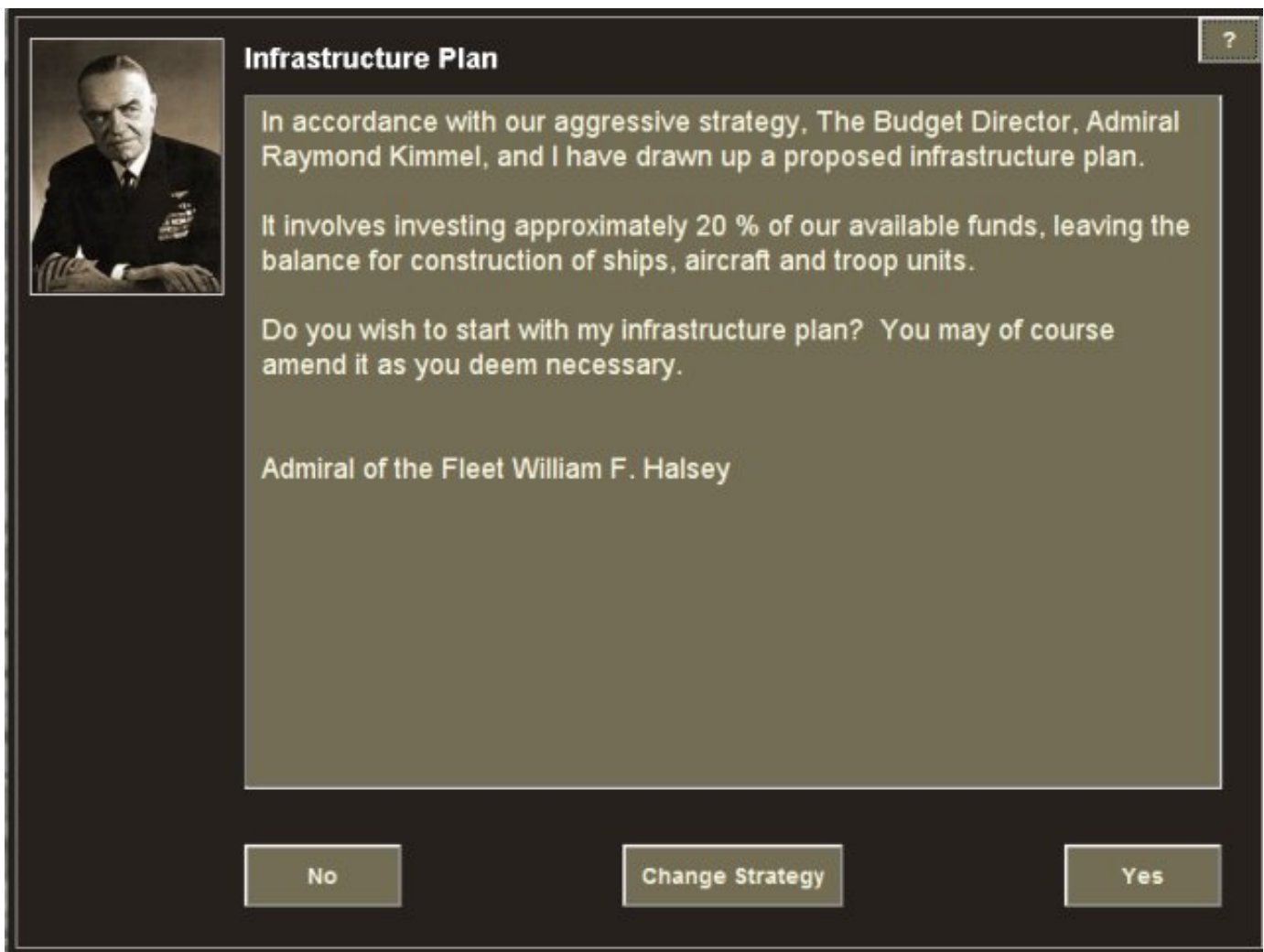


Build infrastructure

Click 'Infrastructure' on the blackboard menu:




You will now see this screen:



Infrastructure means the facilities at each of your ports - dockyards, defences and surrounding airfields as well as the level of industrial development servicing the port. It also includes your training facilities and levels of technology R&D and enemy intelligence.

Your 2IC has planned how many resource points (RPs) to spend on infrastructure, and where to spend them - based on your current 'aggressive' strategy. To see the plan, click the 'Yes' button at the bottom-right of the

screen: 

The details of the plan will appear:

BUILD Infrastructure

?

Remaining RPs

2377

---

Investments

RP's to Spend

Current Level

New Level

Naval & Air Training

55

6.0

6.11

Army Training

55

5.5

5.61

Intelligence

75

6.0

6.075

Technology

46

Priorities

5.0

5.046

Port Infrastructure

308

(Max RPs spendable = 4350)

Select a Port

San Francisco

Resource priority

High

Export Industry

0.0

0

Domestic Industry

8.0

8

Docks

9.5

10

Airfields

10.0

10

Defences

8.0

10

Clear all Allocations

Commit Funds

You can use this screen to edit any aspect of the plan; but for now, just accept it without amendment by clicking the bottom-right 'Commit Funds' button to lock in the plan:

Commit Funds

You will be returned to your *Admiral's Office*. The phase of the turn related to building infrastructure is now complete.

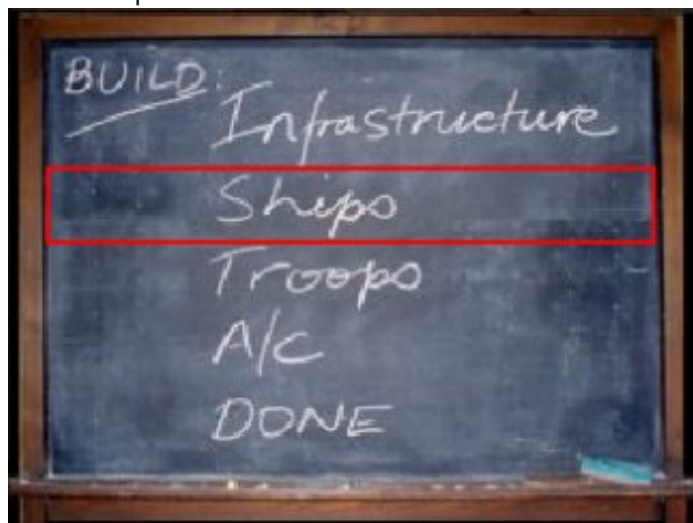
## Build ships

The *Intro* campaign starts with no ships on the US side so you must build them now. Ships built on the first turn then become available immediately (unless specifically delayed).

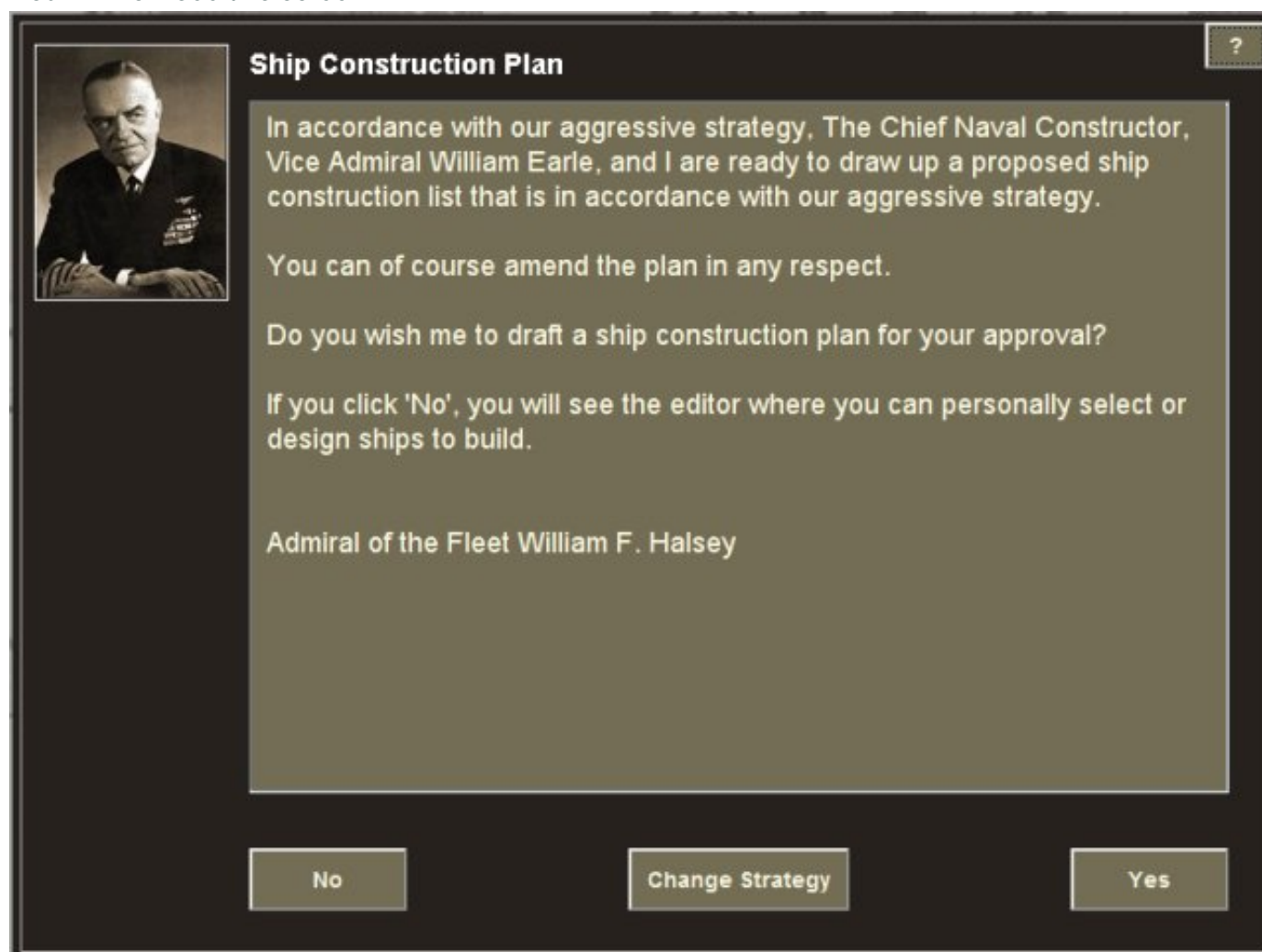
The simplest way to build a navy from scratch is to rely (again) on your 2IC. He can select the right types of ships and balance the numbers of battleships, cruisers, escort ships and so on, to suit your overall strategy.

You can vary any part of his plan or do it all yourself and even design your own ships, but for now, the simplest option will be followed.

Click 'Ships' on the blackboard menu:



You will now see this screen:



Click the 'Yes' button at the bottom-right of the screen to authorise the construction of a navy by your 2IC.



After a few seconds, you will see a scrollable list of the ships listed by type:

**Ship Roster** ☐ see Undamaged ☐ see Damaged ☐ see Lost ☒ see Building Up Down X

**AIRCRAFT CARRIERS**

Essex		Essex class	34187
Bogue		Bogue class	15622
Casablanca		Casablanca class	10247

**BATTLESHIPS**

Iowa		Iowa class	58154
------	--	------------	-------

**CRUISERS**

New Orleans		New Orleans class	13803
Brooklyn		Brooklyn class	13035
Cleveland		Cleveland class	12908

**ESCORTS**

Sautley		Fletcher class	2934
Radford		Fletcher class	2934
O'Bannon		Fletcher class	2934
Nicholas		Fletcher class	2934
LaVallette		Fletcher class	2934
Jenkins		Fletcher class	2934
Fletcher		Fletcher class	2934
Chevalier		Fletcher class	2934
Benson		Benson/Gleaves class	2453
Mayo		Benson/Gleaves class	2453
Tripp		Sims/Benham class	2389
Mayrant		Sims/Benham class	2389
Lang		Sims/Benham class	2389
Benham		Sims/Benham class	2389
Elett		Sims/Benham class	2389
Bowers		Bowers class	1650

...scroll down for more

Close the screen by clicking the top-right 'X' button:



You will now see a screen where you can edit the plan by selecting or designing some of your own ships:

## BUILD Ships

?

### 1. Select type

- Battle
- Cruiser
- Escort
- Merchant
- Submarine
- Carrier

### 2. Select class

- Montana
- Nevada
- New Mexico
- North Carolina
- Pennsylvania
- South Dakota

### Ship Data:

Class: **South Dakota**  
 Name: **South Dakota** Get Name

### 3. Or set these values...

Size	Gun #	Calibre	Sec.	Armour	Strength	Speed	Range
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5

medium Battleship  
 44819 tonnes (full load)  
 9 \* 16.0 in. guns  
 13.5 in. side belt  
 2778 pts strength  
 27 kts. max speed  
 15676/14002/6223 nms @ 12/16/24 kts

Weeks to commissioning:  Set Damage:

### Navy List

			Tonnes
Albacore	Balao Class	fast large Submarine	1801
Charles Lawrence	Bowers Class	medium Destroyer Escort	1650
Benham	Sims/Benham Class	fast medium Destroyer	2389
Benson	Benson/Gleaves Class	fast medium Destroyer	2453
Bogue	Bogue Class		15622
Bowers	Bowers Class	medium Destroyer Escort	1650
Brennan	Brennan Class	slow medium Destroyer Escort	1527
Brooklyn	Brooklyn Class	fast large light Cruiser	13035
Cannon	Cannon Class	slow medium Destroyer Escort	1546
Casablanca	Casablanca Class		10247
Chevalier	Fletcher Class	fast large Destroyer	2934

Build

Cancel

View All

Total Tonnage Built: **266629**  
 Remaining Tonnage To Build: **11085 tonnes**

Finished

For this quick walk-through, no editing will be done. Just agree to the plan by clicking the 'Finished' button

**Finished**

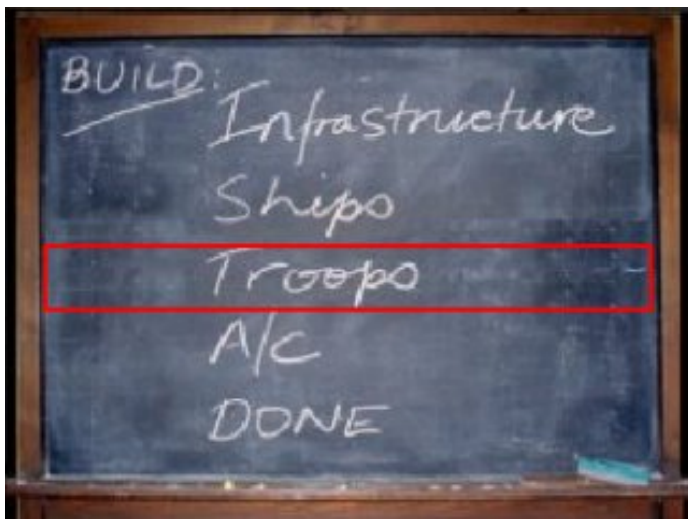
at the bottom-right of the screen. You will now be back in your *Admiral's Office*. The build ships phase of the turn is now complete.

## Build Troops

The *Intro* campaign starts with some troops on each side, but you can also raise some more. These always start at your home base.

Click 'Troops' on the blackboard menu:





You will then see this screen:

## BUILD Troops

Desired strength as a % of enemy's:

% of Budget to spend:

Raising training levels is:

Raising equipment levels is:

Desired ratio of Garrison : Amphib. troops:

No Limit

10%

Important

Important

60:40

The plan is to raise 64000 infantry troops.

They will be immediately available at your home port of San Francisco

The cost will be 192 RPs.

In addition, 128 RPs would be spent on improving training and equipment levels for all troops raised in the future.

The total cost would be 320 RPs.

**Current Strengths:**

	Own Troops:	Enemy Troops:
Troop numbers:	126000	(No estimate available)
Troop combat value:	80200/55800	(No estimate available)
Troop training:	Above Average/Below Average	(No estimate available)
Troop equipment:	Very Good	(No estimate available)

Cancel

Redo

Commit

Again, your 2IC has prepared a plan based on your strategy and various specific attributes. Normally you may want to modify the plan, but for this quick run-through just agree to the plan by clicking the 'Commit'



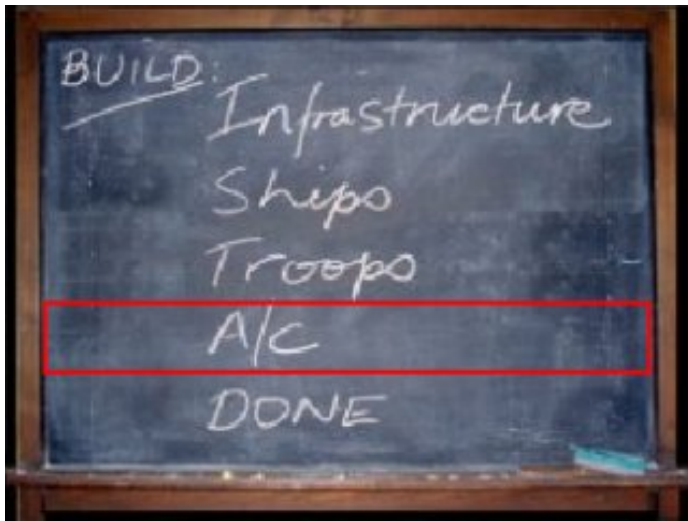
button at the bottom-right of the screen. You will now be back in your *Admiral's Office*.

The build troops phase of the turn is complete.

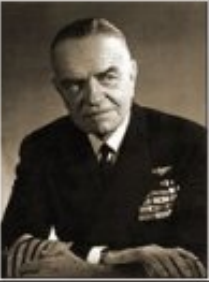
## Build Aircraft

The *Intro* campaign starts with no aircraft yet available for your carriers and land-based airfields.

Click 'A/C' on the blackboard menu:



You will now see this screen:



### Aircraft Construction Plan

In accordance with our aggressive strategy, the Theatre Commander, Air Forces, Air Chief Marshall Henry Hall, and I have drawn up a proposed aircraft construction list.

Our strategy is to favour bombers of all types: 20% interceptors, 20% escort fighters, 40% bombers of all types and 20% reconnaissance aircraft.

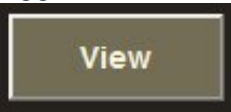
You can of course amend the plan by varying the resources available for production, and also by designating certain aircraft as having production priority.

Admiral of the Fleet William F. Halsey

[Change Strategy](#)

[View](#)

Your 2IC is ready to plan the construction of new aircraft suited to your overall strategy. (For example, more aggressive strategies favour more bombers). You can change the strategy but for now, click the 'View' button



to see the plan:

**BUILD Aircraft**

(Maximum number that can now be operated = 965 ac of all types).

?

Type		Number Ordered
Hudson I	Long Range Recce/Light Bomber	6
Maryland Mk II	Medium Bomber	6
A-20A Havoc	Medium Bomber	6
A-20C Havoc	Medium Bomber/Torpedo Bomber	6
B-17C Flying Fortress	Heavy Bomber	6
B-18A Bolo	Heavy Bomber	0
B-18B Bolo	Long Range Recce/Heavy Bomber	0
B-24D Liberator	Heavy Bomber	54
B-25B Mitchell	Medium Bomber	6
B-25C/D Mitchell	Medium Bomber/Torpedo Bomber	27
B-26 (Pac) Marauder	Medium Bomber	6
B-26 Marauder	Medium Bomber	6
B-26A Marauder	Medium Bomber/Torpedo Bomber	6
B-26B Marauder	Medium Bomber	6
F2A-1 Buffalo	Fighter	6
F2A-2 Buffalo	Fighter/Light Bomber	6
F2A-3 Buffalo	Fighter/Light Bomber	6
F4F-3 Wildcat	Fighter/Light Bomber	6

+

-

Total AC: 587


Total RPs: 359.83

Cancel

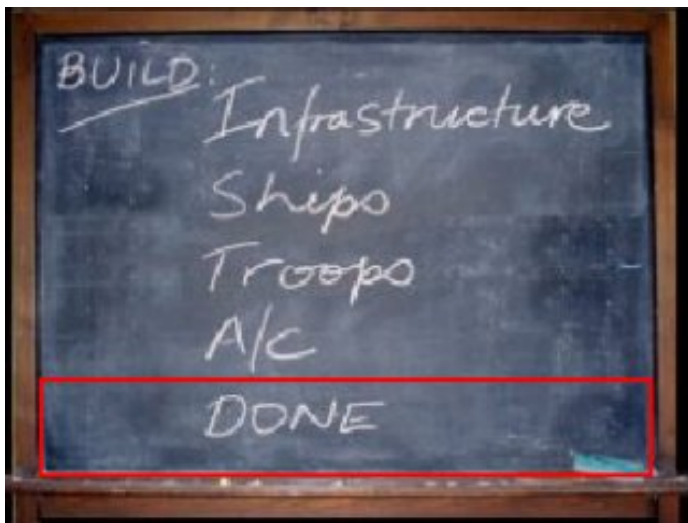
Change Strategy

Commit

You can amend the plan by prioritising or restricting certain aircraft, or by directly placing orders for set numbers of certain aircraft, or by changing the overall resources spent on aircraft but for now, just accept the plan by

clicking the 'Commit' button . You will now be back in your *Admiral's Office*. The build phase of the turn is now complete.

Now, click 'DONE' on the blackboard *Build Menu*:



This returns the blackboard menu to the main *To Do* menu:



From here, you can start your deployment tasks.

---

## Deploying resources

Click 'Deploy' on the blackboard *To Do* menu:





You will now see the *Deploy menu*:

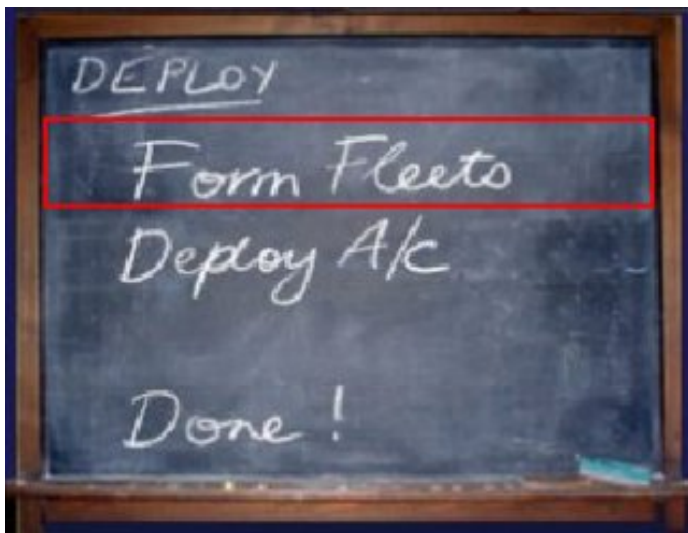


## Deploy fleets


**SAS WW2** gives you complete flexibility to choose the degree of control you want over this most important task. At the most extreme end, you can manually assign ships to fleets and set the route, rules of engagement and other orders for each fleet. At the most simple end, you can get your 2IC to plan everything for you with one mouse click. And there are many intermediate control options as well.

For this simple guide, you will use your 2IC to plan everything.

Click 'Form Fleets' on the blackboard:



You will now see this screen:



### Operational Plan

In accordance with our aggressive strategy, The Chief of Operations, Admiral of the Fleet William Evans, and I are ready to draw up a proposed operational plan, allocating our ships to fleets and determining their missions.

The plan will replace any that I may already have prepared for the current quarter.

Do you wish me to draft an operational plan for your approval? You can of course amend the plan in any respect.

Admiral of the Fleet William F. Halsey

No

Change Strategy

Yes

Your 2IC is ready to plan missions for your ships based on your strategy - from cautious patrols and convoys through to more aggressive bombardments, blockades and amphibious assaults. There are fourteen possible mission types. For each mission, the 2IC finds the best target hexes and the most suitable ships and sets up each mission if enough of the right ships can be found.

Yes

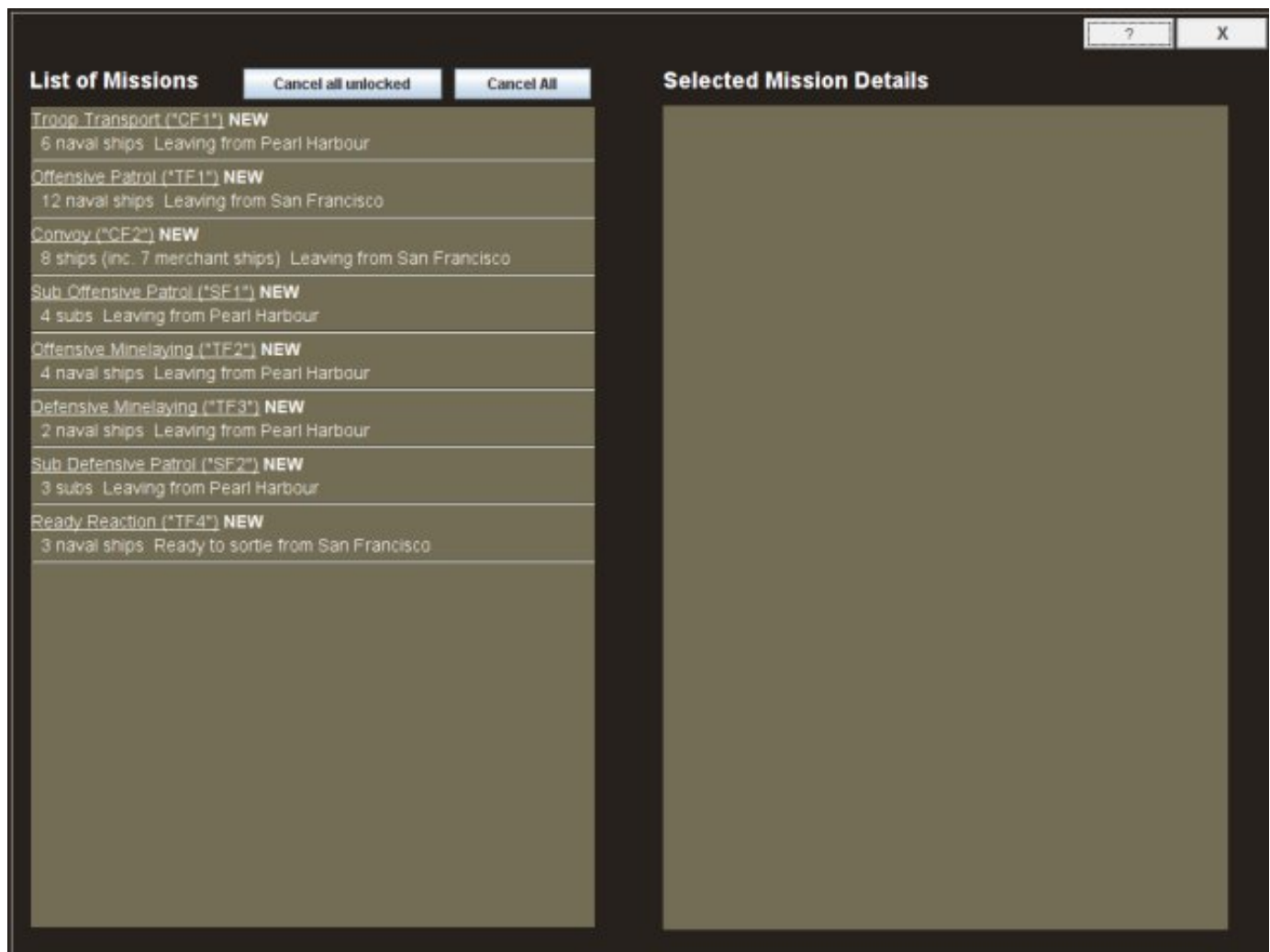
To authorise your 2IC to prepare the plan, click the 'Yes' button:

It may take a little time for your 2IC to plan all the missions, as there are many factors to consider. During this time, a progress bar and text message updates you on what is happening:



When the plan is complete, details of the planned missions will be listed:





You can view the details of any of the missions, cancel any and try again, but for now, just note that that you have some convoy and troop transport missions, some offensive patrols by surface ships and subs, and some minelaying missions. The remainder of your ships are placed in 'Ready Reaction' fleets - available to steam out at short notice to intercept enemy that come close enough.

You can view the route any mission will take, and other mission details, by clicking on it in the left-hand list. Details of the selected mission now appear on the right. The illustration here shows details for the 'Offensive Patrol' by fleet 'TF1':

?

X

List of Missions

Cancel all unlocked

Cancel All

Troop Transport ("CF1") **NEW**

6 naval ships Leaving from Pearl Harbour

Offensive Patrol ("TF1") **NEW**

12 naval ships Leaving from San Francisco

Convoy ("CF2") **NEW**

8 ships (inc. 7 merchant ships) Leaving from San Francisco

Sub Offensive Patrol ("SF1") **NEW**

4 subs Leaving from Pearl Harbour

Offensive Minelaying ("TF2") **NEW**

4 naval ships Leaving from Pearl Harbour

Defensive Minelaying ("TF3") **NEW**

2 naval ships Leaving from Pearl Harbour

Sub Defensive Patrol ("SF2") **NEW**

3 subs Leaving from Pearl Harbour

Ready Reaction ("TF4") **NEW**

3 naval ships Ready to sortie from San Francisco

Selected Mission Details

Offensive Patrol "TF1" **NEW**

Lock In

Cancel

1 Battleship

Iowa

1 Carrier

Essex

2 Cruisers

New Orleans Cleveland

8 Escorts

Sauley Radford O'Bannon Nicholas

LaVallette Mayo Trippe Mayrant

Leaves port Tuesday, 2nd. of June, 1942, 1 PM

Sailing from San Francisco

Patrolling hexes:

16/15 15/16 14/16 13/19 13/18

13/17

See Map

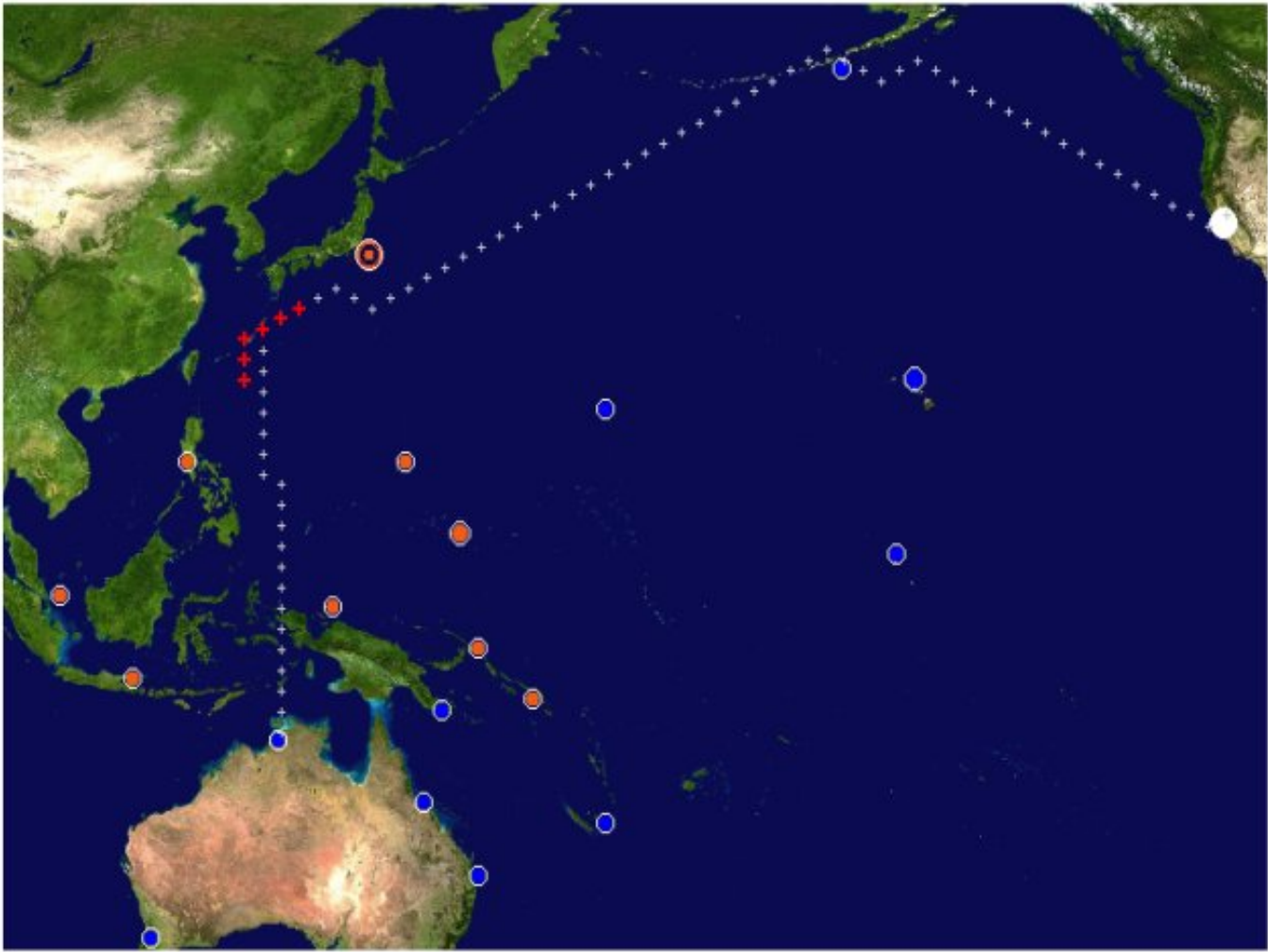
Total time on patrol = 5 days

Best fleet speed = 24 knots

Average fleet speed = 16.0 knots

Mission completed by Thursday, 25th. of June, 1942, Midday

To view the proposed route on the map, click the [See Map](#) link in the details page. You will see the route marked as a series of white crosses, with the actual objective hexes for the mission marked as red crosses:

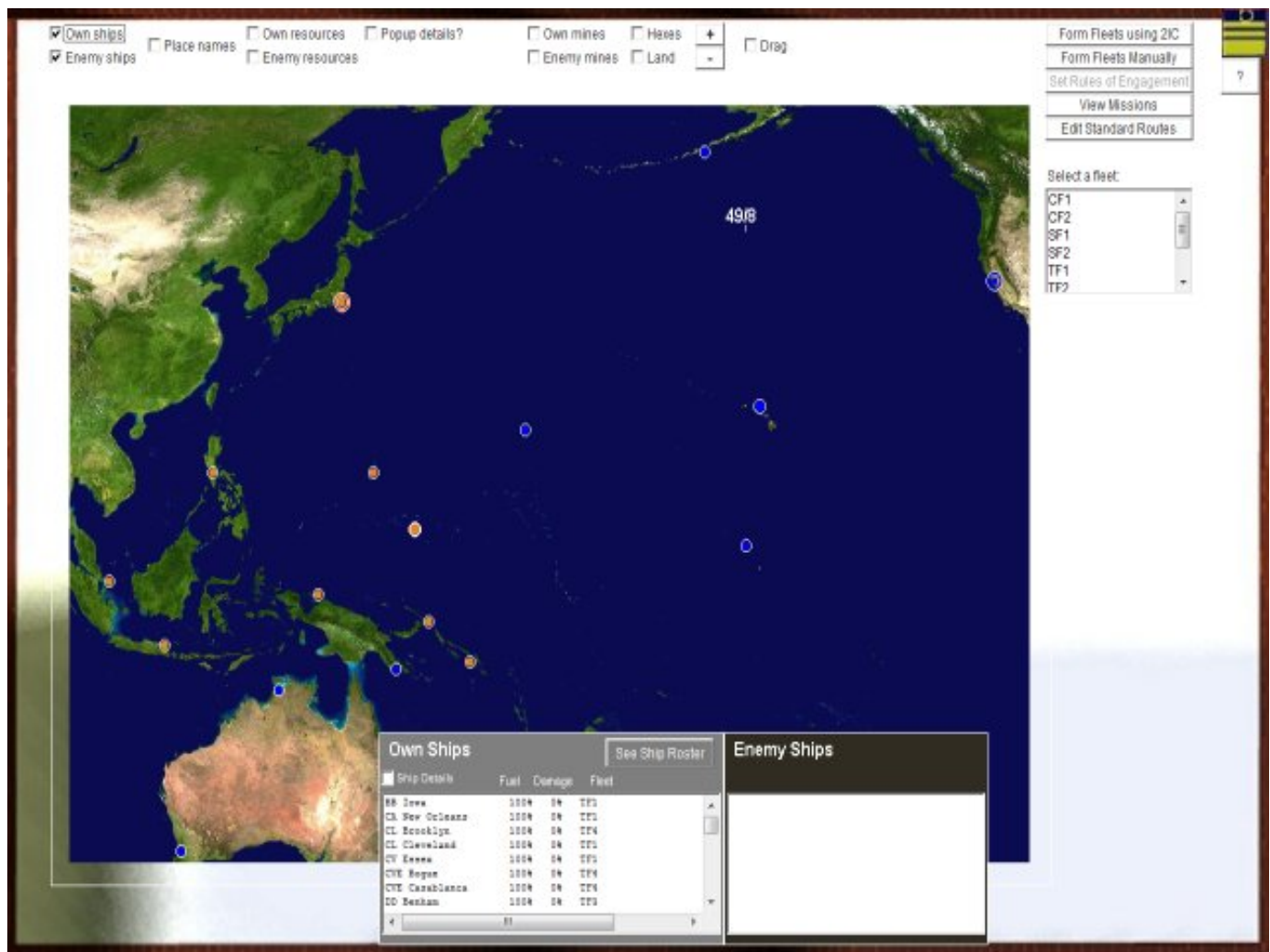


Close the map by clicking anywhere on it.

Now close the List of Missions list by clicking on the top-right 'X' button:



The *Theatre Map* is now displayed, and the fleets involved in the missions are shown in a list on the right-side of the map:



You can select any fleet and see more details of the route path and so on; but for this walk-through, just click the top-right SASWW2 icon to close the map and return to your *Admiral's Office*. You have now completed the task of deploying your fleets (including the transport of any troops to your own ports or to enemy ports to assault them).

## Deploy A/C

Your last task before running the turn is to deploy aircraft to your carriers and airfields.

Click on 'Deploy A/C' on the blackboard *Deploy Menu*. You will see this screen:

### DEPLOY Aircraft

#### Aircraft at Airfields

Airfield at San Francisco - 0 total a/c

Airfield at Pearl Harbour - 118 total a/c

1 \* A-20A Havoc  
2 \* A-20C Havoc  
4 \* B-17C Flying Fortress  
28 \* B-24D Liberator  
2 \* B-25B Mitchell  
6 \* B-25C/D Mitchell  
1 \* B-26 Marauder  
2 \* B-26A Marauder  
2 \* B-26B Marauder  
2 \* F2A-1 Buffalo  
1 \* F2A-3 Buffalo  
4 \* F4F-3 Wildcat  
7 \* F4F-4 Wildcat  
13 \* F4F-7 Wildcat  
2 \* Hudson I  
1 \* J2F-6 Duck  
1 \* Maryland Mk II  
16 \* OS2U-3 Kingfisher  
6 \* P-38G Lightning  
1 \* P-39K Airacobra  
2 \* P-39N Airacobra  
2 \* PBM-1 Mariner  
2 \* PBM-3D Mariner  
2 \* PBV-4 Catalina  
2 \* PBV-5A Catalina

#### Aircraft in Reserve

AC In Reserve - 0 total a/c

☐ Show Selected AC Details

#### Aircraft on Carriers

Essex' - 90 total a/c

54 \* F4F-4 Wildcat  
18 \* SBD-5 Dauntless  
18 \* TBF/TBM-1 Avenger

Bogue' - 23 total a/c

14 \* F4F-4 Wildcat  
5 \* SBD-5 Dauntless  
4 \* TBF/TBM-1 Avenger


Casablanca' - 27 total a/c

16 \* F4F-4 Wildcat  
6 \* SBD-5 Dauntless  
5 \* TBF/TBM-1 Avenger

Exit

Your 2IC has already planned the deployment of all available aircraft based on the type and number of aircraft you have, and the type and number that can be operated from each of your airfields and carriers.

You can change any of these decisions if you want, but for now, just click the 'Exit' button to agree to the plan:

. This returns you to your *Admiral's Office*. Your deployment tasks for the turn are now finished.

So, click 'DONE' on the blackboard *Deploy Menu*:





This returns the blackboard menu to the main *To Do* list, where in a moment you will be choosing to run the turn:



---

## Running the turn

Now that you have finished your build and deploy tasks, you are ready to run the turn.

When you run the turn the computer first calculates all enemy build and deploy orders (if the enemy side is computer-controlled). Then the computer puts your orders together with your enemy's and calculates all the action hour-by-hour.

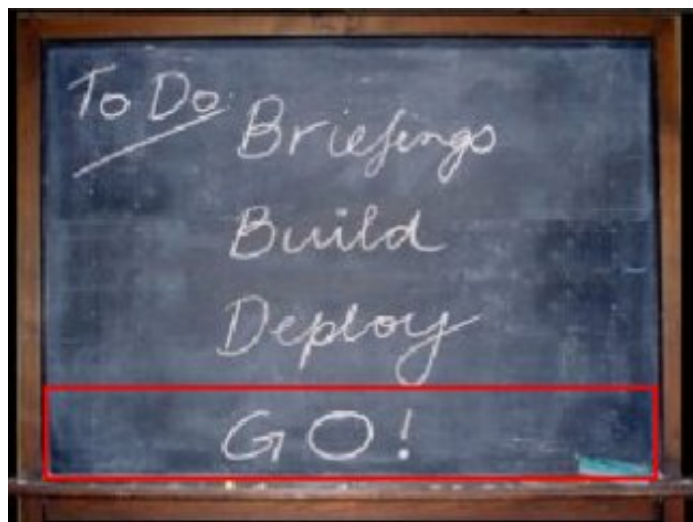
The calculation includes the very important task of making emergency responses for both sides. Your fleet deployments (and those of the enemy) were made by planning several weeks ahead; but the best laid plans always need minor or major modifications in the face of reality! The enemy may suddenly appear where he wasn't expected. New threats and opportunities arise all the time. And your fleets may be unable to complete their assigned mission due to damage.

As the calculation progresses you can selectively override the computer's recommended emergency hourly

responses for any of your fleets, airfields and airstrikes. (See [tactical responses](#) for more information). But for this walk-through we will keep things simple: the calculation will be allowed to run through with no player interference.

## Access the ***Run Turn Screen***

On the main *To Do* list, click 'GO!':



You will now be asked to confirm that you are ready to run the turn:





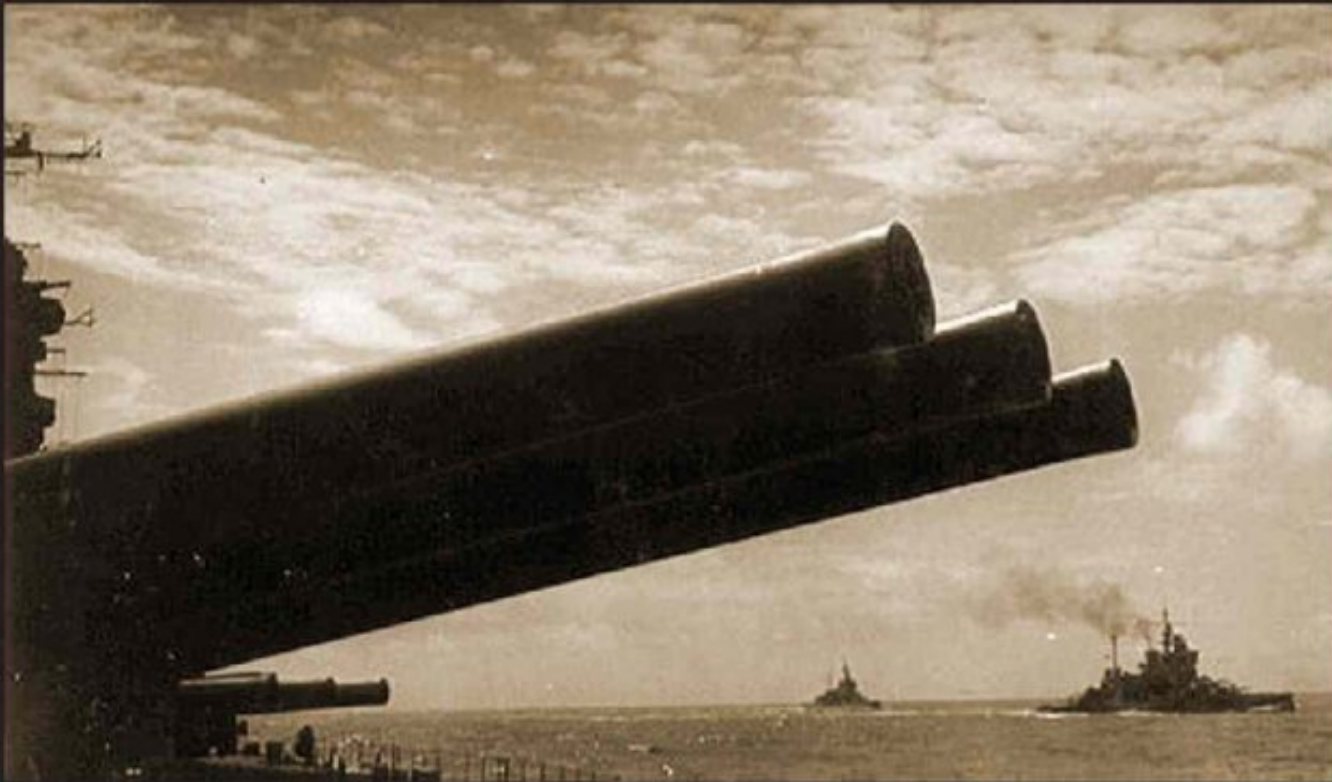
Cancel

OK

Click the 'OK' button at the bottom-right of the screen.

In the *Intro* campaign, the enemy's first turn moves have not yet been done. You will now see a screen that asks you if you want the computer to make moves for the enemy:

**You have completed and saved your moves, but the enemy's moves have not been completed. Do you want the computer to take over the enemy side?**



No

Yes

You could click 'No' and wait for another player to make moves for Japan. But for this run-through, and indeed anytime you want to just play against the computer, click 'Yes'.

The computer will now calculate all enemy moves. This may take a little time, but you get progress reports of the calculation:



## Calculating moves by Japan...



## Checking technology advances

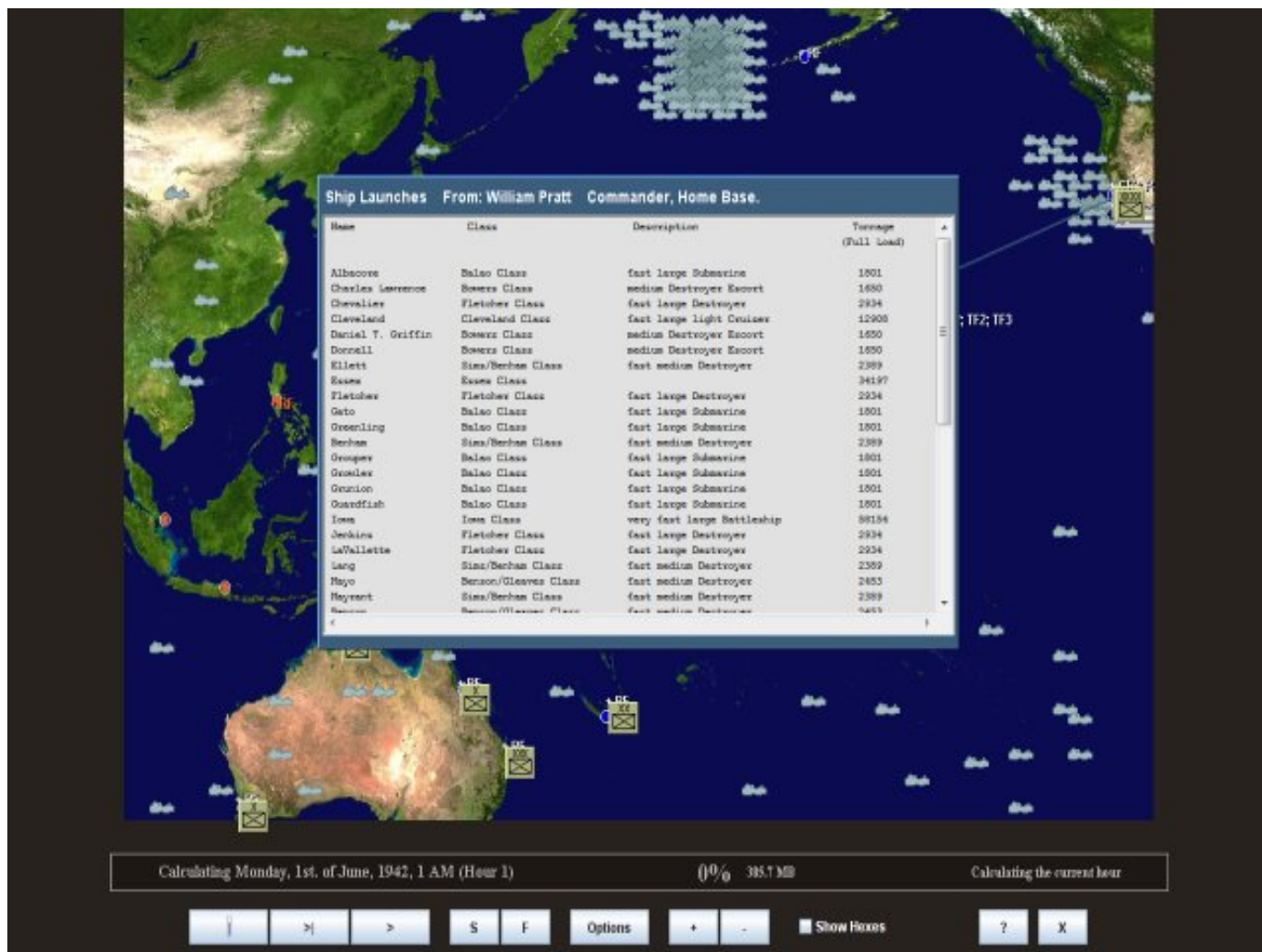


Usually the phase that takes the longest is when the computer is forming enemy missions. This may take a little while, so please just wait until it is all finished. The screen will then close automatically, and you will briefly see this screen, telling you that data for the run turn calculation is being prepared:



Please wait while data is prepared for the turn calculator...

After a few seconds, when this is complete, you will see the run turn screen:



The screen shows a map of the theatre, and some controls at the bottom for running the turn. The calculation is paused at the first hour, awaiting your command to start the hour-by-hour calculation.

The message in the middle normally shows on the first hour - it announces all new ships that are commissioning (becoming available for play) this turn:

## Ship Launches From: William Pratt Commander, Home Base.

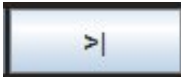
Name	Class	Description	Tonnage (Full Load)
Albacore	Balao Class	fast large Submarine	1801
Charles Lawrence	Bowers Class	medium Destroyer Escort	1650
Chevalier	Fletcher Class	fast large Destroyer	2934
Cleveland	Cleveland Class	fast large light Cruiser	12908
Daniel T. Griffin	Bowers Class	medium Destroyer Escort	1650
Donnell	Bowers Class	medium Destroyer Escort	1650
Ellett	Sims/Benham Class	fast medium Destroyer	2389
Essex	Essex Class		34197
Fletcher	Fletcher Class	fast large Destroyer	2934
Gato	Balao Class	fast large Submarine	1801
Greenling	Balao Class	fast large Submarine	1801
Benham	Sims/Benham Class	fast medium Destroyer	2389
Grouper	Balao Class	fast large Submarine	1801
Growler	Balao Class	fast large Submarine	1801
Grunion	Balao Class	fast large Submarine	1801
Guardfish	Balao Class	fast large Submarine	1801
Iowa	Iowa Class	very fast large Battleship	58154
Jenkins	Fletcher Class	fast large Destroyer	2934
LaVallette	Fletcher Class	fast large Destroyer	2934
Lang	Sims/Benham Class	fast medium Destroyer	2389
Mayo	Benson/Gleaves Class	fast medium Destroyer	2453
Mayrant	Sims/Benham Class	fast medium Destroyer	2389
Ransom	Benson/Gleaves Class	fast medium Destroyer	2453

OK, we are ready to run the turn.

Run the Turn!

Now, to start the calculation, click on the '>' button at the bottom-left of the screen:



Make sure you have not clicked the '>|' button:  as this button calculates only *one hour of action at a time*.

The calculation will now run through the full four weeks of action, calculating all fleet and aircraft movements, battles, emergency responses and many other events.

As events occur, messages will appear on screen summarising the event and pointing to its location:





There are over thirty different message types; later, you can learn how to filter out the ones you are not interested in.

Some events are more important than others of course - such as reports of surface battles, air strikes or submarines encounters. The battle messages have links to detailed reports and, in the case of surface battles, full shell-by-shell action replays! Do not be concerned at this stage about following all the action. Later you can learn how to slow down or pause the calculation. In any case, all of the action is fully replayable at your leisure in the turn replay, which you will see soon. And the action is also summarised in the **Briefing Report**.

As the turn is calculated, the progress bar updates. Your fleets move on the map. Event messages of various kinds quickly flash before you. The current hour being calculated is shown at the bottom of the screen:



As the calculation progresses you can freely zoom in or out and drag the map around, and turn hexes on or off. You can pause the calculation at any time or slow it down. For ease of gameplay, many features support hot keys as well as the mouse. These features are best left for your later experimentation. For now, just let the calculation complete at maximum speed.

The calculation should take around a minute on a reasonably fast computer. If it takes significantly longer than

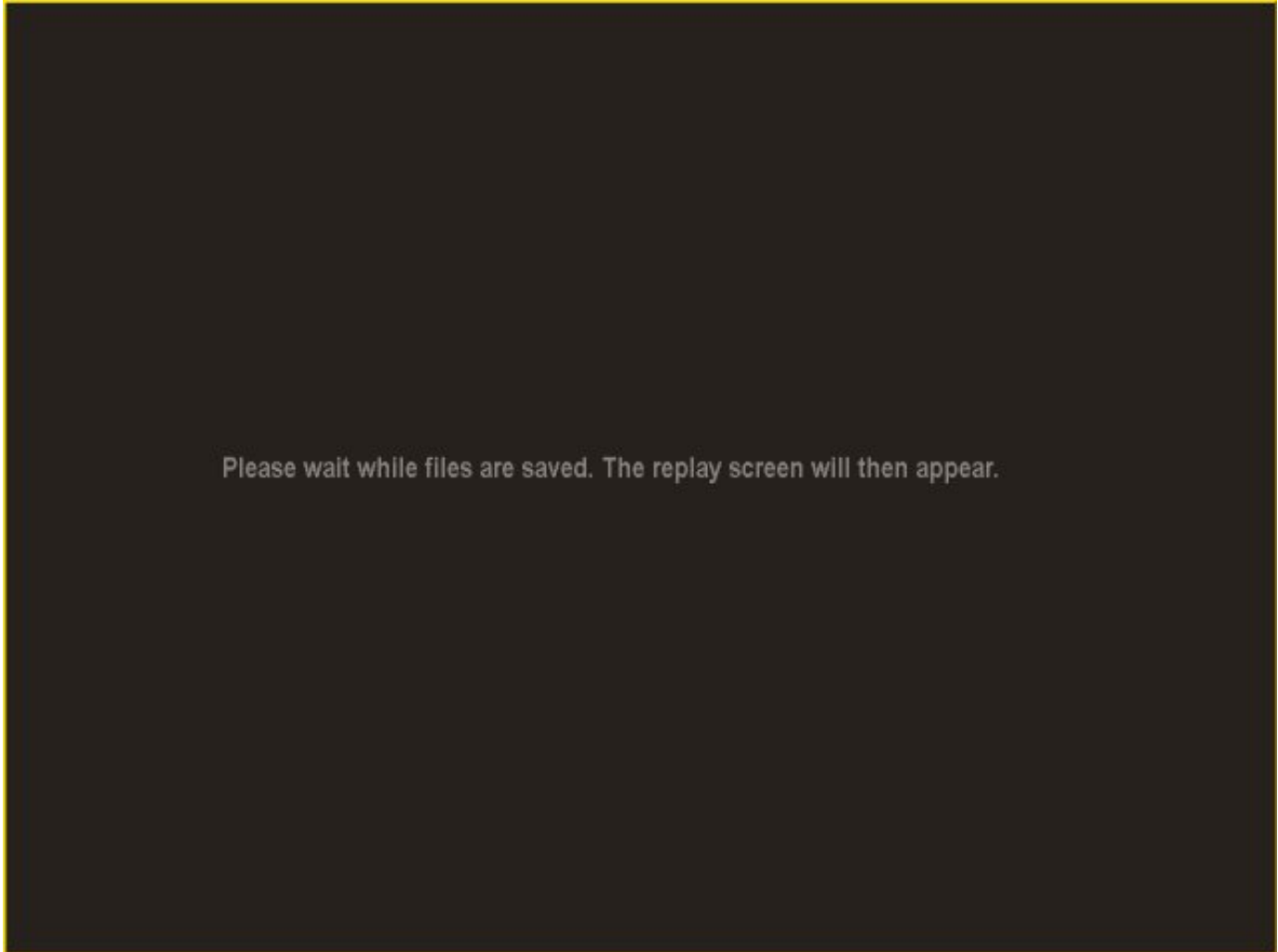


this - say 4 minutes or more - then your computer specification may be too low for optimum gameplay. But there are also ways you can maximise performance with your existing hardware. You can consult the [trouble shooting](#) help page at any time if needed.

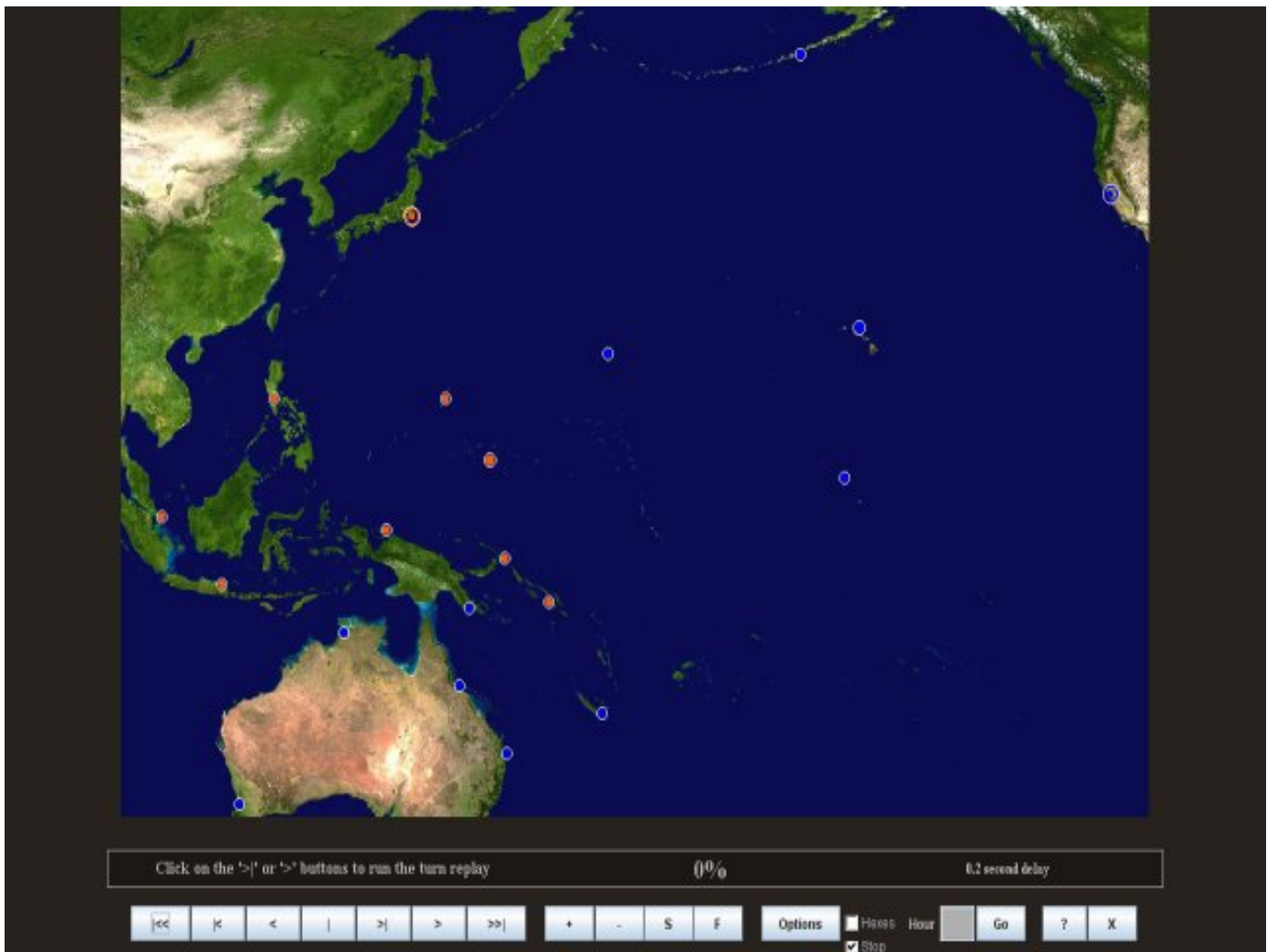
---

## Replaying the turn

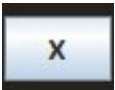
When the calculation is finished, a message will appear asking you to wait while the files are saved:



After a few seconds, the replay turn screen will then appear. It looks very much like the run turn screen but with a few more controls:



The replay is paused waiting for you to start it. Use the '>' or '>|' controls to move the replay forward either continuously or an hour at a time. The '>>|' control takes you to the end. The '<<', '<' and '<' controls work the same, but in reverse. The '|' button pauses the replay. For an overview of this and other features of the replay screen, see [replay the turn](#).

For now, just close the replay screen by clicking on the close button at the bottom-right of the screen:  This takes you back to your *Admiral's Office*.

You can bring up the replay screen again at any time by clicking 'Briefings' on the blackboard *To Do* main menu, and then clicking on the newsreels at the right-hand side of the screen.

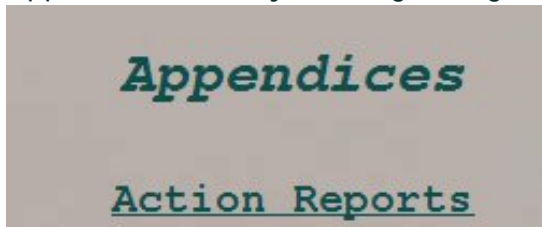
## Reviewing the Briefing Report

You have previously seen the Briefing Report in this overview, but at that stage, there was no action to report. If you click on 'Briefings' on the blackboard *To Do* main menu, you will see the Briefing Report as updated for the events of the turn just calculated.

## Action reports

In particular, the 'Action Reports' appendix lists all battles of any kind and provides hyperlinks to each battle report.

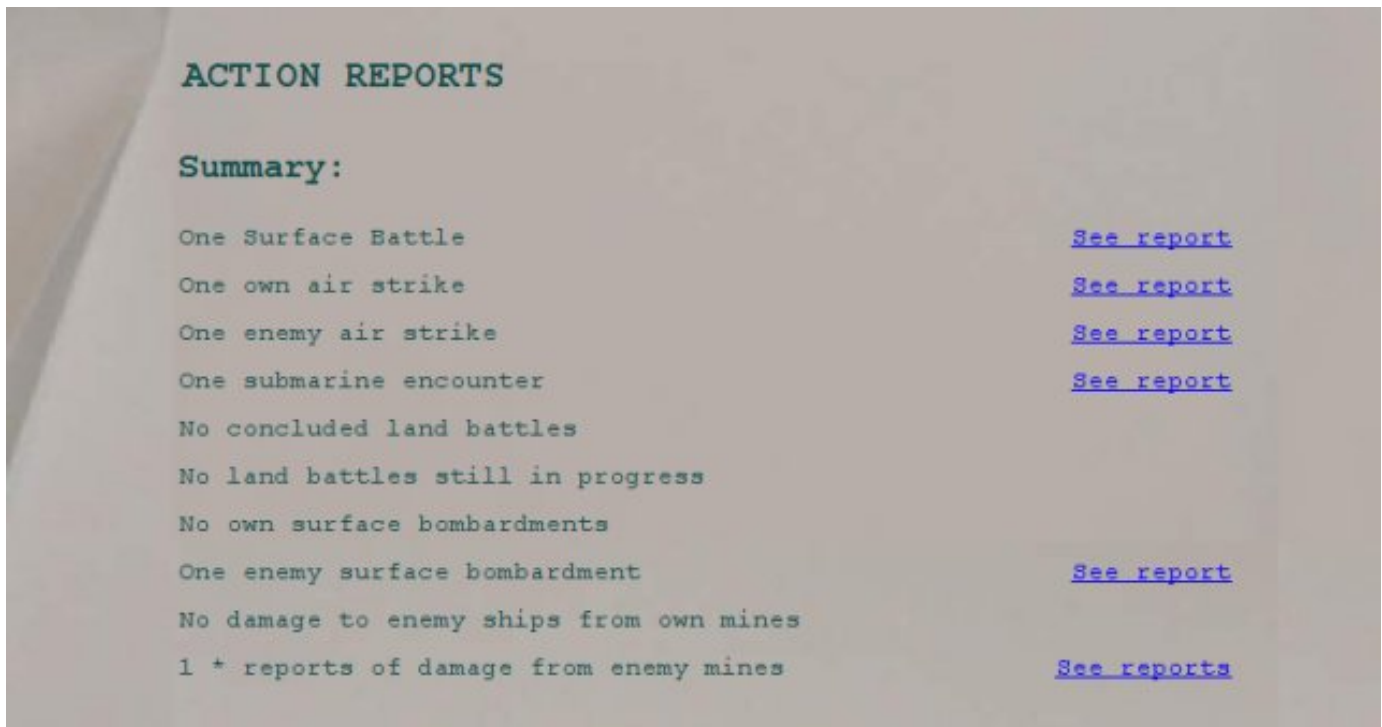
Go to this appendix now by clicking on 'Action Reports' in the front page table of contents - it is the first Appendix, or else by scrolling through the report:



The report should now display the Action Reports appendix.

Note: the following notes are illustrative only. Version 1.1 of SAS has introduced changes in combat mechanics which mean that the Intro campaign will not result on your computer in the exact results detailed below. Please treat the following outline as illustrative only.

The summary should list a variety of actions: **for example**: a surface battle, some air strikes by you and your enemy, a submarine encounter, a surface bombardment and one instance of damage from enemy mines:



## Summary report of a surface battle

If you click on the 'See report' hyperlink, adjacent to where it says "One surface battle", you will jump to the

'Surface Battles' section of the Action Reports. Here, any battles are listed in more detail:

Surface Battles

Battle of United States, Sunday, 21st. of June, 1942

Started 2 PM in Hex 64/10

See the report

Now click on the 'See the Report' hyperlink adjacent to where it says 'Battle of United States...'. You will see summary results of the battle:

Battle Results

Battle of United States, Sunday, 21st. of June, 1942

Started 2 PM

in Hex 64/10

Lasted 2 hours, 1 minute

Down

Up

Replay battle

Slight ripples, light air (1-3 knots), dry, occasional high level cloud. Perfect visibility

Opening range: 17938 m.

Own fleets: [CF1]

Enemy fleets: [TF3]

Own:	sup. struc. damage (* 10%)	hull damage (* 10%)	flooding (* 10%)	speed lost (* 3 kts)	Turret hits	Ammo lost (* 10%)	repair cost (* 10%)	Enemy Ships:	flooding (* 33%)	speed lost (* 6 kts)	Turret hits
Bowers	<div><div></div></div> SUNK	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	Harusame	<div><div></div></div> Undamaged		
Brennan	<div><div></div></div> SUNK	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	Hatsuyuki	<div><div></div></div> Light damage		
Cannon	<div><div></div></div> SUNK	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	Hibiki	<div><div></div></div> Light damage	<div><div></div></div>	
Charles Lawrence	<div><div></div></div> SUNK	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	Ikazuchi	<div><div></div></div> Moderate damage	<div><div></div></div>	<div><div></div></div>
Daniel T. Griffin	<div><div></div></div> SUNK	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	Mikuma	<div><div></div></div> Undamaged		
Donnell	<div><div></div></div> SUNK	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	Ryuho	<div><div></div></div> Undamaged		
								Shiratsuyu	<div><div></div></div> Undamaged		
								Taiyo	<div><div></div></div> Undamaged		
								Ukuru	<div><div></div></div> Undamaged		

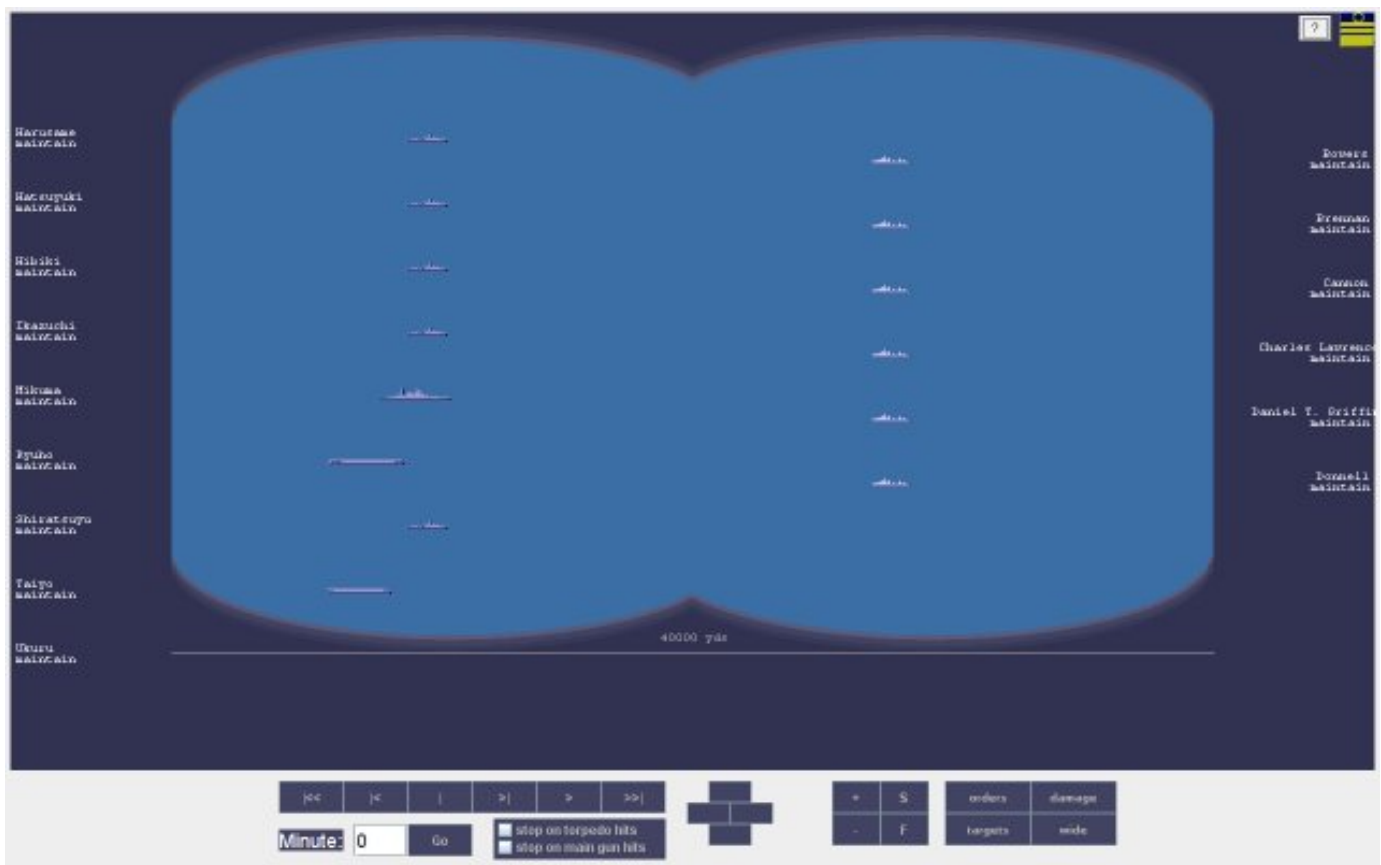
Help is available on how to interpret the information on the summary. But for now, just be aware that the summary graphically displays battle damage for all ships.

### Replay a surface battle

Best of all is the unique feature that allows you to replay the entire battle, shell-by-shell. Simply click on the

Replay battle

'Replay battle' button at the top-right of the screen: . You will now see this screen:



The screen has many controls for re-playing the battle forward or backwards at varying speed, zooming in and out, and optionally stopping on main gun or torpedo hits. You can view the ships changing target and movement orders and watch as damage of varying kinds accumulates on each ship.

For this walk through it is suggested that you simply close the screen by clicking on the **SAS WW2** icon at the top right side. Later you can explore this screen in more detail. Now click again on the **SAS WW2** icon at the top-right side of the battle summary screen to close it. You should now be back viewing the Briefing Report Action Reports appendix.

## Summary reports of other actions

The Action Reports appendix should also have links to the other battles: two airstrikes and a submarine engagement. If it is not immediately visible, scroll through the Briefing Report until it is:

## Own Air Strikes

Battle of Gulf of Papua, Monday, 22nd. of June, 1942

Started 11 AM in Hex 21/34

[See the report](#)

---

## Enemy Air Strikes

Enemy strike on Port Moresby

Started 4 PM in Hex 24/34

[See the report](#)

---

## Submarine Attacks

Battle of United States, Saturday, 20th. of June, 1942

Started 1 PM in Hex 63/13

[See the report](#)

---

Follow the links to see similarly presented summary reports on these battles. You may note that while the two air strikes were rather inconclusive, the submarine engagement was not - four allied merchant ships being sunk by Japanese submarines:



Battle Results

Battle of United States, Saturday, 20th. of June, 1942

Started 1 PM

in Hex 63/13

Lasted

Down

Up

Ripples, light breeze (4-6 knots), mostly dry with patches of light drizzle, some high and medium level cloud. Very good visibility

Opening range: 13301 m.

Own fleets: [CF2]

Enemy fleets: [SF1]

Own:

sup. struc. damage (\* 10%)

hull damage (\* 10%)

flooding (\* 10%)

speed lost (\* 3 kts)

Turret hits

Ammo lost (\* 10%)

repair cost (\* 10%)

Enemy Ships:

flooding (\* 33%)

speed lost (\* 6 kts)

Turret hits

Lang	SUNK	■■■■■■	■■■■■■	■■■■■■	■	■■■■■■	I61	Undamaged
Small Merchant-1	SUNK	■■■■■■	■■■■■■	■		■■■■■■	I63	Undamaged
Small Merchant-2	Undamaged						I64	Undamaged
Small Merchant-3	Undamaged						I67	Undamaged
Small Merchant-4	SUNK	■■■■■■	■■■■■■	■		■■■■■■		
Small Merchant-5	Undamaged							
Small Merchant-6	SUNK	■■■■■■	■■■■■■	■		■■■■■■		
Small Merchant-7	Undamaged							

Small Merchant-6 hit by 1 torpedo from submarine I67

Lang hit by 2 torpedoes from submarine I64

Small Merchant-4 hit by 2 torpedoes from submarine I63

Small Merchant-1 hit by 2 torpedoes from submarine I61

No damage to submarines.

Finally in terms of action reports, the appendix summarises details of an enemy bombardment of Port Moresby, and of damage to the Carrier **Essex** from enemy mines:

### Enemy Surface Bombardments

Enemy bombardment in the last turn caused a loss of 2.6 RPs to storages at Port Moresby.

Damage was also done to port infrastructure. Refer to the [Economic Balance Sheet](#) appendix, in the Liabilities - Infrastructure, for the total current cost of infrastructure damage to date.

The details of the current infrastructure levels can be found in the [Infrastructure List](#) as well as viewed on the theatre map.

### Damage from enemy mines

The following ships were damaged by enemy mines in the last turn:

CV Essex is flooded 12% after hitting an enemy mine in hex 15/30.

## Remaining Briefing Report information

As well as battle summaries, the Briefing Report summarises your overall economic position, your naval, air and troop losses, provides updated intelligence on the enemy, and much else as well. You can learn how to read the Briefing Report at your leisure later. For now, just close the Briefing Report by clicking on the **SAS WW2** icon at the top-right hand corner.

## ***The End!***

You have now reached the end of this 5 minute walk-through. You have made all decisions for a whole turn (being four weeks of real action). And you have then played the turn out, seen the events unfold and learnt a little about the replay screen and the Briefing Report.

From here, it is up to you how deeply you wish to delve in your games. You have seen how easy it is to make all your crucial decisions simply by relying on your 2IC. But when you are ready and interested, you can learn how to take more control in any area: perhaps selecting or designing some ships, or even your whole navy; or taking a more active role in operational orders, using any of the multiple command levels that are possible. During turn calculation, you may want to take hands on control of specified fleets or airfields, determining fleet emergency orders and air strike targets and profiles. You may want to reduce the length of the operational turn to one or two weeks, so that you can direct the war effort in considerable detail. You can also learn to use the Campaign Creator to set up your own campaigns, accepting historical default values or playing with history as you see fit.

All these choices await you, and as explained below, in-built help pages guide you every step of the way.

## How to get Help

Apart from this manual, the game has a rich set of hyperlinked help files to instruct you on every aspect of the game.

### Context Help

Almost every screen has a '?' button. When you press it, context help for that screen will be shown. The context help is tailored to tell you all that you need to know about the screen - how to read any information and how to use any controls it presents.

### Full Help

In addition, there is a complete help guide available by clicking on the bookshelf in your **Admiral's Office**:



The full help guide has a left hand menu to help you navigate. Among other things, it has a 'How to Play' section that tells you all you need to know to harness the full power of **SAS WW2**.

We at **NWS** hope you enjoy playing **SAS WW2** for many hours. We hope you find it both challenging and very playable.

Good luck Admiral!

# ***Your Admiral's Office***

Welcome to your new office. To help you feel at home here, you can see your name plaque on top of the filing cabinet, a picture of the Battleship you commanded before your elevation to be ***Supreme Naval Commander*** (or "supreme desk jockey" more like!). And above that is a picture of your leader, who personally has approved your appointment because of the faith he has in your leadership.

You access all main functions from here:

- [Making command decisions](#) for a game turn.
- [Getting information](#) to base your command decisions on.
- [Loading and saving files](#).
- [Changing game options](#).

You can also bring up the [complete help files](#) for the game. These files are fully cross-referenced and hyperlinked for ease of navigation.

You can exit the office at any time by clicking on the **SAS** icon at the top right of the screen:



Just remember to save the game first, if you want to be able to come back to where you stopped. (See [Loading and saving files](#) for instructions.)

## Making command decisions

Playing a turn in **SAS** is easy to do. There are two main steps to perform:

- First, you build the resources you need - ships, aircraft and troops.
- Then, you deploy them to where they are needed, along with their combat orders.

When you have done both steps, you are ready to run the turn.

You access all command functions through the menus on the blackboard at the top left of the office.

The top level menu looks like this:



The build and deploy steps are done by clicking "Build" and "Deploy" on the menu. Follow this [main menu](#) link for more information.

## Getting information

Before you build and deploy, you should be well informed of your situation vis-a-vis the enemy.

**SAS** gives you easy access to three kinds of information:

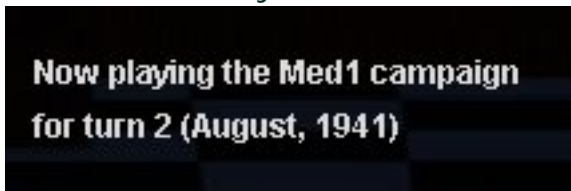
- A [briefing report](#), showing key economic and other details.
    - Open the report by clicking on "Briefings" on the main menu.
  - A full screen [map view](#) showing you the location of all your resources (and the enemy's also, where known).
    - See the full map view by clicking on the small theatre map on the wall.
- Shown below is the Pacific Map as it appears on your wall:



- An hour by hour action replay from the previous turn, showing you exactly what happened and when.
  - Get to the replay by clicking on "Briefings" on the main menu, and then on the news reels you will see lying on your desk.

## Current calendar

Version 1.1 has added - to the bottom left of your Admiral's Office - information reminding you of the name of the campaign you are playing, the current turn number, and the actual year and month:

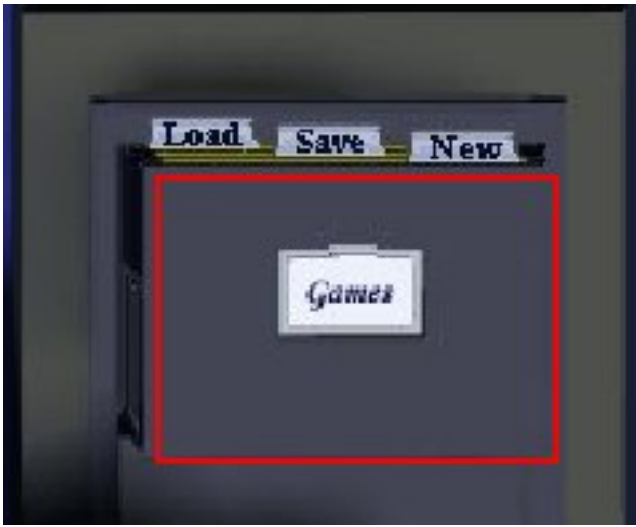


## Loading and saving files

The filing cabinet to the right of the office has a drawer labelled "Games". Open it to load and save games, or to jump to the screen to create new campaigns.

Click on the drawer to open it:





## Loading a game

Move the mouse over the "Load" tab to highlight it:



Clicking on the "Load" tab will bring up the screen for selecting a saved campaign.

After completing actions on that screen you will return to the office, ready to play the game just loaded.

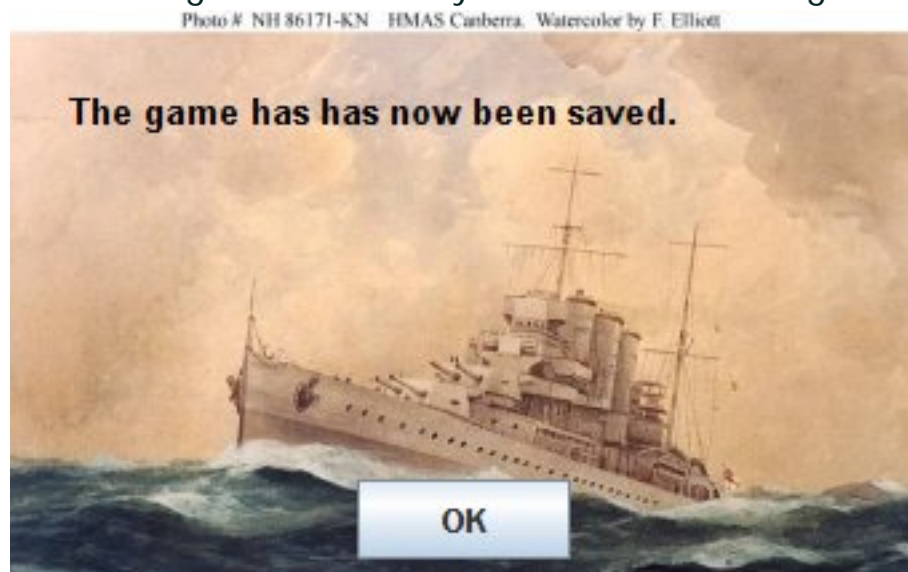
## Saving a game

Move the mouse over the "Save" tab to highlight it:



Clicking on the "Save" tab will save the current game.

When the game is saved, you will see a message confirming the save:



Click on the "OK" button to close the message box.

## Saving a game for Play by Email

You can play **SAS** against the computer or against another player.

If playing against another player, you do this by exporting your turn file, when you have finished all your moves. The other player does the same. Then you each give the other your turn file.

To save your file for export, when you are sure you have finished all your moves, simply click on the "Out" tray on your desk:



After entering a password, the file is saved and you will see a confirmation message:



Click the "OK" button to close the message box and continue.

See [Play By Email](#) for more information on how to send your turn file and receive the other player's file.

.

## Creating a new game

Move the mouse over the "New" tab to highlight it:



Clicking on the "New" tab will bring up the screen allowing you to create your own new campaigns by 'cloning' from an existing one. See [creating new campaigns from existing ones](#) for more information.

## Changing game options

Move the mouse over the filing cabinet drawer labelled "Options" to highlight it:



Clicking on the drawer will bring up the screen for changing game options. See [game options](#) for more information.

## Complete help files

To bring up the complete help files for the game at any time, click on the bookshelf to the left of your Admiral's office:



A screen will appear with a navigation menu on the left and the text of the help files on the right.

Many of the text files are the ones you can also visit using the [context help function](#).

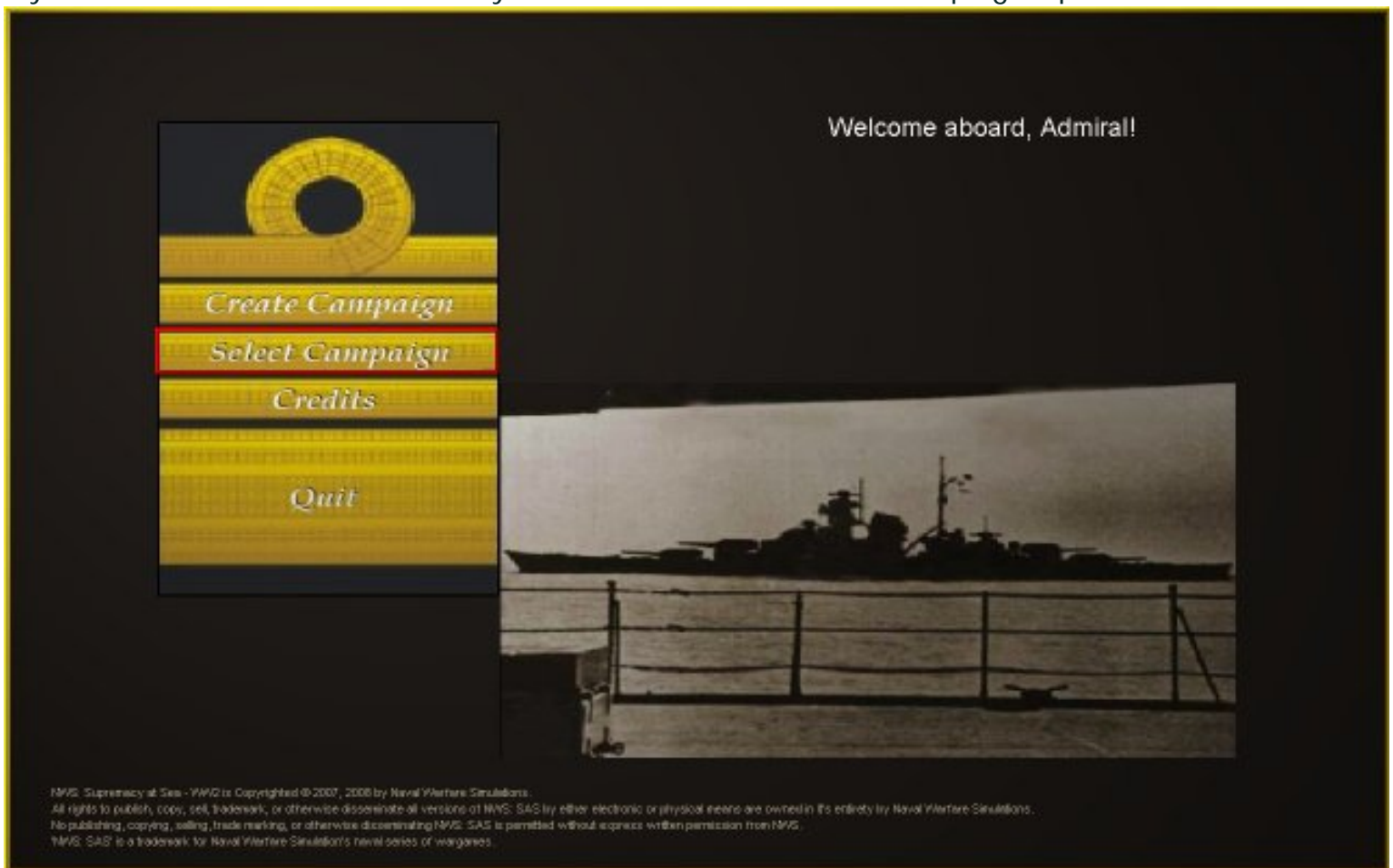
# *How to load a game*

There are two points from which you can load a new game:

- From the SAS WW2 start screen
- From your Admiral's Office

## From the Start screen

If you are at the start screen, move your mouse over the 'Select Campaign' option:



Now, click on the option and you will be taken to the screen for loading files.

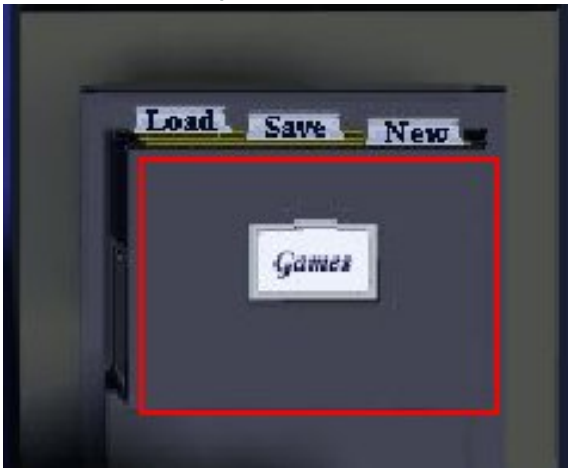
## From your ***Admiral's Office***

If you are already playing a game and are in your Admiral's Office, you can load up another game at any time and start playing that instead.

To do this, move your mouse over the top drawer of the filing cabinet, labelled 'Games':



Click on it to open it:



Move your mouse over the tab labelled 'Load':

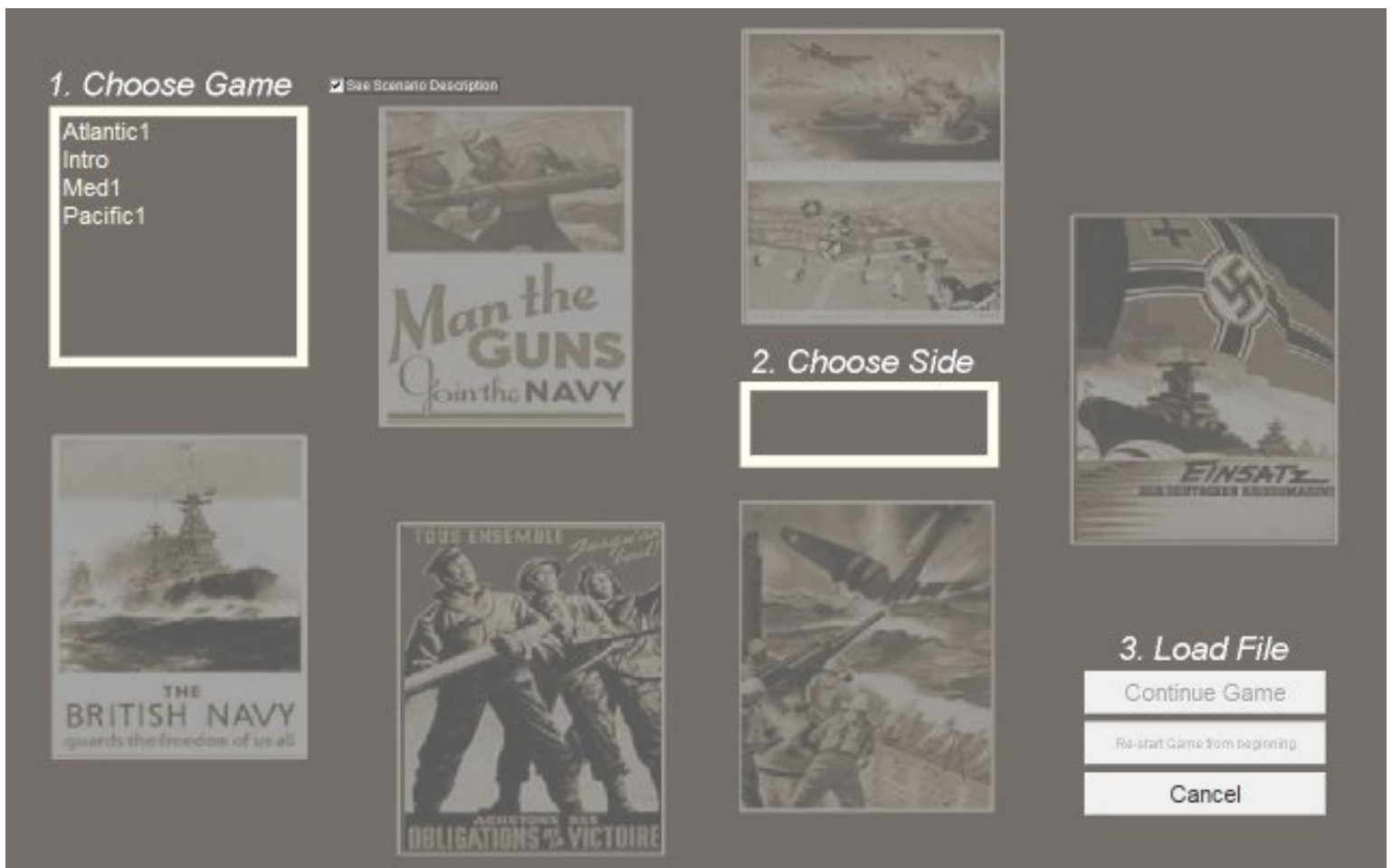


Click on the tab, and you will be taken to the screen for loading files.

## Screen for Loading Files

Either way, you should now see this screen:





To select a campaign, you follow three steps:

## Choose the Campaign

Click on the campaign you want in the top-left list, where it says '**1. Choose Game**'.

You will now see a short description of the selected campaign in a pop-up help page.

After reading the page, close it by clicking on the 'X' button at the top right of the screen:



## Choose a side

Now click on the side you want to play for, in the middle list where it says '**2. Choose Side**'.

## Load the Game

Now you have two options:

- You can continue with the game by clicking on the 'Continue Game' button. This will usually be your choice.
- OR, you can choose to re-start the campaign from the beginning by clicking the 'Re-start Game from beginning' button.

Warning!: If you click the restart from beginning button, all data that has been saved since you started playing this campaign will be deleted. Make sure this is the option you want! You will be prompted to confirm it.

When you click either button, the game will load and you will be taken to your Admiral's Office, ready to play.

# **Briefing Report**

The briefing report is your overall summary of the situation confronting you - good or bad - at the start of every turn.

Use this information to understand your relative strengths and weaknesses, to better plan how you build and deploy your ships, aircraft and troops.

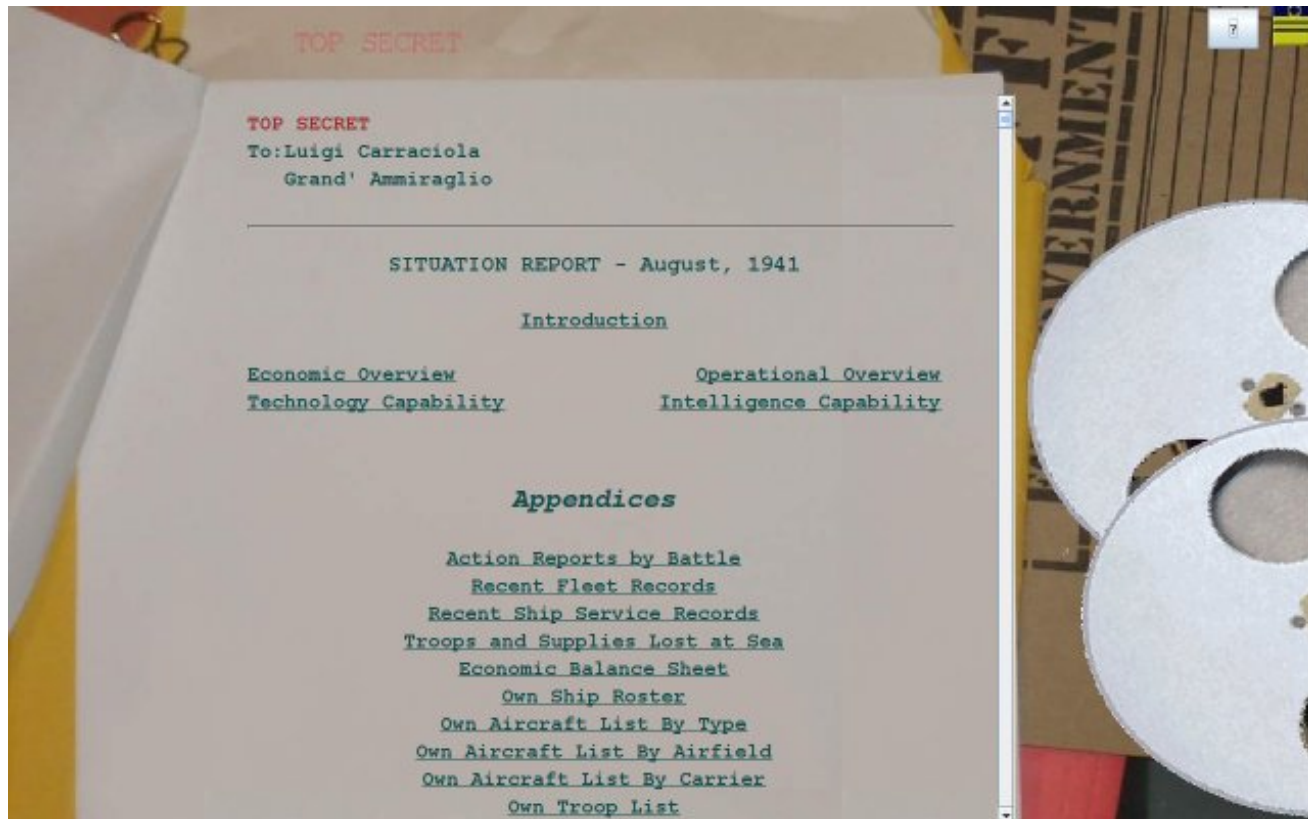
The situation report gives you static information - a text summary - compiled by the Head of your Naval Intelligence Department.

For a dynamic view of actions and events in the previous turn, use your turn replay function. This will help you understand how you got to where you are now!

## Accessing the Situation Report

From your Admiral's Office, click on 'Briefings' on the main blackboard menu.

You will now see this screen:



The news reels at the right of the screen are your entry point to the turn replay screen. Here, we are interested in learning about the Situation Report.

# The Situation Report

The report lies open at the first page. It is dated to the current turn, and has a table of contents. The entries in the table of contents are hyperlinked to the relevant sections of the report. Use the hyperlinks to jump forward, or just scroll through the report using the right hand scroll bar.

Throughout the report, there are many links to other sections within the report, to assist with navigation.

The report has these main sections:

- [Introduction](#)
- [Economic Overview](#)
- [Operational Overview](#)
- [Technology Capability](#)
- [Intelligence Capability](#)

It also has a number of major appendices:

- [Action Reports by Battle](#)
- [Recent Fleet Records](#)
- [Recent Ship Service Records](#)
- [Previous Ship Service Records](#)
- [Troops and Supplies Lost at Sea](#)
- [Economic Balance Sheet](#)
- [Own Ship Roster](#)
- [Own Aircraft List by Type](#)
- [Own Aircraft List By Airfield](#)
- [Own TroopList](#)
- [Infrastructure List](#)
- [Enemy Ship OOB](#)
- [Enemy Ship Design Reports](#)

## Introduction

Here, the odds facing you at the start of the war are briefly summarised.

## Economic Overview

The growth (or reduction) in the size of your economy – as measured by Resource Points – is shown, both since the start of the War and since the last turn.

The value of any convoy shipments last turn is shown, as well as the total value of infrastructure investments.

In January of every year after the first, the Report also compares your situation with what is known of the enemy's economy.

Details of your economic balance sheet - the gains and losses in resource points in the last turn and the current balance - are available in an Appendix to the Report. The Appendix is hyperlinked for easy access.

## Operational Overview

### Ship Losses

The losses last turn in naval and merchant shipping are summarised, and estimated enemy losses are quoted.

A hyperlink is provided to the appendix that details all battles in the last turn.

There are also hyperlinks to appendices detailing your own and the enemy's current ships.

### Aircraft Losses

Aircraft losses last turn and to date are summarised and a link is provided to the appendix listing all your current aircraft by type.

### Troop Losses

Any troop casualties from the last turn are summarised and links are provided to any land battle reports as well as to the appendix detailing current troop strengths.

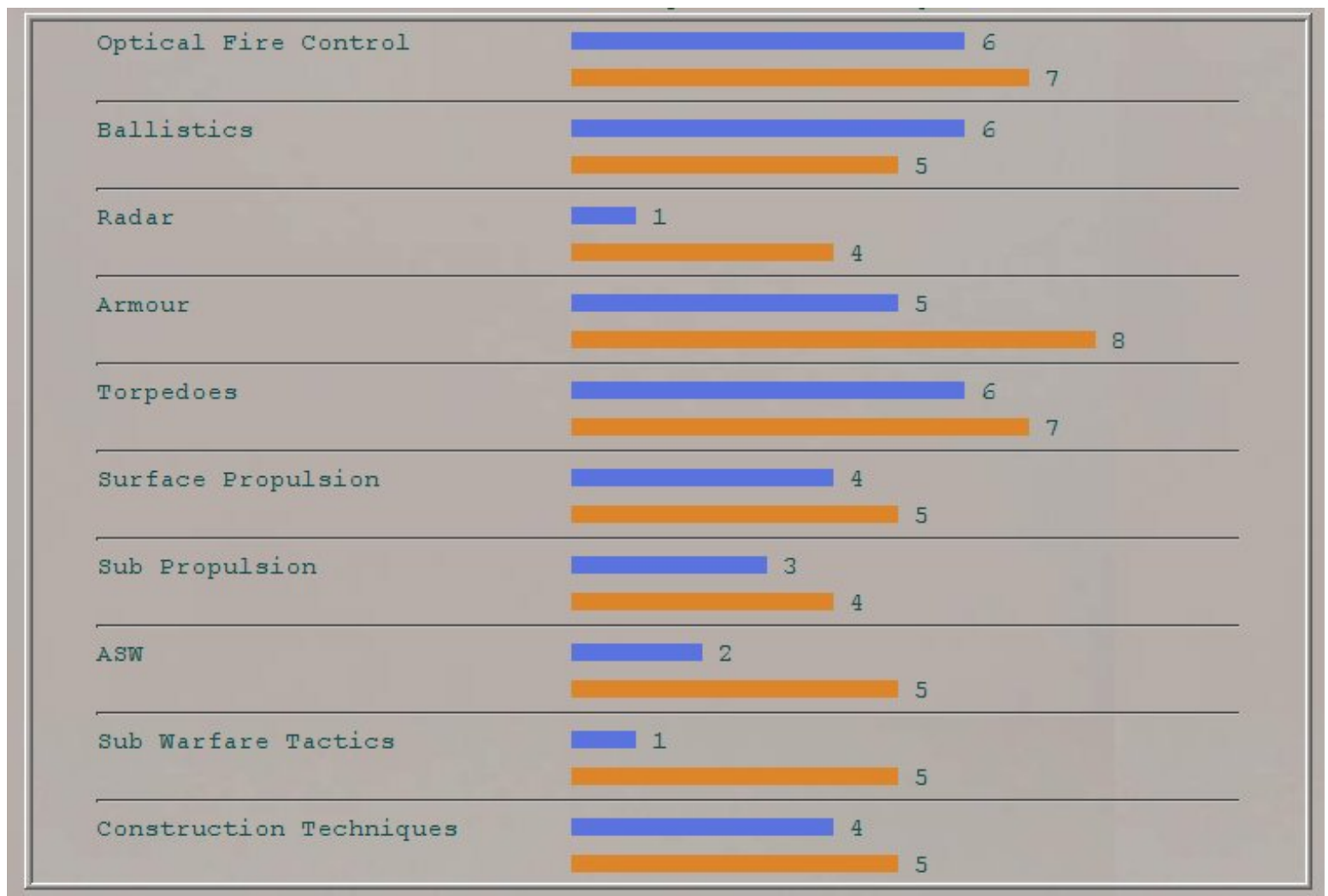
### Supply Losses

If supplies were lost at sea from transport ships being sunk or damaged, this will be summarised here and there will be a link to the appendix that details these losses.

## Technology Capability

Your current position relative to the enemy's estimated strengths is summarised, and shown graphically. Your levels are shown in blue. The enemy's estimated technology levels are shown in orange.

An example is shown below:



Intelligence Capability

A brief note summarises the state of development of your intelligence compared to the assessed enemy strength. (Note - this assessment may not be accurate. As with all of your intelligence assessments they are likely to be more innacurate the weaker your level of intelligence and the stronger the enemy's.

Action Reports by Battle

This is the first appendix. It provides links to all battles that occurred last period. The battles may be between surface ships, or air strikes on ships or land targets, or submarine attacks, or surface ship or aerial bombardment of land targets, or amphibious assaults. Damage from mines is also summarised. An example is shown below:



## ACTION REPORTS

### Summary:

2 * Surface Battles	<a href="#">See reports</a>
5 * own air strikes	<a href="#">See reports</a>
16 * enemy air strikes	<a href="#">See reports</a>
3 * submarine encounters	<a href="#">See reports</a>
One land battle	<a href="#">See report</a>
No land battles still in progress	
No own surface bombardments	
One enemy surface bombardment	<a href="#">See report</a>
No damage to enemy ships from own mines	
No damage from enemy mines	

Following the links leads to lists of each battle by category. Alongside each battle is a link to the actual Battle Summary:

### Surface Battles

Battle of the Hawaiian Islands, 6 July, 1942

Started 6 PM in Hex 51/19

[See the report](#)

Battle of the Solomon Sea, 22 July, 1942

Started 9 AM in Hex 27/35

[See the report](#)

See [battle summary](#) for information on the battle summary screen. The battle summary screen further links to a screen where surface battles can be replayed shell-by-shell!

## Recent Fleet Records

Version 1.1 has introduced a new feature: fleet records. From turn 2 onwards, reports for each fleet of major actions in the previous turn are outlined here, as well as summaries of the kind of mission the fleet was on (if the mission was a 2IC generated one). The report includes handy hyperlinks to all battles each fleet was in during the last turn. The following example shows Italian fleet CF1 - its initial composition, convoy mission orders, and reference to (and a link to) a submarine encounter:

## RECENT ACTIVE FLEET RECORDS

---

Record for the period just completed:

**Fleet CF1**

**Composition at start of the turn:**

Merchant ships:

MS2-1

**Allocated mission:** *Troop Transport*

Leaves port Tuesday, 1st. of July, 1941, 7 PM

Sailing Palermo -> Venice.

Loading 637 troops at Palermo

Unloading 637 troops at Venice

Best fleet speed = 8 knots

Average fleet speed = 8.0 knots

Mission to be completed by Monday, 21st. of July, 1941, 6 AM

**Involved in these battle(s):**

Thursday, 3rd. of July,  
1941, 7 AM

Submarine battle of the Strait  
of Sicily ended  
[See the Report](#)

---

This next example shows, for the British, what happened to their fleet TF1 - it was involved in no less than four aerial attacks and a surface battle:

## Fleet TF1

### Composition at start of the turn:

#### Battleships:

Nelson

#### Cruisers:

Edinburgh, Sheffield

#### Escorts:

Sikh, Mohawk, Maori, Kipling, Kelvin, Kashmir

**Allocated mission:** *Offensive Patrol*

Leaves port Wednesday, 2nd. of July, 1941, 1 PM

Sailing from Gibraltar

Patrolling hexes:

21/17   30/16   31/17   28/9   28/8  
27/8

Total time on patrol = 9 days, 9 hours

Best fleet speed = 16 knots

Average fleet speed = 16.0 knots

Mission to be completed by Friday, 18th. of July, 1941, 3 AM

### **Involved in these battle(s):**

Friday, 4th. of July, 1941,   Aerial battle of Cape Bon ended  
1 PM   [See the Report](#)

Friday, 4th. of July, 1941,   Aerial battle of Cape Bon ended  
3 PM   [See the Report](#)

Friday, 4th. of July, 1941,   Aerial battle of Cape Bon ended  
3 PM   [See the Report](#)

Friday, 4th. of July, 1941,   Surface battle of Cape Bon ended

## Recent Ship Service Records

Version 1.1 has also introduced service records for your ships for the last turn. From turn 2 onwards, reports for each ship of major actions in the previous turn are outlined here. The report summarises the status of each ship after each battle, and has hyperlinks to all the battles. The following example shows the battleship Nelson's involvement in a series of battles in the last turn:

After battle: Largely wrecked

## Nelson

Friday, 4th. of July, 1941, 1 PM	Aerial battle of Cape Bon ended <a href="#">See the Report</a> After battle: Moderate damage
Friday, 4th. of July, 1941, 3 PM	Aerial battle of Cape Bon ended <a href="#">See the Report</a> After battle: Moderate damage
Friday, 4th. of July, 1941, 3 PM	Aerial battle of Cape Bon ended <a href="#">See the Report</a> After battle: Moderate damage
Friday, 4th. of July, 1941, 9 PM	Surface battle of Cape Bon ended <a href="#">See the Report</a> After battle: Moderate damage
Saturday, 5th. of July, 1941, 5 PM	Aerial battle of the Strait of Sicily ended <a href="#">See the Report</a> After battle: Largely wrecked
Sunday, 6th. of July, 1941, Midday	Aerial battle of Cape Bon ended <a href="#">See the Report</a>

## Previous Ship Service Records

Version 1.1 has also introduced full service records for your ships. From turn 3 onwards, reports for each ship of major actions in *all turns prior to the last turn* are outlined here. The report summarises the status of each ship after each battle, exactly as for the recent ship records; but there are no hyperlinks to the battles. The following example shows the Destroyer Stuart's fate in July 1941. Note that the reports include after-action events - the Stuart foundered some-time after it's last battle:

Stuart	Sunday, 6th. of July, 1941, 3 PM	Bombardment of La Spezia After bombardment: Largely wrecked
	Sunday, 6th. of July, 1941, 3 PM	Aerial battle of Corsican Coast ended After battle: SUNK
	Sunday, 6th. of July, 1941, 3 PM	Ship SINKS after foundering in hex 18/5

## Troops and supplies lost at sea

This appendix gives a ship-by-ship listing of troop and/or supply losses due to the ship's being damaged or sunk.

<b>TROOPS AND SUPPLIES LOST AT SEA</b>	
The following details are for losses at sea in the last reporting period.	
<b>Troop Losses</b>	
None.	
<b>Loss of supplies at sea</b>	
Transport ship (the MS1-3) damaged by dive bomber attack on Friday, 3rd. of July, 1942, 9 AM 3136 tons of supplies were destroyed.	
Transport ship (the MS1-11) damaged by dive bomber attack on Friday, 3rd. of July, 1942, 9 AM 3136 tons of supplies were destroyed.	
Transport ship (the MS1-13) damaged by dive bomber attack on Friday, 3rd. of July, 1942, 9 AM 3136 tons of supplies were destroyed.	
Transport ship (the MS1-15) damaged by dive bomber attack on Friday, 3rd. of July, 1942, 9 AM 3136 tons of supplies were destroyed.	

## Economic Balance Sheet



This very important Appendix shows where all the Resource points have been spent or gained, including expenditure on new ship construction, repairs, refuelling and rearming, aircraft production, lost points from bombardment damage, points gained from industrial production and convoy shipments, as well as points transferred between ports in supply operations. Liabilities in terms of outstanding repairs to ships and port infrastructure are accounted for. The number of Resource Points currently available at your ports are shown.

An example is shown below:

ECONOMIC BALANCE SHEET					
Asset	Gains		Losses		RP Value
Navy (tonnes)	Launched:	26410	Sunk:	24741	2204853
	Captured:	0	Captured:	0	
Merchant Navy (tonnes)	Launched:	26410	Sunk:	56840	325360
	Captured:	0	Captured:	0	
Tokyo Bay Stores (RP's)	Supplies in:	0.0	Supplies out:	96.9	144
	Trade:	288.0	Troop supply:	0.0	
	Production:	46	Repairs:	67.0	
			Bombardment:	0.0	
			Refuelling /Rearming:	37.0	
Truk Stores (RP's)	Supplies in:	0.0	Supplies out:	65.0	0
	Trade:	94.0	Troop supply:	1.1	
	Production:	0	Repairs:	137.8	
			Bombardment:	0.0	
			Refuelling /Rearming:	419.0	
Manila Stores (RP's)	Supplies in:	0.0	Supplies out:	0.0	207
	Trade:	0.0	Troop supply:	2.3	
	Production:	6	Repairs:	0.0	
			Bombardment:	0.0	
			Refuelling /Rearming:	0.0	
Okinawa Stores (RP's)	Supplies in:	0.0	Supplies out:	0.0	90
	Trade:	0.0	Troop supply:	4.6	
	Production:	0	Repairs:	0.0	
			Bombardment:	0.0	
			Refuelling	0.0	

## Main Assets

The top section of the report is organised as a table, with 5 columns and a number of rows. This is where information is given about your primary assets.

The most important information is given in the right-most column. Here, you can see the current RP value of:

- your navy and merchant navy. (The RP value here is the RPs that were spent to build these ships).
- war material stored at each of your ports.

The columns to the left show the gains and losses in the previous turn that resulted in the current totals.



On the first turn, the current RP values will be those you start the game with. The RPs at each port are set when a campaign is created. The naval and merchant tonnage is whatever has been built in the first turn out of the home port RPs you start with.

For example, suppose you are the British player in a Mediterranean scenario, starting with 3000 RPs at home port (Gibraltar), and 300 at Alexandria. The 3000RPs can be used to construct up to 300,000 tonnes of shipping. If you constructed say 150,000 tonnes of navy and another 100,000 tonnes of merchant ships, you would have used 2500RPs, and would have 500RPs left at Gibraltar, plus the 300 still at Alexandria. The Balance Sheet would show you having these tonnages of shipping, and with 500RPs at Gibraltar and 300RPs at Alexandria.

On subsequent turns, your current RP levels will be whatever you started the *previous* turn with, PLUS the gains noted in the 'Gains' column, and MINUS the losses shown in the 'Losses' column.

There are various kinds of gains and losses, as explained below.

## Gains

Gains in naval or merchant shipping are produced whenever new ships are launched, as well as when enemy ships are captured. Each 100 tonnes of shipping equates to one RP.

Gains in RPs at each port can occur from various sources:

- ***Supplies in:*** this is the RP value of any supplies transported to the port during the previous turn. 'Supplies' are finished war goods of various kinds, such as oil fuel or ammunition or steel that can be used in refuelling, rearming, repair and construction at that port (provided the port has the infrastructure for these tasks). Each 1000 tones of supplies equates to one RP. On the first turn of the game, this value will be zero.
- ***Trade:*** this is the RP value of war material produced in the previous turn at the port by industry (if any) that is servicing that port, using raw materials shipped to the port (if any) in the previous turn. If the port has no industry, or there were no raw materials shipped in the previous turn, this value will be zero. Note that higher levels of industrialisation servicing the port can produce more RPs for a given amount of raw material. The industry level for each port is set when a campaign is created, but it can also be improved through infrastructure spending, and reduced by damage sustained from enemy attack. On the first turn of the game, this value will be zero.
- ***Production:*** this is similar to the Trade value, except that the industry at the port has used raw materials available locally or transported to the port by land, i.e. the amounts are not dependant on your convoy efforts. Like the level of industrialisation, the amount of raw materials available locally at each port is set when a campaign is created. Unlike the level of industrialisation, it cannot be further improved, nor can it be affected by enemy attacks. On the first turn of the game, this value will not be shown as it has been included in the RP value assigned (when the campaign is created) to the port as a starting value.

## Losses

Losses in naval or merchant shipping are produced whenever your ships are sunk or captured by the enemy. Each 100 tonnes of shipping equates to one RP.

Losses in RPs at each port can occur from various sources:

- **Supplies out:** this is the RP value of any supplies transported out of the port during the previous turn. Each 1000 tones of supplies equates to one RP.
- **Troop supply:** this is the RP value of war material used in the previous turn by any troops drawing their supply from there, such as garrison troops. Troop consumption is calculated in tonnes, and each tonne equates to one RP.
- **Repairs:** this is the RP value of all ship repair work at the port in the previous turn.
- **Bombardment:** this is the RP value of war material destroyed at the port in the last turn by enemy attack. Note that this is the direct loss of RPs caused by damage to storages. Other damage, such as might have been sustained by your docks, defences or airfields, are accounted for as degraded infrastructure, and are shown in the 'Liabilities' section (explained below).
- **Refuelling/Rearming:** this is the RP value of war material used at the port last turn when refuelling or rearming ships.

## Other assets

In addition to your main assets, which are described above, you have aircraft, infrastructure and troops.

### Aircraft Investments

<u>TOTAL AIRCRAFT INVESTMENTS</u>	
RP Value	2882
RPs set aside for new a/c.	0

The Balance Sheet appendix next shows the total RP value of all the aircraft you currently have. (The RP value is the number of RPs spent to date in producing them).

Also shown are the number of RPs that are currently set aside for aircraft production in the current turn. These RPs have been set aside automatically. In the build aircraft phase of a turn, you use these RPs to actually order aircraft, which then become available for use in the same turn. Refer to [how to build aircraft](#) for more information.

Once you have completed the build aircraft phase, the Briefing Report will show zero for "RPs set aside for new a/c"; and the RPs used to build the aircraft will have been added to the total RP value of the aircraft you now have.

Note that the 'TOTAL AIRCRAFT' heading for this section of the report is underlined. It is a hyperlink to a listing in the report of all your current aircraft - by type and number.

### Infrastructure investments

<b>TOTAL INFRASTRUCTURE INVESTMENTS</b>	
RP's spent to date	497
RP's set aside for new infra.	585

The RP's you have spent on infrastructure during a game are also considered assets. The next section of the Balance Sheet is titled 'Infrastructure Investments' and shows both the number of RP's you have spent in the game to date, and the number you intend to spend.

You spend RP's on infrastructure in the build infrastructure phase. Refer to [how to build infrastructure](#) for an explanation of the types of infrastructure you can build, and how you can allocate your expenditure.

### Army investments

<b>TOTAL ARMY INVESTMENTS</b>	
RP Value	1611.4
RP's set aside for new troops	-12.0

The Balance Sheet appendix shows the total RP value of all the troops you currently have. (The RP value is the number of RP's spent to date in producing them).

Also shown are the number of RP's that are currently set aside for raising and training more troops in the current turn. These RP's have been set aside automatically. In the build troops phase of a turn, you commit this expenditure. Refer to [how to build troops](#) for more information.

### Total Assets

<b>TOTAL ASSETS</b>	<b>29326</b>
---------------------	--------------

The report now totals all your assets, as described above, to produce a value for your total assets.

### Liabilities

<b>LIABILITIES</b>	
(Current repairs needed)	(607)
(Total infrastructure damage to date)	(49.5)
<b>TOTAL LIABILITIES</b>	<b>(656)</b>

Unfortunately, no balance sheet is complete without accounting also for your liabilities! In **SAS**, there are two kinds of liabilities that need to be tracked:

- The cost to repair all remaining damage to your ships. (Ships can be damaged badly enough to require several turns to fix. Repair work will also be outstanding whenever repairs have been halted due to shortage of resources at the port).
- The cost to repair all remaining damage to port infrastructure - docks, defences and airfields - inflicted by enemy attack. The figure shown has been totalled across ALL of your ports.

These two liabilities are totalled in the 'Total Liabilities' value shown in the Report.

## Balance

<b>BALANCE</b>	<b>28670</b>
----------------	--------------

Finally, the Report shows your net worth in RPs - your total assets less your total liabilities - as the 'BALANCE' value at the end of the Balance Sheet Appendix.

Note! The balance figure is much more than an academic value. It is the main figure that counts when your performance against the enemy is assessed every year by your political masters. To be considered a strong performer, you need to show strong relative growth in your net economic position - as measured by this balance figure - compared to the enemy. See [Overview - Winning and Losing](#) for more information.

## Own Ship Roster

The Ship Roster lists all your ships. Scroll down or up as you need.

The screen has tick boxes allowing you to filter the list to exclude or include ships that are damaged, sunk or still building.

An example is shown below:

Ship Roster

☒ see Undamaged
☒ see Damaged
☒ see Lost
☒ see Building

Up

Down

X


AIRCRAFT CARRIERS

Aquila		Aquila class	28358	
Giuseppe Miraglia		Aquila class	28358	Building (7 turns to launch)
Sparviero		Escort Carrier class	15300	Largely wrecked

BATTLESHIPS

Roma		Vittorio Veneto class	47328	Building (15 turns to launch)
Impero		Vittorio Veneto class	47328	Building (11 turns to launch)
Littorio		Vittorio Veneto class	47328	Repaired
Vittorio Veneto		Vittorio Veneto class	47328	Moderate damage
Andrea Doria		Conte di Cavour class	30355	Largely wrecked
Caro Duilio		Conte di Cavour class	30355	Light damage
Giulia Cesare		Conte di Cavour class	30355	Repaired
Conte di Cavour		Conte di Cavour class	30355	Repaired

CRUISERS

Trieste		Bolzano class	12881	Largely wrecked
Trento		Bolzano class	12881	Repaired
Bolzano		Bolzano class	12881	Largely wrecked
Giuseppe Garibaldi		Duca d'Abruzzi class	10758	SUNK
Duca d'Abruzzi		Duca d'Abruzzi class	10758	Moderate damage
Eugenio di Savoia		Duca d'Aosta class	9208	Rearming shells
Duca d'Aosta		Duca d'Aosta class	9208	Repaired
Muzio Attendola		Montecuccoli class	8474	Rearming shells
R. Montecuccoli		Montecuccoli class	8474	Rearming shells
Luigi Cadorna		Luigi Cadorna class	7494	SUNK
G. delle Bande Nere		Di Giussano class	5945	SUNK
Albenico da Barbiano		Di Giussano class	5945	
Alberto Di Giussano		Di Giussano class	5945	Moderate damage

...scroll down for more

Close the Ship Roster by clicking on the 'X' button at the top-right of the screen. This returns you to the Briefing Report.

## Own Aircraft List by Type

This appendix list all your current aircraft by type, showing for each type the number currently available, and the numbers lost last turn and in total since the start of the game:

## OWN AIRCRAFT LIST BY TYPE

Aircraft Type	Available	Lost Last Period	Lost To Date
Hudson I	53	0	0
Maryland Mk II	53	0	0
A-20A Havoc	53	0	0
A-20C Havoc	53	0	0
B-17C Flying Fortress	447	0	0
B-17E Flying Fortress	0	0	0
B-18A Bolo	0	0	0
B-18B Bolo	0	0	0
B-24D Liberator	53	0	0
B-25B Mitchell	53	0	0
B-25C/D Mitchell	182	0	3
B-26 (Pac) Marauder	53	0	0
B-26 Marauder	53	0	0
B-26A Marauder	53	0	0
B-26B Marauder	53	0	0
F2A-1 Buffalo	60	0	0
F2A-2 Buffalo	60	0	0
F2A-3 Buffalo	1	0	0
F4F-3 Wildcat	60	0	0
F4F-4 Wildcat	825	4	12
F4F-7 Wildcat	408	0	0
J2F-5 Duck	0	0	0

## Own Aircraft List by Airfield

This appendix list all your currently available aircraft by type and airfield:



## OWN AIRCRAFT LIST BY AIRFIELD

### San Francisco

B-17C Flying Fortress	10
B-25C/D Mitchell	19
F4F-7 Wildcat	16
OS2U-3 Kingfisher	16
P-38G Lightning	50
SBC-4 Helldiver	9
TBF/TEM-1 Avenger	44

---

### Pearl Harbor

B-17C Flying Fortress	10
B-25C/D Mitchell	16
F4F-7 Wildcat	16
OS2U-3 Kingfisher	16
P-39D Airacobra	14
P-39K Airacobra	20
SBC-4 Helldiver	9
TBF/TEM-1 Avenger	44

## Own Troop List

This appendix details all your current troop units, including their forecast supply situation over the current turn. An example is shown below:

## OWN TROOP LIST

24th Division

XX



Supply situation:

100%

Unit size:

Infantry Division

Fighting strength: 16990 men

Number at HQ: 16583 men

Number currently detached  
(see below): 407 men

Commander: Major General Thomas Standley

Location: Pearl Harbor

Effective Combat Ratings: Normal: 0.7 Amphibious: 0.5

Mechanization: Reasonably good

Equipment: Sufficient (60)

Morale: Above Average (60)

Training: Average (50)

Experience: Average (50)

Amphibious Training: Below Average (35)

Amphibious  
Experience: Raw (0)

See the notes on [combat value](#) and other troop characteristics for more help on the meaning of the troop unit statistics.

## Infrastructure List

This appendix is very detailed - it gives full information on the infrastructure at each of your ports:

- The current and planned infrastructure levels of surrounding airfields, and the current and maximum number of aircraft. A link is provided to the appendix that details aircraft by airfield.
- The current and planned levels of dockyard facilities, port defences and industrial plant.
- The 'raw materials index' (RMI) for the port. (See [RMI](#) for more information).

An example is shown below:

## INFRASTRUCTURE LIST

### San Francisco

Current Level

Target Level

#### Airfields:

9.0

9.0

Can support all aircraft

- Max. num can operate: 162
- Current num. assigned: 164

[See details](#)

#### Other Infrastructure:

Dockyards:

9.0

10.0

Dock capabilities:

- Refuel & rearm
- Repairs
- Construction

Defences:

9.1

10.0

Industry:

9.0

9.0

Raw materials index: 9.0

Note that very similar information is also available in the pop-up displays from on the [theatre map](#) when you elect to see the popups and then pass your mouse over any of your ports.

## Enemy ship OOB

This section lists all known enemy ships, grouped into ship type categories. The status and location information is as last reported. Each ship has a hyperlink to details of the ship class design (in the next appendix).

An example is shown below:

## ENEMY SHIP OOB

### Battleships

Ship	Class	
Haruna	<a href="#">Kongo</a>	At Advanced Port.
Hyuga	<a href="#">Hyuga</a>	At Home Port.
Musashi	<a href="#">Yamato</a>	At Home Port.
Mutsu	<a href="#">Nagato</a>	At Advanced Port.
Nagato	<a href="#">Nagato</a>	At Home Port.
Satsuma	<a href="#">Super Tosa</a>	At Home Port.
Yamashiro	<a href="#">Fuso</a>	At Advanced Port.
Yamato	<a href="#">Yamato</a>	At Advanced Port.

### Aircraft Carriers

Ship	Class	
Akagi	<a href="#">Akagi</a>	At Advanced Port.
Chuyo	<a href="#">Taiyo</a>	At Home Port.
Hiryu	<a href="#">Soryu</a>	Involved in the Battle of the United States, 22 June, 1942. Damaged by air-surface attack. Reported to be sinking.
Junyu	<a href="#">Hiyo</a>	At Advanced Port.
Kaga	<a href="#">Kaga</a>	Sunk by air-surface attack in the Battle of the United States, 21 June, 1942.
Ryuho	<a href="#">Ryuho</a>	Sunk by submarine attack in the Battle of the Solomon

## Enemy Ship Design Reports

This appendix shows a summary of the design details for each enemy ship class. Remember – this information may be inaccurate in certain respects. The information is obtained from enemy ship sightings and general intelligence gathering. It will become more accurate as your naval intelligence level increases and also as you obtain more sightings of ships of the class.

An example is shown below:

class: Queen Elizabeth

Description:	Battleship
Tonnage:	37209
Armament:	8 * UK 15
Armour:	12.0 in. on belt
Strength:	1969
Speed:	24 kts.

class: Renown

Description:	Battleship
Tonnage:	40800
Armament:	6 * UK 15
Armour:	13.5 in. on belt
Strength:	2088
Speed:	30 kts.

class: Rother

Description:	Escort ship
Tonnage:	1908
Armament:	2 * 4.0
Splinter armour:	0.25 in.
Strength:	50
Speed:	27 kts.

# **How to build infrastructure**

## What is infrastructure?

Ships, fleets, aircraft and troops are the most obvious assets a player has in the game. But infrastructure - the tangible capabilities of your industry, ports and airfields to build and operate these assets - is just as important.

Infrastructure also includes less visible strengths - the quality of training for the crews of your ships and aircraft, and the levels of key technologies including the availability of suitable aircraft designs.

Finally, infrastructure includes the levels of industrialisation that can convert raw materials into the all-important resources you need.

See the [overview of infrastructure](#) for more information about what types of infrastructure there are.

A player starts a game with levels for these types of infrastructure that have been defined during [campaign creation](#).

Some infrastructure - the defences, docks, stores, airfields and industrial plant at or near your ports - can all be degraded through enemy surface and aerial bombardment as well as amphibious assaults (and in the worst case, your ports and all their facilities can be captured).

Infrastructure can also be improved during each turn of a game by targeted spending.

To build new levels of infrastructure in any turn, from your [Admiral's Office](#), click on "Build" on the [main menu](#) on the blackboard, and then on "Infrastructure" on the [build menu](#).



# 2IC Help with Building Infrastructure

You will now see a screen like this:



Your 2IC is ready - with one button click - to plan all infrastructure spending for you for the turn in a way that accords with your overall strategy.

See [how strategy affects infrastructure development](#) for more information.

You have three options at this point:

- Go immediately to your 2IC's plan. Just click the "Yes" button to do this.
- Change strategy first - by clicking on the "Change Strategy" button.
- Elect to ignore your 2IC's help - by clicking the "No" button.

When you click either the "Yes" or the "No" buttons, you will see the Build Infrastructure Screen.

# Build Infrastructure Screen

**BUILD Infrastructure**

Remaining RPs: 2089

---

**Investments**

	RPs to Spend	Current Level	New Level
Training	172	8.0	8.344
Intelligence	106	8.0	8.106
Technology	172 <span>Priority</span>	5.0	5.172
Port Infrastructure	784 (Max RPs spendable = 10297)		

Select a Port: Home Port ▼

Resource priority: High ▼

	Current Level	Target Level
Industry	7.0	10 ▼
Docks	9.0	10 ▼
Airfields	9.0	10 ▼
Defences	9.0	10 ▼

Clear all Allocations      Commit Funds

If you clicked "Yes", this screen will be pre-filled with expenditure amounts recommended by your 2IC. Otherwise, all amount fields will be empty.

The screen has a number of fields for viewing and editing allocations to various kinds of infrastructure.

To clear all current allocations to zero, click the "Clear all Allocations" button at the bottom left of the screen. Use this to quickly reset allocations to start with a clean sheet of paper, or else to cancel all infrastructure spending this turn so as to leave the maximum possible resources for other purposes (such as ship building).

When you are finished, click the "Commit Funds" button at the bottom right of the screen. The set allocations will now be taken, and the screen will close, returning you to the Admiral's Office.

# Remaining RPs

At the top of the screen is shown the total RPs you have left at your home port after all current spending plans. (Only RPs from your home port can be allocated to infrastructure spending, even though the spending itself may be on infrastructure at other ports).

Use this figure to determine whether you have left yourself enough RPs for other key spending this turn - including of course on new ship construction.

## An Example

How this works is best explained by some simple examples. Pictured below is an part of the build infrastructure screen for the Italian player in a fictional Mediterranean campaign, on turn 1. The Italian player has just elected to build some infrastructure, accepting help from his 2IC:

BUILD Infrastructure

Remaining RPs2067

Investments

RPsto Spend

Training171

Intelligence105

Technology171

Port Infrastructure776

Priorities

(Max RPs spendable = 12820)

The 'remaining RPs' value is 2067, i.e. the current RPs at home port, LESS the expenditures suggested by the 2IC, equals 2067. This means the Italian player has enough left to build up to 206,700 tonnes of shipping. (One RP buys 100 tonnes of new construction)

Reducing any expenditure amount on the build infrastructure screen correspondingly increases the remaining RPs. In the picture below, the player has reduced expenditure on training to 100, and that on port infrastructure to 500. The remaining RPs are now correspondingly increased to 2414:

## BUILD Infrastructure

Remaining RPs

2414

Investments

RP

to Spend

Training

100

Intelligence

105

Technology

171

Priorities

Port Infrastructure

500

(Max RPs spendable = 12820)

In this way, a player can juggle the amounts spent on infrastructure with an eye to leaving enough for new ship building.

If the player were now to commit this expenditure by clicking the 'Commit Funds' button, he would see (if he were to check on the Theatre Map) that the 'Resources' level for his home port of La Spezia is now shown as 2414:

☒ Resources ☐ Own mines



If he were now to build some ships, he would see that the build ships screen showed (at the bottom) that he could build up to 241,400 tonnes of ships:

## BUILD Ships

### 1. Select type

- Battle
- Cruiser
- Escort
- Merchant
- Submarine
- Carrier

### 2. Select class

- Actium
- Conte di Cavour
- Francesco Caracciolo
- Vittorio Veneto

### 3. Or set these values...

Size	Gun #	Calibre	Sec.	Armour	Strength	Speed	Range
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5

We

### Navy List

--

<b>Total Tonnage Built:</b>	<b>0</b>
<b>Remaining Tonnage To Build:</b>	<b>241400 tonnes</b>

After this example, we can now return to the detailed explanation of how to build different types of infrastructure.

---

## Types of Infrastructure

You can develop these different kinds of infrastructure. (Follow the links to learn more):

- [Training](#) for your ship and aircraft crews.
- [Naval intelligence](#).
- R&D in twelve key areas of [technology](#).
- [Infrastructure at your ports](#), namely the level of port defences, dockyards, industry and airfields.

Each of these has a current and a target value between 0.0 and 10.0 (10.0 is the maximum possible value).

## Increasing Infrastructure Levels

For training and naval intelligence, all you have to do is simply enter the number of RPs that you want to spend this turn in the relevant field. Each RP spent increases the level by 1/500th of a point.

For technology, the process is slightly different.



## Increasing the general technology R&D effort

Every RP spent improves the current level of technology by 1/500th of a point. The current and proposed levels of technology are shown alongside. These levels will be in a range between the lowest possible level of 1.0 and the highest of 10.0. When the current level is 10.0, more expenditure is simply wasted.

The chance of a breakthrough in any technology area is then related to the current level of attainment in that technology compared to the average R&D level. For example - if the average technology level is 5.0, it is much more likely that an advance in say radar will occur if the current level is markedly below 5.0. If it is close to 5.0 or even above that, further breakthroughs will be much less likely.

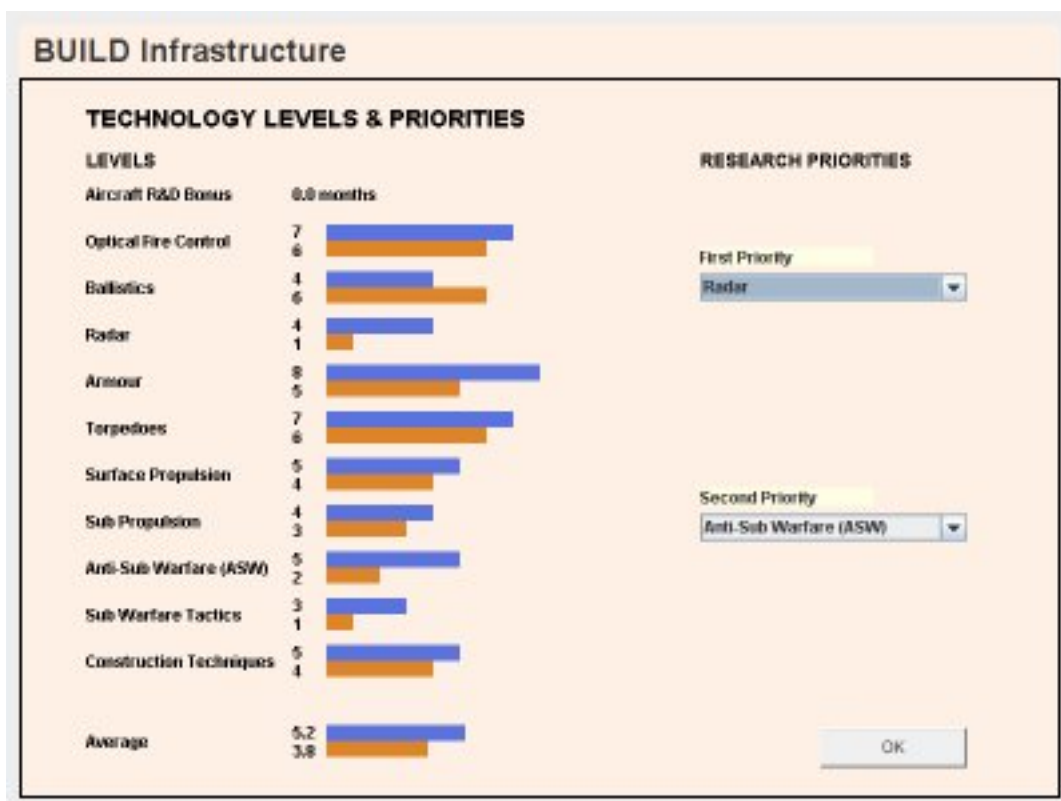
## Aircraft Technology

Aircraft technology works in a slightly different way to the others. The basic way of determining advances is the same; but the effect of an advance needs some explanation. Instead of being shown as a level in the 0.0 to 10.0 range, aircraft technology is shown as a bonus of a certain number of months. The value is the number of months by which the availability of historical aircraft is brought forward. For example, if the aircraft technology bonus is shown as 11 months, it means that an aircraft type that was available in WW2 say in November 1943 would now be available 11 months earlier - in January 1943. In this way, more advanced later war aircraft can be brought in earlier.

## Changing R&D priorities

You can also set priorities for the R&D effort. This is a way to increase expenditure in chosen areas - at the expense of areas you judge to be less important.

To do this, click on the "Priorities" button. You will see the Technology Levels and Priorities Screen:



Here you can set the top two priorities if you want (or spread the money equally across all areas). The top priority receives approximately 8 times the average share; the second priority receives roughly 3 times the average share.

Note that this screen also shows you the current levels of your technologies and the estimated comparative levels of enemy technology. (This same information is also shown in the [Situation Report](#).)

Click the "OK" button to close this screen and return to the Build Infrastructure screen.

## Port Infrastructure

There are four kinds of port infrastructure. You build infrastructure at your ports by:

1. Setting a total budget for all port infrastructure work
2. Optionally setting target levels for the infrastructure at each of your ports
3. Optionally setting priorities for allocating the budget between your ports.

## Setting a budget

To set a budget, in the "Port Infrastructure" field, just enter the number of RPs you want to set aside for all port infrastructure development.

This budget is the *maximum* RPs that can be spent this turn on port infrastructure. How much actually gets spent depends mainly on how much work needs to be done (as determined by the target levels you set). But - as explained below - there is also a limit to the amount of improvement that can be done in any one turn.

When setting a budget, take note of the "Max RPs spendable" figure quoted alongside. This is your 2IC's calculation of the total budget required to bring all areas of port infrastructure at all ports up to their target levels. You are not allowed to spend more than this (for obvious reasons!). If you enter a higher value, it will be reset to the maximum amount necessary to achieve your target levels. You will need to increase the target levels for one or more areas of port infrastructure before you can enter more than this.

The other limit on expenditure is a limit on the amount that can be spent per turn. Across all of your port infrastructure areas, no more than 100 RPs can be spent *per turn*.

If you set a budget at zero, obviously no port infrastructure development will occur this turn.

## Rates of improvement

Some port infrastructure is harder to improve than others. Each RP spent, per month, can improve:

- the airfield level by 1/20th of a point, or
- the defence level by 1/50th of a point, or
- the dockyards level by 1/200th of a point.

Industry levels are a special case. It gets increasingly hard to increase industry levels. One RP increases industry levels by 1/100th of a point when industry is non-existent.

But each increase in level multiplies the cost. It takes over 4000 RPs to develop industry at a port from zero to maximum. The same RPs can build 4 million tonnes of shipping! It will also take over three years, even assuming all budget set aside for port infrastructure is devoted solely to this.

## Setting target levels

Each port has default target levels for infrastructure, but you can change these levels if you want. To do this, you:

- Select any port in the "Select a Port" drop down list
- Then alter any target values for that port in the "Target Level" drop downs.

You can change the target levels up or down on any turn. The target level has to be at least equal to the current level.

## Setting priorities

Each port has a default priority - either "High", "Medium", "Low" or "None".

A priority of "None" simply takes that port out of the loop for any further infrastructure work until a higher priority is set. This can be useful if you want to stop work on all ports except those where you want to concentrate all your resources.

Higher priority ports get a greater share of the budget pool and so develop at a faster rate.

## Committing the expenditure

After you have changed any values you want in the Build Infrastructure screen, you can commit the spending by clicking on the "Commit Funds" button.

The expenditure is NOT committed until you do this, so you can change your mind any

number of times before hand. But the expenditure is locked in once you click on "Commit Funds".

Clicking on "Commit Funds" will close the Build Infrastructure screen and return you to the [Admirals Office](#).

# **Infrastructure - an Overview**

There are different types of infrastructure in **SAS**, all of which have an important effect on gameplay and can be upgraded during a campaign. The following is an overview.

## Training

Every RP spent improves the current training level of ship and aircraft crews by 1/500th of a point. The current and proposed levels of training are shown alongside. These levels will be in a range between the lowest possible level of 1.0 and the highest of 10.0. When the current level is 10.0, more expenditure is simply wasted.

Training levels are crucial to the performance of your ships and aircraft in combat. In the case of ship crews, the effects are quite widespread and include not only the effectiveness of gun and torpedo-laying in combat, but also damage control, alertness of crews to visual searches and ability to use any radar installed aboard.

In the case of aircraft, training directly affects the offensive and defensive performance of your aircraft in air to air combat as well as the accuracy of bombs and torpedoes against ship and land targets.

Note that what is shown in this screen is the **average** training level. When new ships are commissioned, the training levels of crews for that ship are set based on this average level, but with some random variation.

When new aircraft are produced, the crews for them start at the current average training level.

Note that battle experience improves the performance of (surviving!) aircraft and ship crews. See [battle experience](#) for more information.

## Intelligence



Every RP spent improves the current level of intelligence by 1/500th of a point. The current and proposed levels of intelligence are shown alongside. These levels will be in a range between the lowest possible level of 1.0 and the highest of 10.0. When the current level is 10.0, more expenditure is simply wasted.

The level of your military intelligence affects many things, and its effectiveness is always a function both of the absolute amount of expenditure and the *relative* intel expenditure compared to the enemy.

Intelligence comes in several forms:

- Information on enemy fleets from various sources. (Note, information also comes from visual and radar reconnaissance from your fleets and aircraft but these are the result of operational deployments, radar technology and crew training, not intelligence expenditure as such):
  - Decoded enemy signals - the greater your intel advantage over the enemy the more messages you will be able to decode.
  - Coastwatcher reports - higher intel levels mean more resources for coastwatchers, who can sight enemy fleets that are in ports or pass by in visual range of land (including coastwatchers acting undercover in enemy territory). More resources means more and better trained coastwatchers, so reports will be both more frequent and more reliable. However, the enemy can conduct counter intelligence efforts, the success of which is related to resources, so, again, relative resource expenditure on intelligence matters.
- Strategic enemy intel (summarised in your situation report):
  - Enemy economic data
  - Assessments of the levels of enemy technology
  - Data on enemy ship designs - which is cross referenced with information obtained from battle reports. Note that this explains why information in the Situation Report on enemy ship designs may change, and may be different to what you know historically was the case. In **SAS** an attempt has been made to recreate the fog of war by presenting you with enemy ship design data that is based purely on your own intel. As a game

progresses and you have more opportunity to learn about enemy ship classes through intel and battle reports, the reliability of your information will improve.

- Counter intelligence - i.e. efforts to impede or mislead all aspects of the enemy's intelligence effort.

## Technology

There are 12 key technologies in **SAS**. Refer to [technologies](#) for an overview of these and how they affect game play.

Unlike other infrastructure areas, technology R&D has somewhat unpredictable results. Scientific breakthroughs do not come routinely and rely on inspiration and luck as well as resources; but the greater the R&D expenditure, the more likely it is - other things being equal - that a break through in key technology areas will occur.

The R&D expenditure on key technologies can be increased in 2 ways:

- By increasing the general technology R&D effort
- By separately changing the R&D priorities.

## Port Infrastructure

There are four kinds of port infrastructure:

- Port defences
- Dockyard facilities
- Industrial plant servicing the port
- Airfield infrastructure at or near the port.

Each has a current and a target value of between 0.0 and 10.0.

## Port defences

These are used against enemy aerial and surface bombardment and amphibious assault and include all manner of typical defensive works such as guns and gun emplacements (for use against enemy ships, aircraft and troops), land minefields (mines at sea must be separately laid as part of minelaying missions), barbed wire, trenches, pillboxes, anti-torpedo harbour nets, blast proofing of key facilities, and so on. The higher the defence level, the greater the damage inflicted on the enemy and the less damage to port facilities will be sustained in return and the more entrenched any garrison troops will be, significantly helping them to resist enemy land attack.

## Dockyard facilities

The ability of a port to service shipping - repair, rearm, refuel and construct ships - is directly dependant on this value:

- Refuelling and rearming of vessels requires a level of at least '2'.
- Repairing requires a level of at least '5'.
- In regard to construction:
  - Merchant ship construction requires a level of at least '5'
  - Submarine construction requires a level of '6' or more
  - Escort ship construction needs levels of '7' and above
  - Carrier and cruiser construction requires level 8 or more
  - Battleship construction requires level 9 or higher.

So, degradation of your facilities through enemy attack can have a critical effect of your ability to wage war. Make sure you monitor the current dock levels at your ports!

The *rate* at which repair and construction work takes place is also directly dependant on the dock facilities level. The higher the level, the faster the work can take place. (For example, a dockyard at level '9' can repair and construct almost twice as fast as a level '5' dock.

## Industrial plant

The RPs you need to pay for everything in the game are produced by your industry when it is supplied with domestic or export materials.

The higher the industry level at a port, the more value can be extracted from the same amount of materials. An industry value of '0' means that no RPs can be produced.

Unlike most other infrastructure costs, which are linear, the development of industry becomes increasingly expensive. It is easy to build very basic industrial plant, but very costly to develop complex industry. Countries that start a game with more advanced industrial plant have a sizeable advantage.

Industry can be damaged through enemy attack, so make sure you monitor the condition of your industrial plant.

Because economic wealth is the key to victory in **SAS**, it is a legitimate strategy in the game to maximise reinvestment in industry. A cautious player may opt to do this, reducing dependence on vulnerable convoys and trying to survive on a relatively small navy and merchant fleet. Whether this is successful of course depends entirely on the execution of the strategy and how much the enemy is able to exploit any weaknesses.

## Airfield facilities

The level of airfield facilities affects the number and type of aircraft that can be operated there:

### Type of aircraft

- Heavy bombers can be operated only from airfields with a level of 8 or greater.
- Medium bombers and long range reconnaissance aircraft need a level of at least 5.
- Fighters, interceptors and short range reconnaissance aircraft need a level of at least 2.

Note that no aircraft can be operated once the level drops below 2.0. Monitor the condition of your airfields, and make sure that the key airfields are developed to support the aircraft you need there. Airfields are easily damaged but are also quite quick to repair and develop compared to other forms of infrastructure.

## Number of aircraft

Independently of limitations on aircraft type, the airfield level also limits the total number of aircraft that can be supported.

The formula is simple - the maximum number is 2 times the square of the airfield level. For example, a port with an airfields value of 6 can support a total of 72 aircraft (but no heavy bombers) from nearby airfields.

# **Technologies**

There are twelve individual technologies. Each has a level that is set when a campaign is created. They can increase throughout a campaign through investment in technology.

This investment does not automatically produce technology breakthroughs, but it makes them more likely. The greater the investment, and the higher the priority accorded to technology areas, the more likely it is that breakthroughs, small or large, will occur. Remember that scientific advancement is not pre-ordained and advances will come somewhat unpredictably.

## Optical Fire Control

This is a combination of all the technologies associated with fire control of naval guns using optical instruments, and includes improvements in ballistics that relate to improved fire dispersal.

The higher the value, the greater the chance of scoring main gun hits at all ranges, in all weather conditions.

## Ballistics

This value represents essentially the ballistic performance of main calibre guns in terms of armour penetration. It reflects a number of variables, including shell velocity and weight. (This is simplified into a single value; in reality, guns varied considerably in terms of their penetration capability against vertical as compared to horizontal armour.) The higher the value, the better the overall penetration capability.

In reality, there were significant differences between different countries and even within a country, between different gun calibres, in terms of ballistic performance. For example, British guns had relatively poor ballistic performance generally, due in large part to



conservative decisions regarding lower velocities (to preserve barrel life) and only moderate shell weights. US practice, which resulted in outstanding ballistic performance for their 16 inch guns, relied on very heavy shells and good though not exceptional velocity. European (French, German and Italian) practice preferred high velocity and relatively light shells.

## Radar

This value indicates the capability of radar, both for long range enemy searching and shorter range fire control.

## Armour

This value indicates the efficiency of face-hardened armour plate. In real life, significant differences existed between countries in terms of armour quality. Best by a considerable margin was Britain, with their face-hardened armour up to 20% better than US 'A' class armour; worst was probably Italy, which had difficulty producing single armour plates of sufficient thickness and had to rely on sandwiched layers of steel and wood.

The higher the value, the greater the protective value of armour for a given thickness.

## Torpedoes

This is a simplified value representing the efficiency (speed, range and explosive power) of torpedoes, whether launched by surface ships or submarines. As this value increases, so does the range, speed and power of your torpedoes.

In WW2, big variations in torpedo technology existed. At the head of the pack by a long way was Japan, whose "Long Lance" oxygen-enriched torpedoes simply far outclassed any other navy's torpedoes in terms of speed, range and power. They were a true "secret weapon" for the Japanese in the early years of the War. Some countries, eg US

and Germany, had surprising problems with their torpedoes, such as in the reliability of the magnetic detonators. Britain had relatively good all-round capability and reliability, but were well behind the Japanese.

## Surface Propulsion

Although all navies used steam turbine machinery almost exclusively, especially for the faster naval vessels, the efficiency of the machinery and propulsion systems varied considerably.

The US and France had the best technology – relatively high pressures and temperatures and good gearing systems. Germany had high pressure and temperature systems but surprisingly poor reliability. British ships were generally rather poor steamers, due to a combination of conservative machinery design and single reduction gearing.

The better the value, the better the range your ships will have for the same amount of fuel.

## Construction Techniques

This value represents design and ship building efficiency, i.e. the ability to minimise wasted tonnage: the higher the value, the lower the required total tonnage for a ship of given characteristics.

Various factors are included here, notably excellence in welding, use of aluminium and other weight-saving techniques, as well as good ship design.

## Anti-Submarine Warfare (ASW)

This value represents the sum of various ASW technologies – sonar, ASDIC, hedgehog and other depth charge weapons, ASW tactics and so on. The higher the value the more

effective your escorts will be in repelling and damaging enemy submarines when they attack.

## Submarine Warfare Tactics

This value represents the effectiveness of your attacking submarine doctrine. The higher the value, the more your submarines can act in concert and the more effective they will be when attacking.

Germany pioneered the so-called wolf-pack tactics and attained probably the high-water mark of coordinated submarine offensive tactical doctrine.

## Submarine Propulsion

All navies started the war with similar technology for submarine propulsion underwater, but developments during the war, mainly by Germany, featured more efficient batteries, the so-called Schnorkel (allowing running under diesel power while submerged at schnorkel depth) and the Walter closed cycle hydrogen peroxide engine.

The higher the number, the more effective your submarines will be when attacking and also evading attack underwater, due to increased speeds and/or range underwater.

## Amphibious Operations

All navies started the war with low or non-existent experience or doctrine in conducting amphibious operations, and with very little in the way of purpose-built designs for small craft designed to effectively deliver assaulting troops between their transports and the beachhead.

As the level increases, the chances of your troops making effective amphibious assaults increases significantly.

# Aircraft Technologies

This represents all the relevant technologies used in WW2 aircraft design - chiefly engine (including jet engine), airframe and weapon systems.

As an exception to the other technologies, this one is measured not by a number in the 1.0 to 10.0 range but by a value representing a number of months bonus in design attainment. For example, if the bonus is shown as 11 months, this means that all aircraft available in **SAS** for that country are now available 11 months earlier than the date of their historical availability.

# **How strategy affects infrastructure development**

Your 2IC allocates available resources to infrastructure improvement based on your strategy.

## Very cautious strategy

40% of available resources are earmarked for infrastructure - a very substantial investment as it leaves only 60% for new ships, aircraft and troops. Priority is on long-term war-winning factors such as technology R&D and port infrastructure. The strategy is to build a very solid base for victory, even if it takes time.

## Cautious strategy

30% of available resources are earmarked for infrastructure. The remaining 70% is free for new ships, aircraft and troops. Planning assumes a moderately long war. Infrastructure priorities are on things that help both offensive operations( fleet training) as well as port facilities and defences.

## Aggressive strategy

20% of available resources are earmarked for infrastructure. The remainder (80%) is to be spent on new ships, aircraft and troops, with the aim of achieving a moderately quick victory. Infrastructure priorities are on things that maximise offensive capability: fleet training, and ship building and repair facilities.

## Very aggressive strategy

Only 10% of available resources is earmarked for infrastructure. (The remaining 90% is to be devoted directly to building new front-line fighting capability: new ships, aircraft and troops, with the aim of an all-out quick and decisive victory). Infrastructure priorities are on things that maximise immediate offensive capability: fleet training, ship building and repair facilities and naval intelligence.



# ***How to design and build ships***

**SAS WW2** is primarily a naval game. Although aircraft can play a huge part, it is only through ships that you can really project your power. It is critical to have the right number and type of ships to suit the strategy you want to employ.

Every turn, you get to construct new shipping, assuming you have enough resources.

New ships always appear at your home port.

Ships take a realistic amount of time to construct, except on the first turn, when they can become immediately available.

The ships you build can be either historical ones, or semi-historical (eg, ships that were designed, maybe even launched, but never completed in WW2), or include modifications you want to make, or even be to your own design from the keel up.

Designing and modifying ships is one of the really enjoyable and novel aspects of **SAS WW2**, and best of all, it is incredibly easy to do. You do not have to be an engineer, or understand naval architecture. You just need to know what capabilities you want in your ships.

The ability to design your own, or modify, or to have semi-historical ships can be disabled for a campaign however. Players who want to run a strictly controlled campaign might want to do this.

**SAS WW2** also makes it incredibly easy for you to construct large numbers of ships. Even in moderately-sized campaigns, there are likely to be a hundred or more ships per side. You can specify the building of each one of these. But more usually, a player will want to concentrate on the key ships only - perhaps some of the battleships or cruisers - and have his 2IC take care of the hackwork by building all the rest.

**SAS's** very flexible command and control interface makes the task of building ships as simple or as involving as you want. You have a very able, computerised 2-I-C who is

there to help with any aspect that you don't want to handle.

Follow these links to learn all you need to know about designing and building ships.

The links are arranged in order from the simplest to the most complex option. You can take any option on any turn, varying your approach as you want.

Option 1 - this is the simplest - just let your 2IC handle everything. He orders the construction of all your ships, selecting the numbers and types most suited to your strategy.

Option 2 - this is the next simplest - you can change the strategy your 2IC is using. He still does all the detailed planning though.

Option 3 - this is a good general option and one many players will want to exercise. You let your 2IC create the plan. But then you can edit it in any way you like - replacing particular ships with others of your own choice, or even ones you have designed yourself. This leaves the hackwork to the 2IC whilst giving you control over the construction of the key ships.

Option 4 - this is almost the same as option 3, but the order of actions is reversed. First, you select or design the ships you want, and then get your 2IC to plan the rest of your navy with what tonnage remains. The effect of this option is the same as option 3, but some players may want to do things in this order.

Option 5 - this is the most time consuming option, but the one that power players may want to take. With this option, you select or design all of your shipping, and do not use the assistance of your 2IC.

# **How to automatically build ships**

The simplest way to create ships is to let your 2IC do it all for you.

This page just explains how to let your 2IC do it all.

## How to invoke your 2IC

First, you have to call up your 2IC.

From the main menu on the blackboard to the left hand side of your office, click on "Build". Then, on the build menu that comes up, click on "Ships"

## The 2IC Help Screen

You will now see the 2IC help screen for building ships. The screen has some help text, some buttons, and a picture of your 2IC. Shown below is an example for the US player, relying on Admiral Spruance as his (very cautious) strategist:



The help text indicates that the 2IC is ready to "draw up a proposed ship construction list that is in accordance with our very cautious strategy".

You can learn how changing strategy affects this plan by going to the [how strategy affects ship building](#) page.

For now, it is assumed that you are following the simplest of all options, and are not changing strategy.

To authorise your 2IC to draw up a plan, just click on the "Yes" button at the bottom right of the screen.

He will then select the numbers and types of ships to suit your strategy.

This may take a few moments so please be patient while this is occurring.

When the plan is finished, the 2IC Help Screen will disappear and the [ship roster](#) screen will appear. (Follow the link for information about this screen).

Click the close button on the Ship Roster. The Build Ships screen will now appear, giving you a chance to edit what the 2IC has done. Just click the "Finished" button on the Build Ships screen.

That's it. The job of constructing all your ships for the turn is now complete.

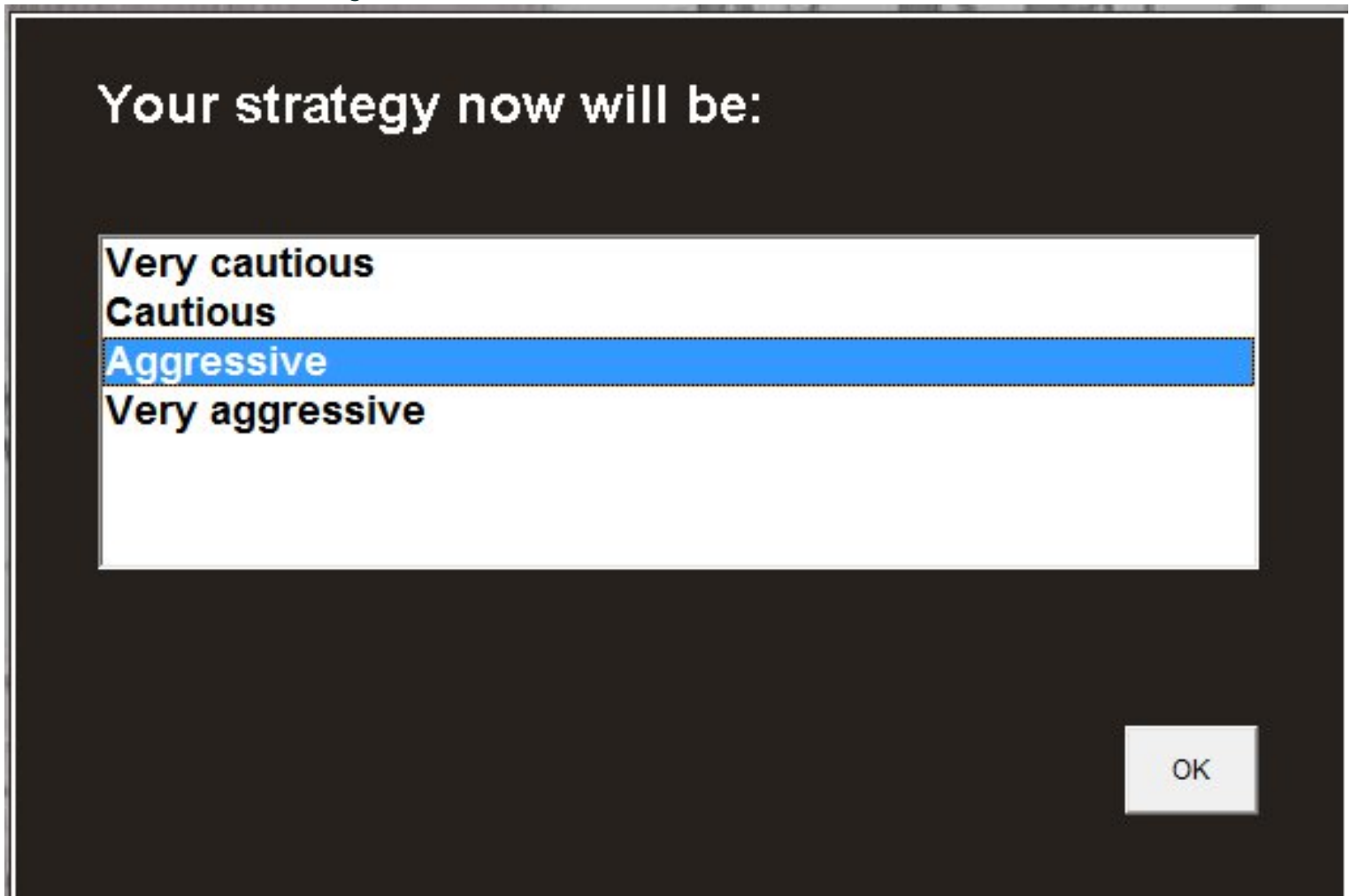
Best of all, you can review what your 2IC has done, and change any part of it. See [editing your 2IC's ship construction plan](#). This gives you the control you want while leaving the hackwork to your 2IC.

# ***How to edit the strategy for building ships***

Your 2IC follows your overall strategy when selecting numbers and types of ships. See [how strategy affects ship construction](#) for more information.

To change your strategy at any time, just click on the "Change Strategy" button at the bottom of the 2IC Help screen for building ships.

You will now see a dialog box like this:



Just select a different strategy, and click on the "OK" button.

## **A warning!**

Changing strategy affects every aspect of what your 2IC does, not just ship building. Read the



overview of strategies if you are in doubt about the effects a change will have.

# **How strategy affects ship building**

Your 2IC selects numbers and types of ships based on your strategy.

## Very cautious strategy

40% of available resources are earmarked for infrastructure.

The remainder will be used to build a large merchant fleet (close to 30% of total ship tonnage), supported by a navy with ships designed for defensive operations. There will be a relatively high ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (16: 3.5 : 1) and each ship type will be of moderate size only, as long range and high speed are not critical.

## Cautious strategy

30% of available resources are earmarked for infrastructure.

The remainder will be used to build a fairly big merchant fleet (about 24% of total ship tonnage), plus a moderate-sized navy with ships designed for both defence and moderate offensive operations. All ship types will be of moderate size for their type and have balanced characteristics, and there will be a balanced ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (12: 3 : 1).

## Aggressive strategy

20% of available resources are earmarked for infrastructure.

The remainder will be used to build a moderate-sized merchant fleet (about 20% of total ship tonnage), plus a big navy with ships designed for offensive operations in enemy

territory, including occasional port bombardments. A good proportion of tonnage will go to Battleships and carriers, and this plus the need for all types to have good speed and range -and therefore be of large size for their type -will mean that there will be a relatively low ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (9: 2.5 : 1).

## Very aggressive strategy

Only 10% of available resources is earmarked for infrastructure.

The remainder will be used to build a small merchant fleet (about 16% of total ship tonnage), and a very big navy with ships designed for offensive operations deep into enemy territory, including port bombardments. As much tonnage as possible will go to Battleships and carriers, and this plus the need for all types to have very good speed and range -and therefore be of very large size for their type -will mean that there will be a low ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (7.5: 2 : 1).

# **How to edit your 2IC's ship construction plan**

As explained in [how to automatically build ships](#), your 2IC can be asked to plan a complete ship construction program for you for the current turn.

After the program has been prepared, the 2IC Help screen will close and the ships to be constructed will be listed in the [ship roster](#).

If you do not like any aspect of the plan, you can amend it in any way, by removing any ships and replacing them with ones you select or design yourself.

You make these decisions from the ***Build Ships*** screen.

This screen will automatically appear when you close the Ship Roster.

To edit the 2IC's plan you need to understand how to select or design ships. Refer to the [building ships](#) page for full instructions.

# **How to combine your own ship construction plan with your 2IC's plan**

In the page on [how to edit your 2IC's construction plan](#) it was explained how you can make your own ship building decisions after the 2IC has prepared a plan.

Another way of achieving the same result - which some players may prefer - is to reverse the order of actions. The player selects or designs the ships of particular interest, and then lets the 2IC complete the plan for the turn using the remaining tonnage.

To do things this way, follow these simple steps:

1. Click on "Build" and then "Ships" on the blackboard in the [Admiral's Office](#).
2. When the 2IC Help screen appears, click "No" to indicate you do not (yet) want 2IC assistance.
3. In the Build Ships screen that now appears, select or design your own ships and issue orders to construct them. See [building ships](#) for detailed instructions.
4. Click the "Finished" button to close the Build Ships screen.
5. Now, bring the 2IC Help screen back by clicking "Build" and then "Ships" on the blackboard once more.
6. Then click on the "Yes" button, to get your 2IC's assistance. He will now use whatever tonnage remains to plan construction of the rest of your navy, taking into account the types of ships you have already chosen to build.

# **How to build ships without your 2IC's assistance**

When you click the "No" button on the 2IC Help screen for building ships, you are taken straight to the Build Ships screen where you can manually select or design your own ship classes and give orders for ship construction.

Although most players would find it too time consuming to plan an entire navy, the option is available if you want it.

See [building ships](#) for full instructions.

Note that when you are building historical ships, the computer automatically selects historical names, so it is actually reasonably quick to order the building of multiple ships. Having selected a class, each time you click on "Build" a ship of that class will be named and added to the construction queue.



# ***How to build aircraft***


Every turn you can spend RPs on constructing more aircraft. You can vary the amount of expenditure (within limits), and you can also influence which types of aircraft get built.

Then, you can review the details of how they have been deployed by your 2IC to your airfields and carriers. He has taken the tedium away from you, but you can manually override any part of the plan and deploy chosen aircraft to selected locations.

## ***2IC help with constructing aircraft***

To build new aircraft, from your [Admiral's Office](#) click on "Build" on the [main menu](#) on the blackboard, and then on "A/C" on the [build menu](#).

You will now see a screen like this:



### Aircraft Construction Plan

In accordance with our cautious strategy, the Theatre Commander, Air Forces, Air Chief Marshall Donald Stimson, and I have drawn up a proposed aircraft construction list.

Our strategy is to favour fighters for defense: 30% interceptors, 20% escort fighters, 30% bombers of all types and 20% reconnaissance aircraft.

You can of course amend the plan by varying the resources available for production, and also by designating certain aircraft as having production priority.

Admiral of the Fleet Ernest J. King

Change Strategy

View

Your 2IC stands ready to present to you a plan for the construction of new aircraft, which is consistent with your country's overall strategy. It has been negotiated with your senior theatre land commander, who reports to the most senior army generals who have control over aircraft targets.

You have two options at this point:

1. Optionally change your strategy first, by clicking on the "Change Strategy" button. See [how strategy affects aircraft construction](#) for more information.
2. Then, view the plan by clicking on the "View" button.

## The Build Aircraft Screen

Clicking the "View" button will bring up the Build Aircraft Screen:

**BUILD Aircraft**
(Maximum number that can now be operated = 522 ac of all types).
?

Type	Primary/Secondary roles	Best in Class	# to be Produced
Hudson I	Long Range Recce/Light Bomber		8
Maryland Mk II	Medium Bomber		8
A-20A Havoc	Medium Bomber		8
A-20C Havoc	Medium Bomber/Torpedo Bomber		30
B-17C Flying Fortress	Heavy Bomber	*	45
B-18A Bolo	Heavy Bomber		8
B-18B Bolo	Long Range Recce/Heavy Bomber		8
B-25B Mitchell	Medium Bomber		8
B-26 (Pac) Marauder	Medium Bomber		8
B-26 Marauder	Medium Bomber	*	9
B-26B Marauder	Medium Bomber		8
F2A-1 Buffalo	Fighter		8
F2A-2 Buffalo	Fighter/Light Bomber		8
F2A-3 Buffalo	Fighter/Light Bomber		34
F4F-3 Wildcat	Carrier Fighter/Light Bomber		8
F4F-4 Wildcat	Carrier Fighter/Light Bomber	*	112
J2F-5 Duck	Short Range Recce		0
OS2U-3 Kingfisher	Short Range Recce/Light Bomber	*	80

+

-

**Total AC: 630**  
**Total RPs: 354.39**

Cancel

Change Strategy

Commit



## Overview of the screen

### Maximum number of aircraft that can be operated

At the top of the screen, in red, a message will appear telling you the maximum number of aircraft that currently can be operated from all your airfields and carriers.

(Maximum number that can now be operated = 522 ac of all types).

### Proposed aircraft list

Most of the screen is taken up with the list of aircraft that your 2IC has proposed for construction. The list is scrollable and gives summary information of the primary and secondary roles each aircraft type is suited to, and the number that is proposed for construction.

#### Best in Class Indicator

Certain aircraft types also have an asterisk ("\*") in the 'Best in Class' column. The asterisk indicates that this aircraft type is considered by the AI to be the best of the available aircraft for the aircraft's *primary role*.

#### Number proposed for construction

The number proposed for each type has been carefully determined by your 2IC to meet several criteria:

- The total cost should not exceed a set percentage of your available RPs. (The benchmark is 10% by default - but as explained later, you can vary this).
- The balance of types - fighters, bombers and reconnaissance - should correspond to the 'ideal' as determined by your strategy.
- The selection of particular types has been done to maximise the best aircraft available - usually the more recently designed aircraft - that your country has currently designed and brought to being ready for production. As a game progresses, you will notice that the types will change. For example, in the late war period, jet aircraft become available for most countries. You can access the more advanced later war aircraft types earlier by spending resources on aircraft technology. (See [how to build infrastructure](#) for more information.)
- Nevertheless, there is a minimum number of aircraft of even obsolescent types that will be

included because production lines take some time to run down to nought.

## Aircraft details

You can see the details of any aircraft type by clicking on it in the list. You will now see the Aircraft Details screen:

**BUILD Aircraft** (Maximum number that can now be operated = 522 ac of all types). ?

**RESTRICTED**  
Division of Air Intelligence - Aircraft Recognition and Characteristics

**F4F-4 WILDCAT**  
**Fighter**  
**Light Bomber**



Max Speed: 300 mph.  
Cr. Speed: 171 mph.  
Endurance: 5/4/- hrs.  
Bombload: -/200/- kgs.  
Firepower: 6      Ruggedness: 5      Manouever: 6  
Carrier capable

**Production Notes:**  
Introduced: November 1941      Quota:8      Cost: 0.33 RPs      ☐ Restrict  
Production this turn:      Ordered:112      ☐ Prioritize      **Create Order**

**Historical Notes:**  
Additional armor and 2 extra guns reduced maneuverability.

**Close**

Many but not all aircraft will have a silhouette.

Endurance is hours flying time at light/medium/heavy load, and bombload is given also at light/medium/heavy load. Firepower (against fighters), ruggedness, maneuverability, and ASW attack and search (if any) are each values out of 10 (maximum). Special capabilities such as dive bombing, carrier capable and night-equipped are also listed if the aircraft has any of these.

Historical and production notes round out the details screen. 'Cost' is the number of RPs (resource points) it takes to build one aircraft of the selected type. Note though that this value is a total cost

figure, i.e. it is the cost not only of any one aircraft, but also the unitised cost of creating the factories to build it.

The use and meaning of the two tickboxes ('Restrict' and 'Prioritise') and the 'Create Order' button, as well as the meaning of the 'Quota' value, will be explained shortly, as they are some of the controls you can use to set aircraft production targets.

Click the 'Close' button to close the details screen and return to the build aircraft screen.

## Totals

At the bottom of the list, on the right hand side, are two totals: 'Total AC' is the total number of aircraft that your 2IC plans to order. 'Total RPs' is the total resource points it would take to build them.

## Plus and minus buttons

These buttons let you incrementally increase or decrease the RPs you wish to spend this turn on aircraft production. There are limits however to the amount that you can adjust the total aircraft construction budget each turn. This reflects real-world constraints: it was not possible to ramp up or down production lines for aircraft without restriction. A lot of investment was needed to tool up for new aircraft types, and to train factory workers in construction methods for each type.

As the number of RPs to be spent increases or reduces, your 2IC adjusts the 'number ordered' value in the list.

## Changing the production numbers and types

As well as changing the overall aircraft production budget, **SAS WW2** gives you two methods for varying your 2IC's plan in regard to the numbers and types of aircraft that get built.

- You can perform minor tuning by placing 'restrict' or 'prioritize' bids on certain aircraft.
- In addition, for specified aircraft types, you can set actual production targets - which override your 2IC's plan for as long as the targets are active.

## Minor tuning options



These options are the easiest to activate, and also in some sense, the most realistic as they reflect real-world production as well as *political* constraints: although you are the **Supreme Naval Commander**, and also the supreme commander in the theatre of operations covered in any campaign, you are more directly in charge of naval affairs than you are of air forces. In all countries in WW2 the command of naval and airforces was separated (except for naval fleet air arms, where they existed). Your power is akin to that of Admiral King in WW2. He was Chief of Naval Operations and supreme commander of US naval forces, and he also sat with General Marshal as one of the two Joint Chiefs overseeing war strategy. But for many things, including production targets for aircraft, he had only high-level begging rights.

Given this, there are two ways to change the proposed production plan:

1. Change the total level of resources for aircraft production this turn.
2. Change the mix of aircraft types by prioritising or restricting certain types or changing strategy.

## 1. Changing the level of resources

As already noted in the overview above, you do this by clicking on the '+' or '-' buttons. Each click incrementally increases or reduces the amount of RPs that will be spent this turn. You will see the 'Total RPs' and also the 'Total AC' values change as you do this.

Note that the new higher or lower level of spending will carry forward to the next turn. If you have reduced expenditure in a turn, the lower level will be the benchmark for the next turn, and it will take longer to get to a higher level again than if you had not reduced it.

Use the figure at the top of the screen for the maximum number of operable aircraft as a guide to deciding how many aircraft should be produced. You should always produce at least this number. You should actually produce a higher amount - the excess aircraft go into reserve and will be immediately available next turn to replace any losses in the current turn. A cautious player will want to have quite a high level of excess, especially on the first turn, as it is hard to predict aircraft losses.

## 2. Prioritising or restricting aircraft

### Prioritising aircraft

To prioritise the production of a particular aircraft type, select it in the list, and then, in the aircraft details screen, tick the 'prioritise' tick box. Then close the screen. You should notice that more of this aircraft will now have been ordered, at the expense of other aircraft types competing with it in

terms of role and capability. Prioritisation simply overrides the computer's assessment of what is the best aircraft type of those currently available for the role needed. You should therefore be a little careful before prioritising because the computer has a reasonably clever way of determining aircraft suitability.

Note that aircraft types that are prioritised are shown with a 'P' in the list.

### Restricting aircraft

You can also put a restriction on selected aircraft. Only the minimum quota for any restricted aircraft will then be produced. The current quota for the aircraft is shown in the aircraft details screen.

To restrict a particular aircraft type, select it in the list and then, in the aircraft details screen, click on the 'Restrict' tick box. Then close the screen.

Note that an aircraft type cannot both be prioritised and restricted - only one of these options (or none) can apply.

## 3. Changing strategy

You can also change your overall strategy before you commit an order. The mix of aircraft will change to reflect the new strategy. You will also probably notice a change in the total *number* of aircraft as well. This is because smaller aircraft, such as fighters, are generally cheaper to build than bombers. More aggressive strategies favour a greater proportion of bombers and so the total number of aircraft that can be produced for the given resources will reduce.

Before changing your strategy, make sure you understand all the effects that strategies have on game play. It is recommended you start by reading the [strategies](#) help page.

## Manual Production Orders

Despite what has been said about real-world political constraints, the option has been provided to manually set production orders for nominated aircraft.

*You can use this function to not only increase but also reduce the number of certain types that get produced. You can even set the number of any type to zero - which will force your factories to completely halt production so long as the order*



*is in place.* This feature allows you to force a complete cessation of production of any types you regard as outmoded or not requiring further production for any reason.

When a manual order is set, it overrides your 2IC's plan for that aircraft type. Also, aircraft for which manual orders are set get first 'dibs' at available resources.

You can create and edit a production order for any aircraft type. When such an order is in place, your factories attempt each turn to produce exactly that number of the nominated aircraft. The only constraint is the availability of resources.

It is important to understand that there are potential extra costs as well as savings from placing nominated aircraft under direct production orders. When your 2IC is left to plan aircraft, resources are allocated across all factories in a reasonably efficient way. If you intervene by directly placing production orders, there are - initially at least - cost penalties: resources must be diverted to meet your specific targets. But, *if you leave the order in place without significant alteration*, the cost per aircraft diminishes over time and can end up being significantly cheaper.

The approximation used in the game is that aircraft under manual production orders start out being 50% more expensive to produce; but the penalty is reduced by 10% per month. The 10% reduction per month continues so that the aircraft eventually become cheaper to produce - to a limit of 50% of the full cost. The penalty and the reduction reflect the expenses incurred in re-tooling and diverting resources from elsewhere, but then the savings to be obtained from extended production runs. The extra costs or savings are amortised as a per unit cost to make book keeping easier.

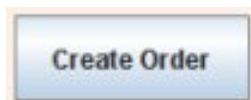
*An order can have its numbers varied by up to plus or minus 20% per month without penalty.* But if the numbers are changed by any greater amount, this has the effect of a contract cancellation and re-negotiation. Higher costs then apply again to the new order. Warning: significant variation is expensive!

By way of example - a manual order for 100 B-17s will cost 50% more per aircraft in the first month, 40% more in the second, 30% more in the third, and so on. By the sixth month, the cost penalty will be zero. After eleven months, the B-17s are each costing 50% less than if no manual order was in place. These cost savings continue for as long as the contract continues without significant alteration. After another 12 months, the order will have effectively delivered 600 B-17s for free! (100 per month at 50% the normal cost). If however the order were changed by a significant amount - say to 150 units per month after the ninth month, then the savings are scrapped, and the 50% penalty starts to apply again from the date of the contract re-negotiation.

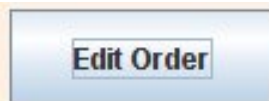
A simple rule of thumb to remember is that it takes 11 months for an order to become cost neutral; after that, it delivers significant savings provided no significant variations have occurred.

## Creating and editing an order

The 'Aircraft Details' screen has a button giving access to a screen for creating or editing an order for that aircraft type. If there is no order currently in place for the aircraft type, you will see a



button; otherwise, it will be the



button.

Clicking on the button brings up a screen for creating or editing a order. See [creating and editing aircraft orders](#) for help on this important function.

Note: aircraft under a production order can not also be under a restrict or prioritise order. Restrict and prioritise orders are ways to influence - rather than directly control - the production of nominated aircraft types.

## Indicators of Restrict, Prioritise or Manual Order elections

To help you keep track of which aircraft (if any) may be under restrict or prioritise orders, or else have a manual production order enabled, the list of aircraft in the 'Build Aircraft' screen has a 'R', 'P' or 'O' symbol alongside any aircraft type for which a restrict or prioritise election or a manual production order is in place. As an example, the following screen shows manual orders in place for the B-17C, B-18A and B-18B, a restrict order on the F2A-1 and a prioritise order on the B-26:

Type	Primary/Secondary roles	Best in Class	# to be Produced
Hudson I	Long Range Recce/Light Bomber		9
Maryland Mk II	Medium Bomber		9
A-20A Havoc	Medium Bomber		9
A-20C Havoc	Medium Bomber/Torpedo Bomber		36
<b>O B-17C Flying Fortress</b>	<b>Heavy Bomber</b>	<b>*</b>	<b>70</b>
O B-18A Bolo	Heavy Bomber		0
O B-18B Bolo	Long Range Recce/Heavy Bomber		5
B-25B Mitchell	Medium Bomber		9
B-26 (Pac) Marauder	Medium Bomber		9
P B-26 Marauder	Medium Bomber	*	15
B-26B Marauder	Medium Bomber		9
R F2A-1 Buffalo	Fighter		9
F2A-2 Buffalo	Fighter/Light Bomber		9
F2A-3 Buffalo	Fighter/Light Bomber		9
F4F-3 Wildcat	Carrier Fighter/Light Bomber		9
F4F-4 Wildcat	Carrier Fighter/Light Bomber	*	75
J2F-5 Duck	Short Range Recce		0
OS2U-3 Kingfisher	Short Range Recce/Light Bomber	*	41

## Committing the order

When you are satisfied with the current order, click on the 'Commit' button. This commits the order. The resource points will be taken and production of the aircraft commences immediately.

***Warning!*** the commit action can not be undone, so make sure you are ready before you commit. You can commit a production order for aircraft only once per turn.

After the 'Commit' button is clicked, the build aircraft screen will close and you will be returned to your [Admiral's Office](#).

## Cancelling out

If you are not yet ready to plan the construction of aircraft, click the 'Cancel' button. This returns you to your [Admiral's Office](#).

# ***How strategy affects aircraft construction***

Your 2IC selects types of aircraft based on your strategy.

## Effect on the balance of aircraft types

Your 2IC always tries to maintain 30% of your total aircraft as escort fighters and another 10% as reconnaissance aircraft.

As the strategy gets less cautious, he will favour more bombers at the expense of interceptors. (An "interceptor" is a fighter designed primarily for attack against enemy bombers, rather than the usually faster and more nimble enemy fighters. Interceptors often favoured firepower over manouverability compared to the pure fighter type).

For example, a very cautious strategy favours 30% as interceptors and 30% as bombers (of all types). A very aggressive strategy favours 15% interceptors and 45% as bombers. Cautious and aggressive strategies lie in between.

Your 2IC strives to maintain these proportions in the face of losses. If all your losses were in fighter aircraft in the last turn, then construction this turn will predominantly be fighters, regardless of your strategy.

Note also that these proportions are based on aircraft *primary* roles. Most aircraft had two (or more roles), eg medium bomber and reconnaissance. But it is an aircraft's primary role that is always most important to your 2IC when selecting more aircraft to build.

Within a given type, your 2IC always tries to select the best available aircraft, which will usually be those more recently designed and available.

# Effect on numbers of aircraft

Because fighters are generally cheaper to build than medium and heavy bombers, a cautious or very cautious strategy will tend to "buy" more aircraft for the same expenditure than an aggressive or very aggressive strategy. For example, it can take four times or more the RPs to build a heavy bomber than a small single-engined fighter.

# ***How to build troops***

Players can start a game with troops of varying kinds and quality that located at any of their naval bases. These starting troops are specified when a campaign is created. (See [creating a campaign - specifying troops](#) for more information).

Once a game has started players can raise more troops and spend resources on improving their training and equipment.

A player can raise two basic types of troops during the game: infantry and amphibious troops.

While infantry are best suited for garrisoning naval bases, amphibious troops are best for offensive assaults on enemy bases.

Troops always become available at home port, after a period of time for training. The infantry join your standing infantry army; the amphibious troops join your standing marine corps.

From there, they can be shipped to wherever they are needed, for garrison duty or amphibious assault. (The transport of troops and planning of assaults can be performed either automatically - with the 2IC's assistance - or manually by a player).

Losing one or more bases to enemy attack can be a crucial blow; indeed, if your home port is captured the game ends with your immediate defeat!

So **SAS WW2** is not merely a game of sea power. It also challenges you to use naval, air and army resources in a combined strategy for victory.

The following information guides you through the steps involved in building troops during a game.



# Accessing the ***Build Troops Screen***

Each turn you have the chance to build more troops (unless troops are disabled for this campaign. See [Create a Campaign - Enabling Troops](#)).

From your [Admiral's Office](#), click 'Build' on the [blackboard main menu](#), and then click 'Troops' on the [blackboard build menu](#).

Now you will see the ***Build Troops Screen***:

The screenshot shows the 'BUILD Troops' interface. It features a left sidebar with five dropdown menus: 'Desired strength as a % of enemy's:' (set to 'No Limit'), '% of Budget to spend:' (set to '20%'), 'Raising training levels is:' (set to 'Important'), 'Raising equipment levels is:' (set to 'Important'), and 'Desired ratio of Garrison : Amphib. troops:' (set to '20:80'). The main area on the right contains a summary of the plan: 'The plan is to raise 10000 infantry and 32000 amphibious assault troops. They will be immediately available at your home port of San Francisco. The cost will be 350 RPs. In addition, 246 RPs would be spent on improving training and equipment levels for all troops raised in the future. The total cost would be 596 RPs.' Below this, a table titled 'Current Strengths:' compares 'Own Troops' and 'Enemy Troops' across four categories: Troop numbers, Troop combat value, Troop training, and Troop equipment. At the bottom are three buttons: 'Cancel', 'Redo', and 'Commit'.

Current Strengths:		
	Own Troops:	Enemy Troops:
Troop numbers:	0	(No estimate available)
Troop combat value:	0.0	(No estimate available)
Troop training:	Above Average/High	(No estimate available)
Troop equipment:	Very Good	(No estimate available)

As explained below, this one screen has some simple controls that let you control how many (and what type of) troops you will raise this turn.

The screen has three sections:

- [A summary of the current plan](#) that your 2IC has prepared
- [Comparative information on enemy troops](#)
- [Controls for changing the plan](#)

To learn more, especially if you want to learn how to adjust the plan to your own needs, follow these links for more information.

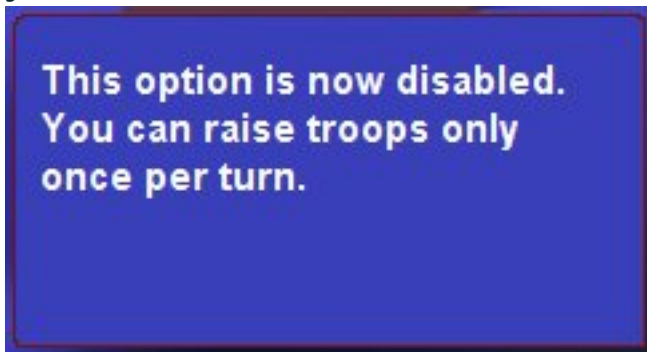
## Committing the Plan

Building troops for a turn can be as simple as just one mouse click - simply accept your 2IC's plan by clicking the 'Commit' button at the lower right of the screen:



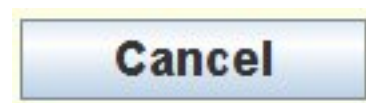
The RPs for the plan will be immediately deducted from your home port stores, raising of the troops will commence, and the *Build Troops Screen* will close.

Note that you can commit to a plan only once in a turn, so make sure you are happy with it first. If you later in the same turn try to build more troops, you will see this message in your Admiral's Office:



## Cancelling

To cancel out of the screen, click the 'Cancel' button:



When you cancel, the screen simply closes. You can return to the same screen any time later in the turn and review and commit to a plan then.

## More help

To learn more, especially if you want to learn how to adjust the plan to your own needs, follow the links above for more information.

# ***How to build troops - the Plan Summary***

(The following assumes you have navigated to the *Build Troops Screen*. If you need help with how to do this, or what the screen is used for, see [how to build troops](#).)

## The Default Plan

When the screen first appears, your 2IC has already developed a plan, the details of which are summarised in the grey text area at the top right of the screen:

**The plan is to raise 10000 infantry and 32000 amphibious assault troops.**

**They will be immediately available at your home port of San Francisco**

**The cost will be 350 RPs.**

**In addition, 246 RPs would be spent on improving training and equipment levels for all troops raised in the future.**

**The total cost would be 596 RPs.**

The summary of the plan has some important elements, which are explained below.

## Target number of troops

The Plan sets a target number of infantry and amphibious assault troops to raise. The numbers depend on the total RPs that are allocated and also the balance of types you want - the ratio of normal infantry to amphibious troops.

You can adjust both the RPs you wish to spend (see [changing the budget](#), as well as the ratio of troop types (see [changing the troop ratio](#)).

You can also set a limit on the total number of troops you wish to have relative to the estimated number of enemy troops. (See [Changing the limit on troop numbers](#).

## Availability

The summary tells you when the troops will be available.

On the first turn, these troops become *immediately* available, without the usual training time. (This is the same as with ships - where those 'built' on turn one appear immediately - unless their commissioning has been deferred for some reason).

On all subsequent turns, troops require time to be trained before they can become available for operational use.

The training time is a function of the complexity of the unit's training needs. This depends mainly on the level of training to be given (including any amphibious assault training) and the degree of mechanisation.

It can take 3 months or so to train a very basic infantry unit, and 3 or 4 times that (or more) if training requirements are set very high and the unit is also to be trained in amphibious assaults.

## *Training level*

Each country starts a game with an historical training level for their troops. (Amphibious and non-amphibious training levels are recorded separately). For example, German troops have a very high level of training compared to say Italian troops. US amphibious troops (marines) are well trained - somewhat more so than the normal soldiery.

Through targeted expenditure, you can increase the training levels of all new troops you

raise - see [increasing training levels](#).

## Cost

The cost (in RPs) of raising the troops is shown.

## Investments in better training and equipment

There is a separate cost shown also for any planned expenditure to develop training or improve equipment levels for new troops.

Each country starts with priorities for improving training and equipment, based on the starting levels. For example, the US, which starts with high equipment levels, has a lesser priority on improving them further than the Italians, who sorely need much better equipment.

You can separately change the priority allocated to developing training or equipment - see [increasing equipment levels](#).

## Total cost

The plan shows, at the end of the summary, the total RP cost.

Use this information to help refine the plan. For example, if you want to reduce the cost, you can do so, without necessarily reducing troop numbers, by reducing expenditure on better training or equipment. Or you can scale everything down by reducing the budget expenditure for troops as a percentage of your overall budget.

# How to build troops - Using Comparative Enemy Information

(The following assumes you have navigated to the *Build Troops Screen*. If you need help with how to do this, or what the screen is used for, see [how to build troops](#).)

## Enemy Intelligence

Before you make any adjustments to the default plan, make sure you consult the comparative information at the bottom of the *Build Troops Screen*:

Current Strengths:		
	Own Troops:	Enemy Troops:
Troop numbers:	0	(No estimate available)
Troop combat value:	0/0	(No estimate available)
Troop training:	Above Average/High	(No estimate available)
Troop equipment:	Very Good	(No estimate available)

Four kinds of information are shown for both your own troops and the enemy's:

- Troop numbers
- Troop combat value
- Troop training
- Troop equipment

All values shown for the enemy are estimates, which are based on your enemy intelligence and will be innacurate to a degree. (The better your intelligence, the more accurate they will be). The estimates may be over or under the real figure.

Note that on the first turn, you do not yet have sufficient information on the enemy to derive an estimate, and all values will be shown as '(No estimate available)'.

## Troop numbers

Shown here are the raw numbers of troops - both infantry and amphibious-trained troops. These values are totals only. For the *location* of enemy troops, you can consult the [theatre map](#).

## Troop combat value



The combat value of all troop units is affected not just by the sheer number of men, but also by the quality of their training, experience, morale and equipment, as well as the degree to which they are mechanized and the effectiveness of any localised entrenchments.

The values shown here take these factors (other than entrenchment) into account. As an example, an infantry unit with 'average' levels of training, experience, morale, equipment and mechanization has a combat value of 1.0 per man. An elite unit with much better factors would have a significantly increased combat factor per man.

The values shown here are the multiple of the number of men and the combat value of each unit.

For both yourself and the enemy two values are shown: first, the total non-amphibious combat value is shown; then, after the '/' separator, the amphibious combat value is shown. The values are computed separately because the strength of a unit when it is assaulting from the sea is greatly affected by any special amphibious training and experience it may have.

Remember that these are totals across all troop units. You can see these values broken down unit by unit in the [Situation Report - Troop List](#) as well as on the theatre map when you have ticked the 'Show own pop-ups' option. (See the [theatre map](#) for more information).

As an example: if you had 100,000 troops, and the average combat value was 0.9 normally and 0.4 for amphibious assaults, the value you would see here would be '90000/40000'.

Combat value is much better than raw troop numbers as a gauge of your total fighting strength compared to the enemy.

## Troop training

Again, two values are shown for yourself and the enemy: first a normal training level and then the training for amphibious assaults.

These values are shown descriptively and in a broad brush way using terms like "High" or "Average". Behind the scenes, the computer keeps much more accurate records. (Training levels are recorded as a percentage where 100 is the maximum possible). You can see the exact rating for each unit in your [Situation Report - Troop List](#), as well as on the theatre map when you have ticked the 'Show own pop-ups' option. (See the [theatre map](#) for more information).

Troop training is shown here because it is one of the things you can improve. (The other is troop equipment). See [increasing training levels](#) for more information.

## Troop equipment

These values are shown descriptively and in a broad brush way using terms like "Good" or "Sufficient". Behind the scenes, the computer keeps much more accurate records. Equipment levels are recorded as

a percentage where 100 is the maximum possible). You can see the exact rating for each unit in your [Situation Report - Troop List](#), as well as on the theatre map when you have ticked the 'Show own pop-ups' option. (See the [theatre map](#) for more information).

Troop equipment is shown here because it is one of the things you can improve. (The other is troop training). See [increasing equipment levels](#) for more information.

# **How to Build Troops - Controls for Adjusting the Plan**

(The following assumes you have navigated to the *Build Troops Screen*. If you need help with how to do this, or what the screen is used for, see [how to build troops](#).)

When you open the *Build Troops Screen*, it shows a default plan for more troops that your 2IC has prepared. A summary of the plan is shown on the screen. (See [how to build troops - plan summary](#) for help).

You can adjust any aspect of the plan using the five controls on the screen that are pictured here:

<b>Desired strength as a % of enemy's:</b>	No Limit	▼
<b>% of Budget to spend:</b>	20%	▼
<b>Raising training levels is:</b>	Important	▼
<b>Raising equipment levels is:</b>	Important	▼
<b>Desired ratio of Garrison : Amphib. troops:</b>	20:80	▼

Use of these controls is explained below, in the order they appear on the screen.

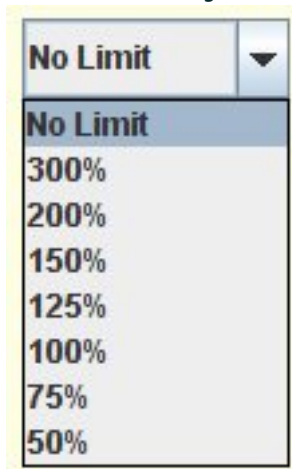
## Changing the limit on troop numbers

By default, there is no limit on the number of new troops your 2IC will keep planning for. If you keep agreeing to these plans, your army training grounds will keep churning out new soldiers in regimental sized packets of 2000 as long as there is budget for it.

On the first turn of the game, your intelligence of the enemy armed forces is very limited, and the 'No Limit' option is sensible, and the only one you can take. (The control to change the option is disabled on the first turn).

However, on every subsequent turn, the screen allows you to change this. You can choose to set the limit as a percentage of the total estimated size of the enemy's troops.

The values you can choose are: 300%, 200%, 150%, 125%, 100%, 75% and 50%:



To change the plan, just select the new value. When you click the 'Redo' button at the bottom of the screen, your 2IC will redo the plan accordingly:



The value you select remains until you next change it. Your 2IC will each turn assess your own side's troop numbers against the currently estimated enemy troop numbers and plan accordingly taking the maximum limit into account.

## Changing the budget for new troops

By default, 20% of the RPs available at your home port at the start of each turn will be allocated to raising new troops.

Of course, if you start a turn with very few RPs, it is likely that the budget for troops will

be too low to raise any in that turn. Troops get raised in units of 2000 men, and it takes an average of 20RPs to raise a unit. The exact amount depends on the characteristics of the unit. Infantry are cheaper (and quicker) to raise than amphibious troops.

Every turn, you can adjust the 20% (within limits). The new figure remains until you next change it.

Limits on the amount by which you can change the figure apply. This is because, in the real world, resources could not be easily transferred between the services. Political and administrative problems prevented changes that were too rapid. In **SAS WW2**, when the strategic turn is one month long, the limit is that you can't increase or reduce the budget by a percentage that is more than 2%. (Longer strategic turns allow for bigger adjustments).

To change the plan, just select the new value. When you click the 'Redo' button at the bottom of the screen, your 2IC will redo the plan accordingly.

For example, if you reduce the budget, the numbers of troops you can raise will be reduced, and the cost shown for this will have been reduced to fit inside the available budget.

## Increasing training levels

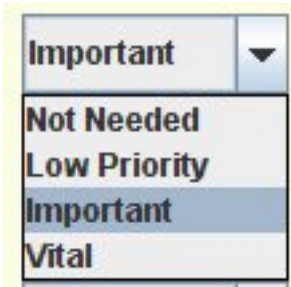
The training level of troops affects how good they are in combat. It also affects training times and costs. Higher training levels mean troops take longer to raise and are more expensive to produce.

Every country starts a game with levels of training approximating historical levels. Based on this level, each country also starts with a set priority for improving training. For example, Germany starts with high training levels and a low priority on improving it further; Italy starts with a low level and a high priority on improving it.

Every turn when troops get raised, a part of the RPs available for raising them is taken and used to improve training levels.

The amount that gets taken gets bigger as the training priority gets increased.

You can select the priority you want from the drop down list. There are four values: Not needed, low priority, important, and vital:



The 'Not needed' priority means that no budget gets taken for improving training. The low priority, important and vital priorities take 10, 20 and 30% respectively of the budget.

The value you select remains until you next change it.

Higher priorities mean that the troops you raise will (over time) be better trained. But it also means you are raising fewer of them because the budget remaining after training improvements is less.

Generally though, it is more efficient to have fewer, better trained troops. Smaller numbers are easier to transport and consume fewer supplies. (Remember that all troops raised except those that remain at home port will need to be supplied, putting demands on your navy and merchant navy to run convoys where necessary to maintain supply).

## Increasing equipment levels

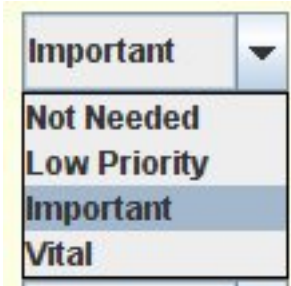
The equipment level of troops affects how good they are in combat. It also affects the cost to raise them. Higher equipment levels mean troops are more expensive to produce.

Every country starts a game with levels of equipment approximating historical levels. Based on this level, each country also starts with a set priority for improving equipment. For example, the US starts with quite high equipment levels and a moderate priority on improving it further; Italy starts with a low level and a high priority on improving it.

Every turn when troops get raised, a part of the RPs available for raising them is taken and used to improve equipment levels.

The amount that gets taken gets bigger as the equipment priority gets increased.

You can select the priority you want from the drop down list. The range of values is the same as for training: Not needed, low priority, important, and vital:



The 'Not needed' priority means that no budget gets taken for better equipment. The low priority, important and vital priorities take 10, 20 and 30% respectively of the budget.

The value you select remains until you next change it.

Higher priorities mean that the troops you raise will (over time) be better equipped. But it also means you are raising fewer of them because the budget remaining after equipment improvements is less.

Generally though, it is more efficient to have fewer, better equipped troops. Smaller numbers easier to transport and consume fewer supplies.

## Changing the troop type ratio

The last control on the screen allows you to set the ratio of troops produced: the proportion of infantry to amphibious troops.

The default ratio reflects a player's strategy:

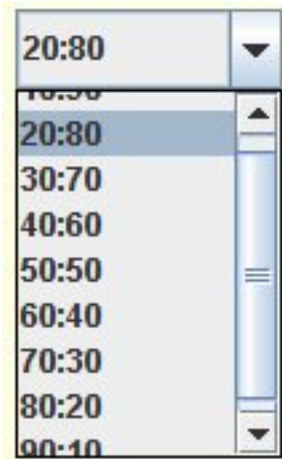
- A 'very cautious' strategy has an 80:20 ratio, i.e. 8000 infantry troops get produced



for every 2000 amphibiously trained troops. This reflects the priority of this strategy on defensive operations at minimal cost.

- A 'cautious' strategy has a 60:40 ratio
- A 'aggressive' strategy has a '40:60' ratio
- A 'very aggressive' strategy has a 20:80 ratio

You can change the ratio you want by selecting from the drop down list. As well as the values mentioned above, you can choose 10:90, 30:70, 50:50, 70:30 and 90:10:



The value you select remains until you next change it. Changing the ratio often is not recommended though because it can take a while for any desired ratio to be achieved.

Remember that amphibious troops are more expensive to produce than infantry which are better suited to a garrison role. If you have amphibious assaults in mind, make sure you produce enough amphibious troops to make the chances of success reasonable. Assaulting from the sea with troops not trained and equipped for it can be disastrous, and even relatively poor garrison infantry, if well supplied and entrenched, will often emerge victorious.

## Redoing the Plan

After changing any of the control values, just click the 'Redo' button and your 2IC will immediately re-formulate and display the new plan:



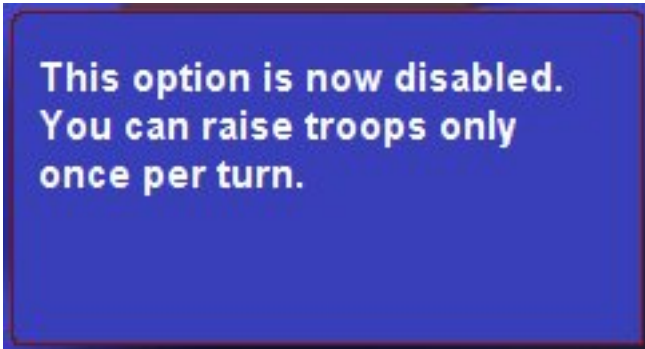
# Committing the Plan

When you are happy with the plan, click the 'Commit' button:



The RPs for the plan will be immediately deducted from your home port stores, raising of the troops will commence, and the ***Build Troops Screen*** will close.

You can commit to a plan only once in a turn, so make sure you are happy with it first. If you later in the same turn try to build more troops, you will see this message in your Admiral's Office:



# **How to automatically create missions**

The simplest way to create missions is to let your 2IC do it all for you.

You have many other options of course - including defining the rules he uses, editing the missions after he has created them, or even creating your own. (See options for deploying ships for more information).

This page just explains how to let your 2IC do it all.

## How to invoke your 2IC

First, you have to call up your 2IC.

There are two alternate ways to do this. Both assume you are already in your Admiral's office.

### Option A: from the blackboard menu

From the main menu on the blackboard to the left hand side of your office, click on "Deploy". Then, on the deploy menu that comes up, click on "Form Fleets"

### Option B: from the theatre map

Click on the theater map on the wall of your office. A full screen map view will appear. On this map, click on the "Form Fleets using 2IC" button at the top right of the screen:

Form Fleets using 2IC

## The 2IC Help Screen

Either of these options will bring up the 2IC help screen for forming fleets. The screen has some help text, some buttons, and a picture of your 2IC. Shown below is an example for the US player, relying on Admiral Spruance as his (very cautious) strategist:



The help text indicates that the 2IC is ready to "draw up an operational plan, allocating ships to fleets and determining their missions". It also says that the plan is being prepared "in accordance with our very cautious strategy".

You can learn how changing strategy affects this plan by going to the [changing the strategy for missions](#) page.

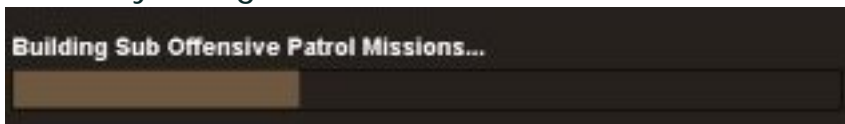
For now, it is assumed that you are following the simplest of all options, and are not changing strategy.

To authorise your 2IC to draw up a plan, just click on the "Yes" button at the bottom right of the screen.

## Calculating the operational plan

The assignment of the most suitable ships to fleets and the calculation of their movement orders, all in accordance with the overriding strategy, is one of the more complex calculations the computer AI must do in **SAS**. There are many variables to consider when selecting appropriate enemy objectives, including the cruising range of your ships. So please be a little patient while the calculation is being performed. (You can speed things up considerably, when you are ready to learn this, by setting your own objective hexes. see [Editing mission parameters](#) for information).

As the calculation is running you can see the rate of progress in a progress bar at the bottom of the help screen. It shows the progress graphically and describes the mission currently being calculated:



## How to review the missions


As soon as the calculation is finished, the ***Mission List*** appears. This has a summary list of all missions in the left-hand pane. Here is a sample illustration:



Note: The summary list shows all missions created this turn as "NEW", to distinguish them from any that were created on a previous turn and that are still operative.

Click on any entry in the summary list to bring up details of the selected mission in the right-handpane. See [using the mission list](#) for more information.

The Mission List can be used for more than just reviewing. You can easily cancel all missions, or selected ones, or lock selected ones and cancel the remainder. See [cancelling missions in the mission list](#) for more information.

Close the Mission List when you are done, by clicking on the close button:  at the top right of the List.

You will now see the theatre map, where you can review the missions in even more detail - and also edit them manually if you want to. See [map view](#) for more information.

# Congratulations!

Congratulations - you have just learned the simplest way to form fleets of ships and give them all necessary orders. Your 2IC has done all this for you, taking probably less than a minute. The missions will be the ones appropriate to your strategy, and the best available ships for the tasks will have been selected.

You can learn how to guide or override what your 2IC has done. But in the meantime, you can be confident that he has done a very solid job. You may find that you are happy to leave it to him for quite a while, while you get up to speed with other areas of your command - such as ship design and construction, or infrastructure spending, or aircraft construction and deployment. Life is always busy for the ***Supreme Naval Commander!***



# **Missions - Available types**

There are fourteen possible mission types. Your 2IC selects from these, based on your strategy and available forces, when creating missions. The following mission types all involve surface forces except where it is noted that they employ submarines instead. (In **SAS**, a fleet can not contain both submarines and surface ships).

- Aerial Bombardment
- Bombardment
- Close blockade
- Combined operations involving amphibious assault
- Convoy
- Defensive patrol
- Defensive patrol by submarines
- Defensive minelaying
- Offensive patrol
- Offensive patrol by submarines
- Offensive minelaying
- Ready reaction
- Reconnaissance
- Troop Transport

## **Aerial bombardment**

In this mission type a fleet that includes one or more aircraft carriers will be sent out to attack one or more enemy ports with aircraft from the carriers. The ports will be selected either by your 2IC or by you. The aircraft will attempt to damage not only infrastructure at the port, including RP storages, but also enemy ships in harbour. The fleet will come just close enough to the port to be in attack range by its own aircraft, but no closer.

# Bombardment

This is similar to a aerial bombardment mission except that the fleet will be composed of ships intended to use naval guns for bombardment. (In **SAS**, this excludes submarines and aircraft carriers). The fleet will sail into an adjacent hex to an enemy port that has been selected as an appropriate target.

# Close blockade

In this mission type the fleet will typically be very powerfully composed and will sail "into the lion's den", relatively close to an enemy port, and will patrol there waiting to intercept enemy ships attempting to sail into or out of the port. The port will have been selected either by your 2IC or you.

# Combined operations - amphibious assaults

In this mission, one or more fleets will have orders to sail to a hex adjacent to the port to be assaulted, offload any troops and perform a preliminary bombardment. In missions of this type set up by your 2IC, the fleet(s) will arrive at a time that allows for a pre-dawn bombardment. When several fleets are involved they will sail from different points and converge on the enemy port at the same time. The land battle may take some time to resolve or it may be very quick. When the battle is resolved, if the assault is successful, the enemy port and all its remaining facilities as well as any enemy ships in the harbour come under your control and can be used like any other of your ports and ships. If the assault is unsuccessful, all remaining troops from your assaulting units are captured.

If the port is the enemy's home port, a successful assault signifies that you have won the game.

The combined operations mission is the most complex of all as it can involve the coordination of several fleets plus any ground forces able to reach the target by land.

Your 2IC does a lot of complex planning when preparing a combined ops mission for you!

Note: Combined ops missions are not possible on the first turn of the game. Although you can always manually create your own amphibious assaults, your 2IC (as well as your computer opponent) will desist from planning combined ops missions on the first game turn. This is because, at the start of the game, your 2IC does not consider he yet has enough intelligence of enemy troop dispositions to sensibly plan. After the first turn however, your 2IC will have intelligence (of varying quality - depending on the level of you enemy intelligence) which he can use to plan combined ops missions.

## Convoy

A convoy is any fleet with at least one ship carrying raw materials, troops or supplies and that is sailing between your own ports, loading and unloading as it goes. The carrying will usually be done by merchant ships; but naval vessels can also carry troops and supplies (but not raw materials) when needed.

The ports can be selected either by your 2IC or you. If your 2IC is creating the mission, the ports will be selected according to need as well as profit. Need is determined by a calculation of the supply needs of a port (eg to support troop garrisons or to refuel, rearm or repairing your ships) compared to the current supply stocks. Profit is determined by calculating the value of routes between ports based on the length of the route and the value of the cargo. (Typically, convoys will be planned between rich sources of raw materials and ports with the industry to profitably process them. The shorter the route, the more valuable it is also, because more trips can be made in the same time).

If resource points (RPs) are your lifeblood in **SAS**, convoys are the main arteries that carry the ingredients necessary for making RPs and transporting them to where they are needed.

Convoys are typically relatively slow, and usually will include escorting naval ships to protect the merchants ships from aerial, surface and submarine attack.

## Defensive patrol

In a defensive patrol mission, the fleet will be given one or more hexes to patrol. The hexes are set either by your 2IC or you. The fleet will usually have aggressive orders to intercept enemy fleets it encounters. Defensive patrols are useful to establishing defensive lines to secure important rear areas, such as your key ports or convoy routes.

## Defensive patrol by submarines

This is the same as a defensive patrol mission, but has submarines only.

## Defensive minelaying

Ships that can lay mines (which in **SAS** means only escort ships) are tasked to lay them in nominated hexes. The hexes are specified either by your 2IC or you. The hexes will typically be chosen so that they form a defensive perimeter around your ports.

## Offensive patrol

This is similar to a defensive patrol except that the patrol hexes will be inside enemy controlled sealanes, usually in areas that interdict key enemy convoy routes. The fleet will usually be given cautious attack orders.

## Offensive patrol by submarines

This is the same as an offensive patrol mission, but has submarines only.

## Offensive minelaying

This is the same as a defensive minelaying mission except that the hexes to lay mines in will be inside enemy controlled sealanes, such as on major enemy convoy routes, or close to enemy ports.

## Ready reaction

In a ready reaction mission, the fleet will remain in port but with orders to aggressively sally and attack any enemy fleets that come too close.

## Reconnaissance

A reconnaissance mission is like an offensive patrol but the fleet's orders will be to always avoid battle if possible. (Offensive patrols with rules of engagement like 'Hit and Run' can perform reconnaissance but can also be of some offensive use. Pure reconnaissance missions will typically contain a small number of fast ships, like fast cruisers, that can use their seaplanes for scouting and usually be fast enough to avoid battle).

## Troop Transport

A troop transport mission is one in which ships capable of carrying troops are tasked with transporting a required number and type of troops from a place where there is sufficient surplus to one where there is a greater need to bolster the garrison.

The number of troops and the ports of embarkation and disembarkation are selected by the computer based on where troops are currently distributed compared to where they are most needed for defence, as well as on where suitable transport is available.

# Missions - Using your Mission List

Missions created by your 2-I-C appear in the mission list after they have been created.

(Note! The Mission List shows *only* missions created by your 2IC. Fleets you have manually created and given orders to do not appear in this list. You can review these fleets separately, from the [theatre map](#)).

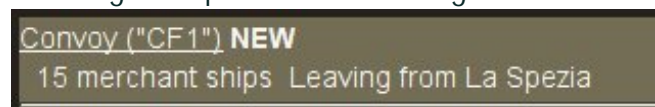
On the left side is listed summary information on all missions:



Each mission is shown by type (eg "Convoy"), and the name of the fleet associated with the mission is shown.

If a mission is newly created this turn it is marked as "NEW" to distinguish it from ones created on a previous turn and that are still operative.

Key information about the composition of the fleet is shown, as well as the port of departure. The following example shows the listing for a new convoy mission:



The underlined part is a hyperlink. Clicking on it will bring up details on the mission in the right hand pane:

## Selected Mission Details

### Convoy "CF1" **NEW** [Lock In](#) [Cancel](#)

#### 15 Merchants

MS 1-11	MS 1-12	MS 1-13	MS 1-14
MS 1-15	MS 1-16	MS 1-17	MS 1-18
MS 1-19	MS 1-20	MS 2-4	MS 2-5
MS 3-3	MS 3-4	MS 3-5	

#### 1 Carrier

Sparviero

#### 1 Cruiser

G. delle Bande Nere

#### 4 Escorts

Pegaso    Cicione    Impavido    Cassiopea

Leaves port Wednesday, 2nd. of July, 1941, 5 AM

Sailing La Spezia -> Palermo -> Piraeus -> Iraklion.

Total value of cargo carried = 96RPs>

Loading 64848 tons of supplies at La Spezia

Unloading 64848 tons of supplies at Palermo

Loading 64848 tons of raw materials at Piraeus

Unloading 64848 tons of raw materials at Iraklion

[See Map](#)

Best fleet speed = 8 knots

Average fleet speed = 8.0 knots

Mission completed by Sunday, 20th. of July, 1941, 10 PM

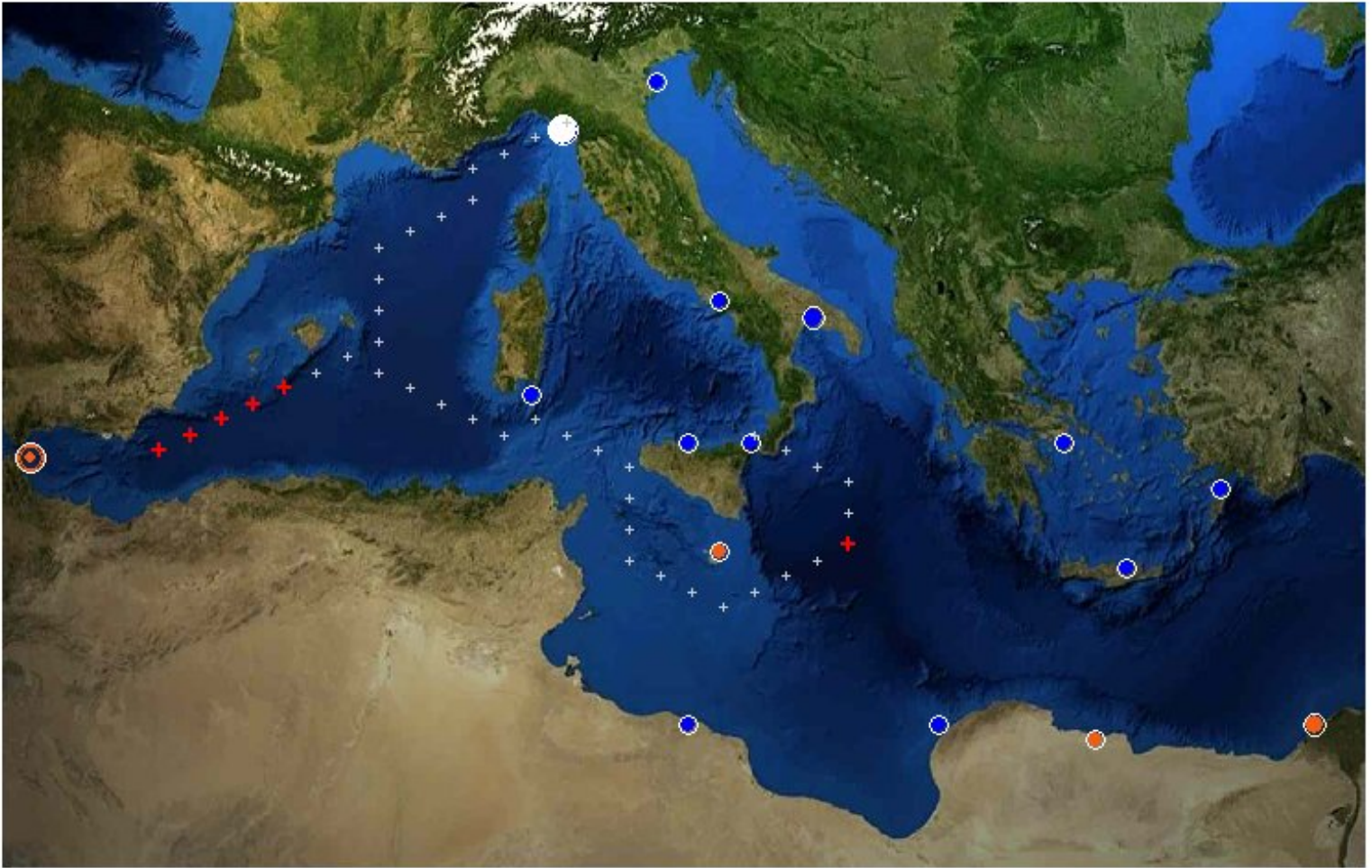
The details shown will be appropriate to the type of mission. All missions (except "Ready Reaction" missions - which stay in port until called out) will have a movement route set for them. You can see this route by clicking on the "See Map" hyperlink.

When you do this, you will see a small version of the theatre map, with the fleet's movement path shown by a series of white crosses:





If the mission is one for which hex objectives have been set - such as a patrol or minelaying mission, the objectives will be shown with a red cross:



To exit the map, click anywhere on it.

For use of the cancel and lock/unlock functions available from the left hand buttons or the right hand links, see [cancelling missions in the mission list](#) for more information.

For help on the whole subject of how missions get created (by your 2-I-C), how you can edit them, and even how you can create your own, start with [how to deploy fleets of ships](#).

# **Cancelling missions in the Mission List**

The *Mission List* is where you review and optionally cancel missions that your 2IC has created.

Note: It is only possible to cancel missions where the fleet is in port. If it is a mission that was created on a previous turn and is still at sea, the mission cannot be canceled this turn using the cancel function. To terminate a mission that is at sea, you will need to manually edit the fleet's movement path. (See [how to set the movement path for a fleet](#) for information).

## Accessing the Mission List

The Mission List appears automatically once your 2IC has finished creating missions. See [automatically creating missions](#) for how to invoke your 2IC to create missions.

The Mission List can also be brought up at any time from the [theatre map](#). Get to the theatre map from your [Admirals office](#) by clicking on the map on the wall. Then click on the "View Missions" button on the top right hand side:



of the theatre map:

You will see a List something like this:



## Cancelling a selected mission

To cancel a selected mission, first, select it in the left-hand summary pane. Details of the mission will appear in the right-hand pane, looking something like this:



## Convoy "CF1" [Lock In](#) [Cancel](#)

### 9 Merchants

Small Merchant-1   Small Merchant-10   Small Merchant-11   Small Merchant-12  
Small Merchant-13   Small Merchant-14   Small Merchant-15   Small Merchant-16  
Small Merchant-17

### 1 Carrier

Escort Carrier-3

### 1 Cruiser

Montpelier

### 3 Escorts

Christopher   Ellett   Lang

Leaves port Monday, 2nd. of March, 1942, 7 AM

Sailing Home Port -> Advanced Port -> Home Port -> Advanced Port.

Total value of cargo carried = 922RPs>

Unloading 0 tons of raw materials at Home Port  
Loading 48576 tons of raw materials at Home Port  
Unloading 48576 tons of raw materials at Advanced Port  
Loading 48576 tons of raw materials at Advanced Port  
Unloading 48576 tons of raw materials at Home Port  
Loading 48576 tons of raw materials at Home Port  
Unloading 48576 tons of raw materials at Advanced Port

[See Map](#)

Best fleet speed = 8 knots

Average fleet speed = 8.0 knots

Mission completed by Monday, 30th. of March, 1942, 8 PM

To cancel the selected mission, just click on the "Cancel" link at the top of the right hand pane.

The mission will be deleted, all ships in it will be returned to the available pool where they came from, and the mission will be deleted from the Mission List summary.

Also, on exiting from the Mission List and returning to the theatre map, you will see that the fleet associated with the mission has been deleted from the list of fleets. (See [map view](#) for more information.

## Cancelling all missions

To cancel all missions in the list, just click on the "Cancel All" link at the top of the left-hand summary pane.

*All* missions will now be cancelled (regardless of their locked status - see below).

## Locking missions

Sometimes, you may want to cancel most missions, keeping only some. This is what locking is used for.

Missions are locked individually. First, select the mission in the left-hand summary pane, then click on the "Lock" link at the top of the right-hand details pane.

If you click on the "Cancel All Unlocked" link in the left-hand summary pane, all missions not so locked will now be deleted.

Note that locking missions is used also for another purpose. Any mission that is locked will stay on the books even if you get your 2IC to issue another operational plan, perhaps to different parameters, perhaps not. At this time, all unlocked missions will be cancelled, but locked missions are retained and are not touched.

# ***How to edit the strategy for missions***

Each player has a strategy, which is set when a campaign is created and can then be changed during a game.

There are four strategies - very cautious, cautious, aggressive and very aggressive. Strategies affect many things, including how missions get created by your 2IC. (See [strategy overview](#) for more information of a general kind).

## Accessing the mission strategy editor

To change your strategy as it affects missions, you need to call up your 2IC Help for creating missions.

There are two alternate ways to do this. Both assume you are already in your [Admiral's office](#).

### Option A: from the blackboard menu

From the [main menu](#) on the blackboard to the left hand side of your office, click on "Deploy". Then, on the [deploy menu](#) that comes up, click on "Form Fleets"

### Option B: from the theatre map

Click on the theater map on the wall of your office. A full screen [map view](#) will appear. On this map, click on the "Form Fleets using 2IC" button at the top right of the screen:



Form Fleets using 2IC

## The 2IC Help Screen

Either of these options will bring up the 2IC help screen for forming fleets. You have



seen this screen before, in the help page covering [automatic creation of missions](#).

The screen has some help text, some buttons, and a picture of your 2IC. Shown below is an example for the US player, relying on Admiral Spruance as his (very cautious) strategist:



## The Mission Strategy Editor

To change strategy, click on the "Change Strategy" button at the bottom of the screen.

You will now see the mission strategy editor:



This screen allows you to make two kinds of edits:

1. [Change the authorised list of missions](#)
2. [Change the priority of the missions](#)

You can also launch the screen for editing more detailed parameters for selected missions - this is explained in the page covering [editing mission parameters](#).

## 1. Changing the authorised missions

There are two ways to do this, as explained below.

### A. Changing the strategy itself

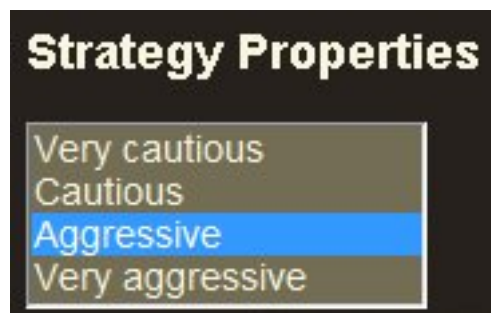
The first way is simply to change the strategy itself. Because each strategy comes with a default set of authorised missions, changing the strategy will reset the list of authorised missions to the default list for the selected strategy.

The current list of authorised missions is shown in the ***Selected Missions*** list at the bottom right of the screen:



By way of some examples, a very cautious strategy will not by default include close blockade or bombardment missions and will limit offensive operations to submarine patrols. Conversely, a very aggressive strategy will favour aggressive patrols, bombardments and blockades ahead of defensive missions.

The current strategy is highlighted in the ***Strategy Properties*** list at the top left of the screen:



To change the strategy, simply select a different one in the list. When you do this, you will get a warning that changing the strategy will reset all defaults:



You can confirm the change, by clicking the "Change" button; or cancel out by clicking "Cancel".

You need to be aware also of other effects of changing strategy. Not only will the list of authorised missions change; but the new strategy will immediately apply to other areas of decision-making - most importantly in how your 2IC selects new ships and aircraft and how he allocates infrastructure spending. So make sure you understand these effects before proceeding to change the strategy. See [overview of strategies](#) for more information.

## B. Directly setting authorised missions

The less impactful way to change the authorised missions is to directly swap authorised missions in and out using the mission strategy editor. Most players will want to exercise this option before long.

To add an authorised mission, select one currently not authorised in the *Available Missions* list at the bottom left of the screen:



Then, click on the ">" button:  next to the list.

The selected mission will now appear in the *Selected Missions* list at the bottom right of the screen:



You can of course also do the reverse operation, that is remove any mission from the

Selected Missions list by selecting it and clicking on the "<" button:  next to the list. The selected mission will disappear from the Selected Missions list and appear in

the Available Missions list.

## 2. Changing the mission priorities

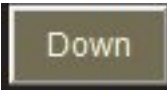
The Selected Missions list shows missions in priority order, from highest priority at the top to lowest at the bottom.

The priority of a mission is critical because it affects the chances of the mission actually going ahead. This depends on whether the appropriate ships are available. Higher priority missions have a higher claim on shipping.

Your 2IC allocates ships to missions in a sophisticated way - taking account of the minimum and optimum numbers of types of ships that the mission requires. (These minimum and optimum numbers can be changed - see the section on [editing mission parameters](#)).

Ships must also have the range for the mission, and otherwise be the most suitable of the ships available. For example, escort ships chosen for long range offensive patrols will be larger and more powerful than those selected for convoys or closer defensive patrols.

Your 2IC will try to form at least one mission of each of the authorised mission types. But lower priority missions may simply miss out for a given turn, as the ships needed have been claimed for other missions (or are otherwise unavailable, typically because they are under repair).

To change priority for a mission, simply select it in the Selected Missions list, and move it up or down the list using the "Up"  or "down"  buttons.

## Ready Reaction missions

Ready Reaction missions are a special case in that your 2IC will always allocate

remaining ships not otherwise employed to ready reaction fleets at each of your ports. They will be given orders to sortie as necessary to defend the port.

You can beef up the size of these fleets by making sure Ready Reaction missions are in the authorised list, and have a high priority. When they are in the authorised list, the rules regarding minimum and optimum numbers are applied, so you can enforce a certain size for these 'home' fleets. A cautious player may want to do this if he is uncertain of where or when to take the offensive and is anxious to keep a reasonable portion of the navy in home waters. The other advantage of ready reaction fleets is that they stay in port until called out in emergency. Until they are called out, they burn no precious fuel, so they are a more economical than running defensive patrols at sea. (But defensive patrols are often better at intercepting enemy threats earlier, before they get too close to your ports).



# ***How to edit mission parameters***

As well as changing the mission types and mission priorities (see [editing mission strategy](#)), you can set various parameters for any selected mission. This includes the important ability to set objective hexes. Many players will want to do this as a quick way of setting up missions targeted exactly where they want, without the extra work in having to manually set them up.

Mission parameters are edited in the *Mission Parameters Editor*, which is reached via the Mission Strategy Editor.

## Accessing the ***Mission Parameters Editor***

First, bring up the Mission Strategy Editor. (Refer to [accessing the mission strategy editor](#) for instructions if needed on how to do this).

Then, in the Selected Missions list at the bottom right of the screen, select the mission for which you want to edit the parameters, and click on the "Edit" button just to the left of the list:



You will now see the Mission Parameters Editor for the selected mission type:



There are four main parameters you can set here:

1. Set the **maximum** number of missions of this type that your 2IC will create in a turn
2. Set objective hexes for the mission
3. Set ship numbers in the fleet - minimum and optimum numbers and ratios of ships

In addition, there are some mission type-specific parameters you can change:

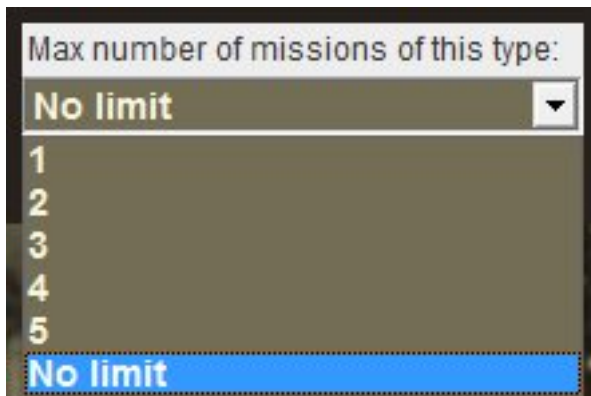
- For submarine patrols, you can modify how ship targets are prioritised.
- For Combined Ops missions, you can modify the minimum and optimum odds in terms of the ratio of own troop strength to enemy troop strength.
- For (offensive and defensive) minelaying missions, you can modify the maximum range that ships will travel

## 1. Setting the maximum number of missions of this type

The default for most mission types is for there to be no maximum limit to the number your 2IC will create in any turn. He will keep creating them as long as more ships and targets of the right kind are available.

(There **are** default limits for **some** mission types however: minelaying missions: 2; bombardment, aerial bombardment and close blockade: 1 each; and your 2IC will never create more than one combined ops mission per turn).

You can individually change the default maximum for any mission type by using this selector:



Note that if you so limit the maximum number of any particular mission type, what will often happen is that your 2IC will create fewer missions of that type, but each will have more ships than would otherwise have been the case.

## 2. Setting objective hexes

The ability to set objective hexes is a very simple and powerful way to get your 2IC to send the missions where you want, without having to manually create them yourself.

Normally, your 2IC will select the best objectives for a mission. For example, for defensive or offensive minelaying, the hexes selected will those best calculated to protect (or attack) enemy shipping. Similarly for defensive or offensive patrols, the hexes selected will be those closest to your own or the enemy's main shipping lanes. Ports selected for bombardment will be those judged to be those most valuable to be attacked. And so on.

These calculations can take some time to complete. But more importantly, they may not be the exact objectives you had in mind.

For most mission types, you have the ability to set your own objectives instead. Your 2IC then selects the best ships that can reach them, and assigns them the necessary movement orders.

Note! The objectives you set are targets only, and will be acted on by your 2IC only if the available suitable ships can reach them. If the objectives you set are currently unreachable by available forces, your 2IC is likely to select other more suitable objectives for the mission concerned. The objectives you have set remain 'on the books' however until you change them, and will be acted on by your 2IC as soon as the appropriate ships are available at locations where they can reach the objective(s) you have set.

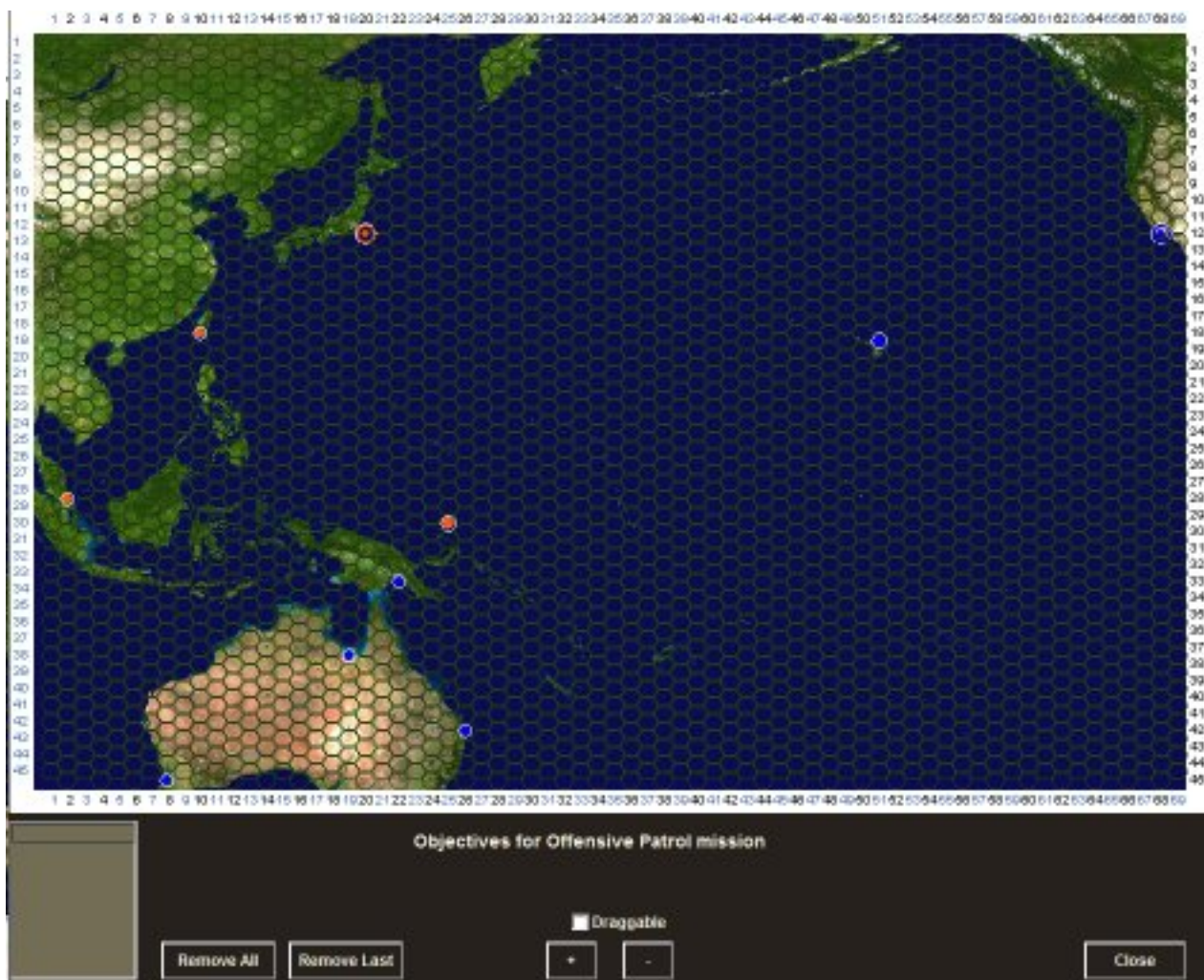
To set objective hexes, you need to call up the *Mission Objectives Editor*.

## The ***Mission Objectives Editor***

To bring up the editor, just click on the "Objectives" button

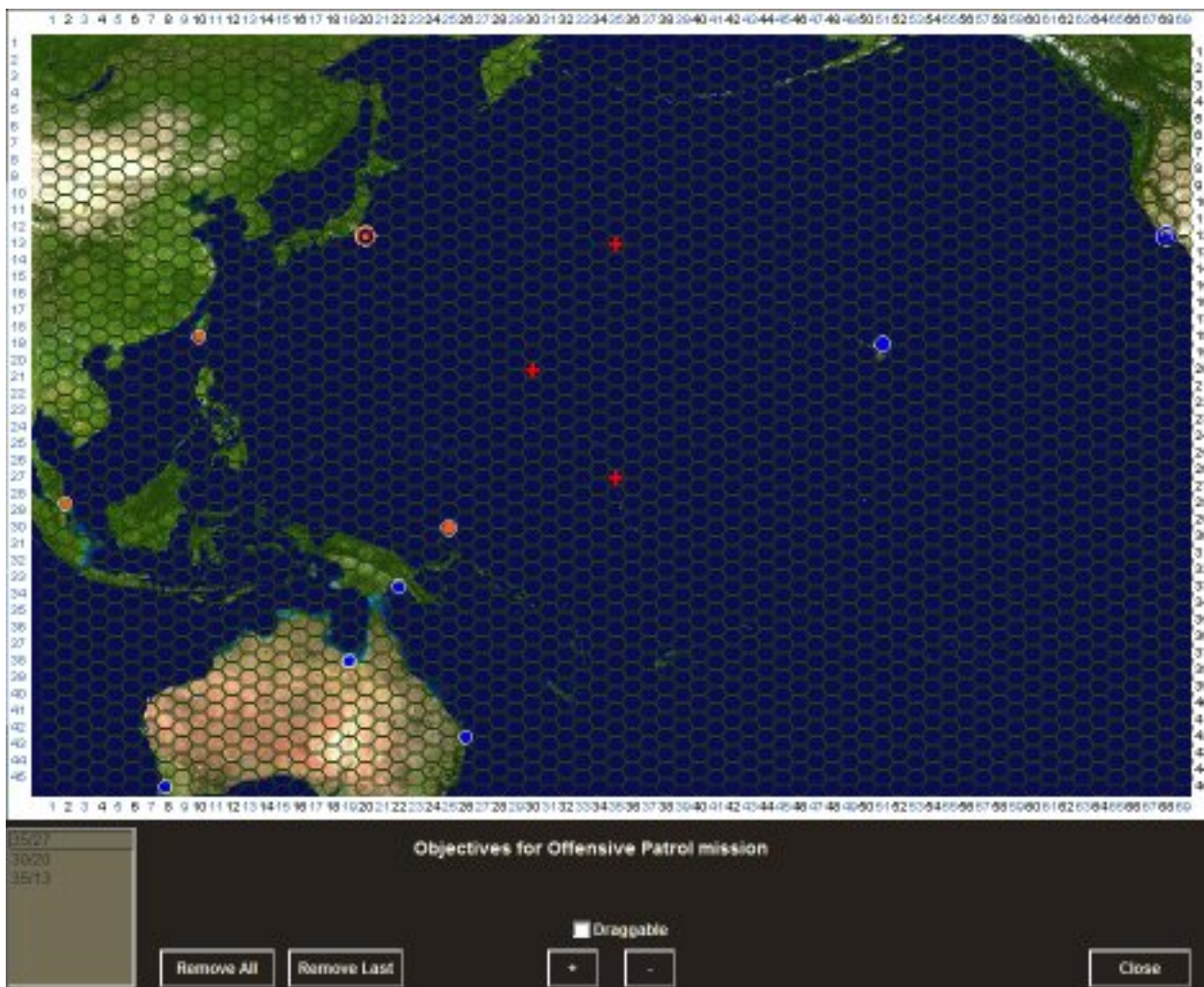


You will now see the Mission Objectives Editor:



To set an objective, just click on the hex in the map area. You can set multiple objectives. Each time you click, a hex is added to the list at the bottom left of the screen, and the hexes are shown with a bold red cross in the map:





Normally, the hex will be an area of open sea. But for bombardment, aerial bombardment and combined ops missions, each objective hex must be an enemy port. The editor prevents you from selecting a hex that is invalid for the type of mission you have currently selected.

When the 2IC calculates the fleet's movement he will send it through the hexes in the order you that you entered them. (See [how the 2IC calculates fleet movement](#) for more information). The list at the bottom left of the screen shows the hexes in order from top to bottom.

It is important to understand that these objectives only apply to the selected mission type. You can set different (or the same) objective hexes for one or more selected mission types, and let your 2IC select objectives for the remaining missions.

It is also important to know that these objectives stay active until you delete them. Your

2IC will apply them each turn until you change them.

Remember also that all you are doing here is setting objectives for one or more selected mission types. Your 2IC still decides which ships will be in the mission (and from where they will come). You can indirectly influence the composition of fleets by setting rules for the minimum and optimum numbers of types of ships for the mission - see [setting ship numbers in the fleet](#) in the next section. Or you can directly control the actual allocation of ships but for this you will need to know how to edit or create your own missions - see [how to edit missions](#) for more information.

## Zooming and dragging

Just like the theatre map you can zoom in or out and drag the map around. The "+" and "-" buttons let you zoom in or out in increments.

Whenever you zoom in or out, the "Draggable" tick box is automatically ticked. The mouse now becomes a hand to drag the map around. To stop dragging and set more objectives, untick the tickbox and start clicking in the map again.

## Deleting objectives

Click on the "Remove Last" button to remove the last objective entered. You can do this repeatedly if you wish.

Click on the "Remove All" button to remove all objectives.

Remember that the deletion affects only the currently selected mission type. Any objectives set for other mission types remain active.

# 3. Setting ship numbers in the fleet

Your 2IC decides which ships will be in the mission (and from where they will come). But



you can indirectly influence the composition of fleets by setting rules for the minimum and optimum numbers of types of ships for the mission. This section explains how to do this. (You may also directly control the actual allocation of ships but for this you will need to know how to edit or create your own missions - see [how to edit or create missions](#) for more information).

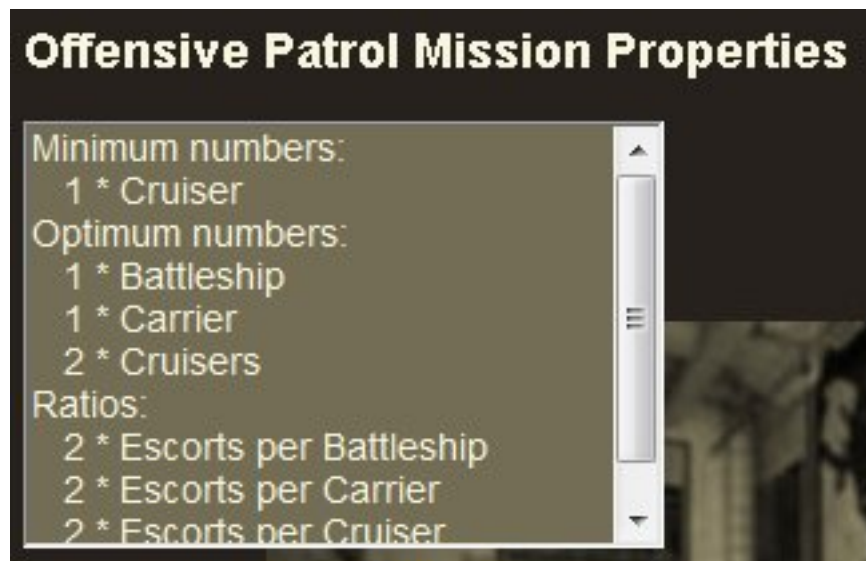
You can specify the minimum and optimum numbers of different types of ship, as well as the ratios between ships of different types. All missions come with default values based on your strategy, and the values are different for different kinds of missions. But you can change these.

By way of some examples:

- In a convoy mission, a very cautious strategy by default has a minimum of 4 merchant ships, and a ratio of one escort, one cruiser, one carrier and one battleship for every 1, 4, 6 and 9 merchant ships respectively. If enough escorting ships can not be found, the convoy will not sail.
- In contrast, a convoy mission under a very aggressive strategy has a minimum ratio of one escort, cruiser and carrier to every 4, 10 and 12 merchants respectively and has no minimum required number of battleships. A convoy can sail with as little as one merchant ship, and if there less than four merchants requires no escorts at all. The logic of these differences reflects different priorities - defensive strategies favour less risk taking and less emphasis on purely naval operations; more aggressive strategies free up the navy from much of the convoy work, making it available for more offensive operations. This is logical also because defensive strategies favour more, smaller escort ships whilst more aggressive strategies favour more big ships and fewer but larger, more powerful escorts for fleet work.
- In a bombardment mission, under a very aggressive strategy, by default there must be a minimum of one cruiser and optimally 2 cruisers and one battleship, plus two escorts for every cruiser and battleship.

## Changing the numbers

A summary of the current parameters for the mission is given in the list at the top left of the screen:

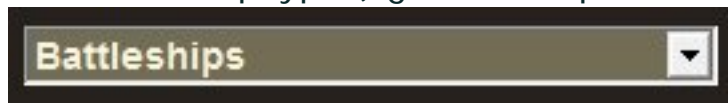


To change any of these numbers:

1. Select the parameter type ("Minimum", "Optimum" or "Ratio" in the bottom left combo box:



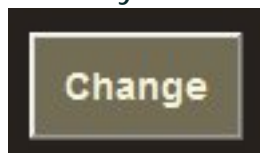
2. Select the ship type (eg "Battleship", "Carrier" etc.) in the adjacent combo box:



3. Select the new number from the adjacent number combo box:



4. When you are happy to change to the new value, click on the "Change" button:



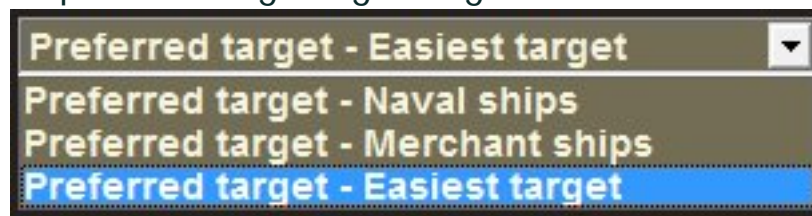
You must click on the change button each time for each change to be registered.

## Prioritising targets for submarine patrols

Submarine offensive and defensive patrols normally target the 'easiest' target by default,

ie the largest target that is also easiest to torpedo, regardless of whether it is a naval ship or a merchant ship.

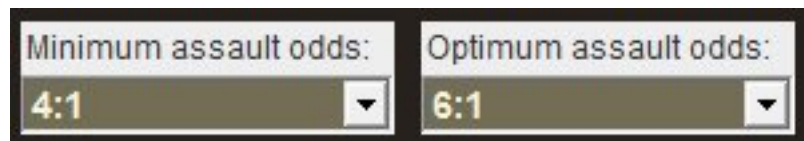
But you can tell your submarines to give priority either to naval ships or to merchant ships when targetting, using this selector:



## Minimum and optimum assault odds

Combined Ops missions, which aim at launching assaults on enemy held ports, have regard to default minimum and optimum odds (In terms of relative troop strengths).

You can change either or both the minimum and optimum odds that are required, using these selectors:

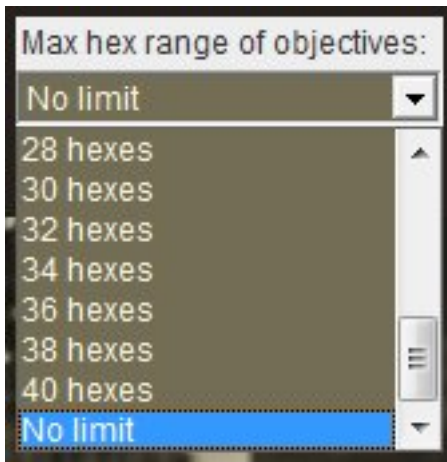


## Maximum range

Minelaying missions - both offensive and defensive - have a default maximum range setting that restricts how far from base they can roam for their objectives.

The default value is '12' hexes, meaning that a minelaying fleet will not attempt to lay mines further than 12 hexes from the port it last passed through or twice that distance (24 hexes) from the port it started at.

You can change this value, or set 'No limit' using this selector:



## When these changes apply

The changes in numbers or objective hexes will apply the next time your 2IC is called on to draw up operational plans. You can ask him to do this any number of times in a single turn. Only the last set of orders, plus any previously locked missions, are saved and acted on (see [locking missions](#) for more information).

To apply the changes in the current turn, just close the current editor screen by clicking



on the "Close" button at the top right of the screen: . Then close the strategy editor in the same way.

This will take you back to the 2IC Help screen. Now, just click on the "Yes" button at the bottom right of the screen.



### Operational Plan

?

In accordance with our very cautious strategy, The Chief of Operations, Admiral of the Fleet Ernest Hart, and I are ready to draw up a proposed operational plan, allocating our ships to fleets and determining their missions.

The plan will replace any that I may already have prepared for the current quarter.

Do you wish me to draft an operational plan for your approval? You can of course amend the plan in any respect.

Admiral of the Fleet Raymond A. Spruance

No

Change Strategy

Yes

# **How the 2IC gives fleet movement orders**

## Movement routes

For reconnaissance, patrols and blockades, the 2IC will order the fleet to stay in each objective hex for as long as possible, given the endurance of the fleet and the length of the overall mission. In between these objectives, he will sail the fleet at the standard cruising speed for the type of mission. (See [Cruising speeds](#)).

## A note about minelaying hexes

Minelaying missions are special in that the 2IC will calculate the movement path of the fleet generally in accordance with the order of precedence of the objectives, but will change the order when necessary so as to attempt to a set minimum number of mines in all objective hexes before returning to add more.

The objective hexes themselves can be set by yourself ([setting your own objective hexes](#)), or by the 2IC .

# ***How to edit or create missions***

Other chapters have covered how you can guide your 2IC before he creates missions, or cancel missions he creates.

Now you are going to learn how to edit in fine detail any mission after he has created it. You can, for example, add to or remove ships, or change the rules of engagement, or even alter the movement path and speed or the objectives.

The same knowledge will also allow you to create your own missions from scratch, without reliance on your 2IC.

All editing and manual creation of missions starts from the theatre map. (See [accessing the theatre map](#) for help on bringing up the map).

To edit or create missions you need to understand what the elements of a mission are.

The elements of any mission are:

- First and foremost, a mission must have a fleet, with at least one ship in it. (In **SAS**, fleet and task force have the same meaning).
- The fleet must have rules of engagement, telling it what to do when it encounters enemy forces.
- The fleet - in all cases other than ready reaction missions - must have movement orders - the path of hexes through which it is to travel, the speed or speeds during the path, and the length of time to spend in specified hexes that are important (the objective hexes).
- Certain missions - such as convoy, or bombardment or combined ops - will have some additional rules, such as the type and amount of cargo to load or unload, the actual hex from which to bombard, and so on.

Follow these links in the suggested order to learn how to edit or create missions:



1. Creating a fleet
2. Assigning ships to a fleet
3. Setting rules of engagement
4. Setting the movement path

-

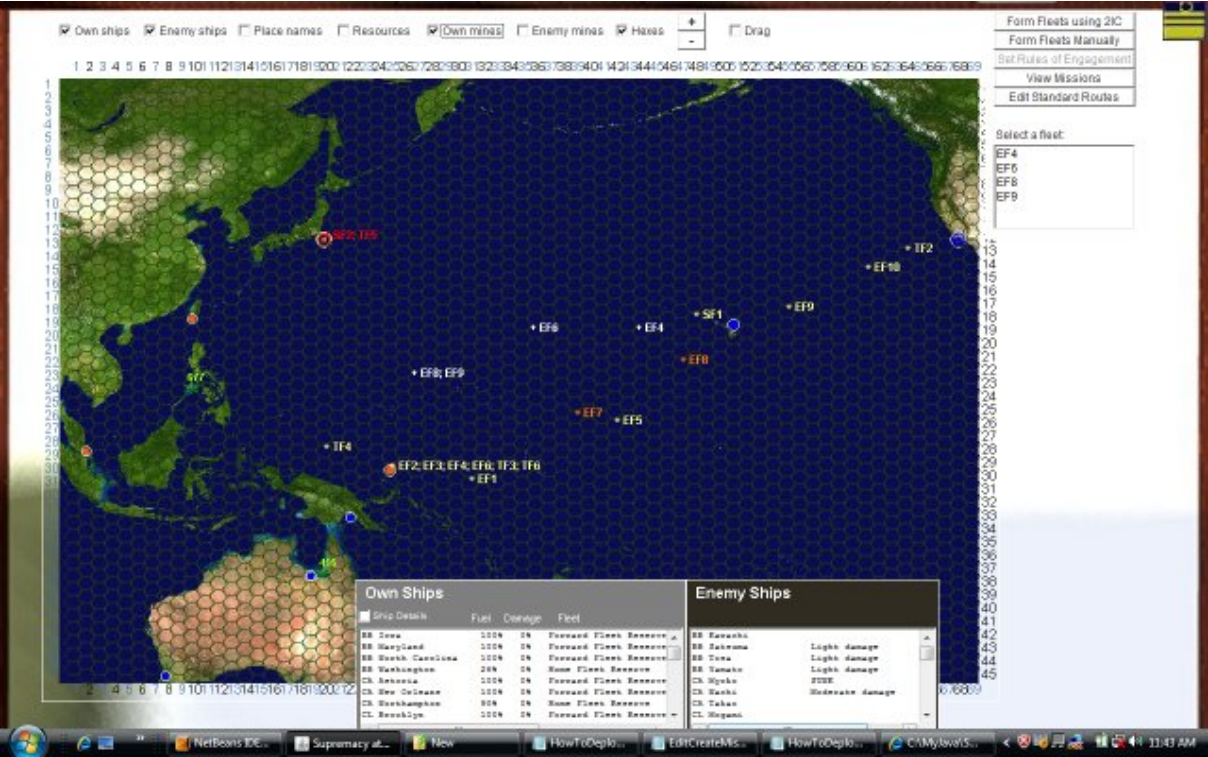
# How to create (and delete) fleets

You can manually create your own fleets at any time during a turn.

Manual fleet creation is the precursor to creating your own missions, which is something that many players will want to do when they become more experienced with **SAS**. But some players may be quite happy to never learn this aspect of the game, being quite content to let the 2IC set up all missions. The choice is always yours.

When you are ready to manually create some fleets, you start with the theatre map. (See [accessing the theatre map](#) for help if needed).

By way of illustration, the theatre map will look something like this, depending on the theatre you are playing:

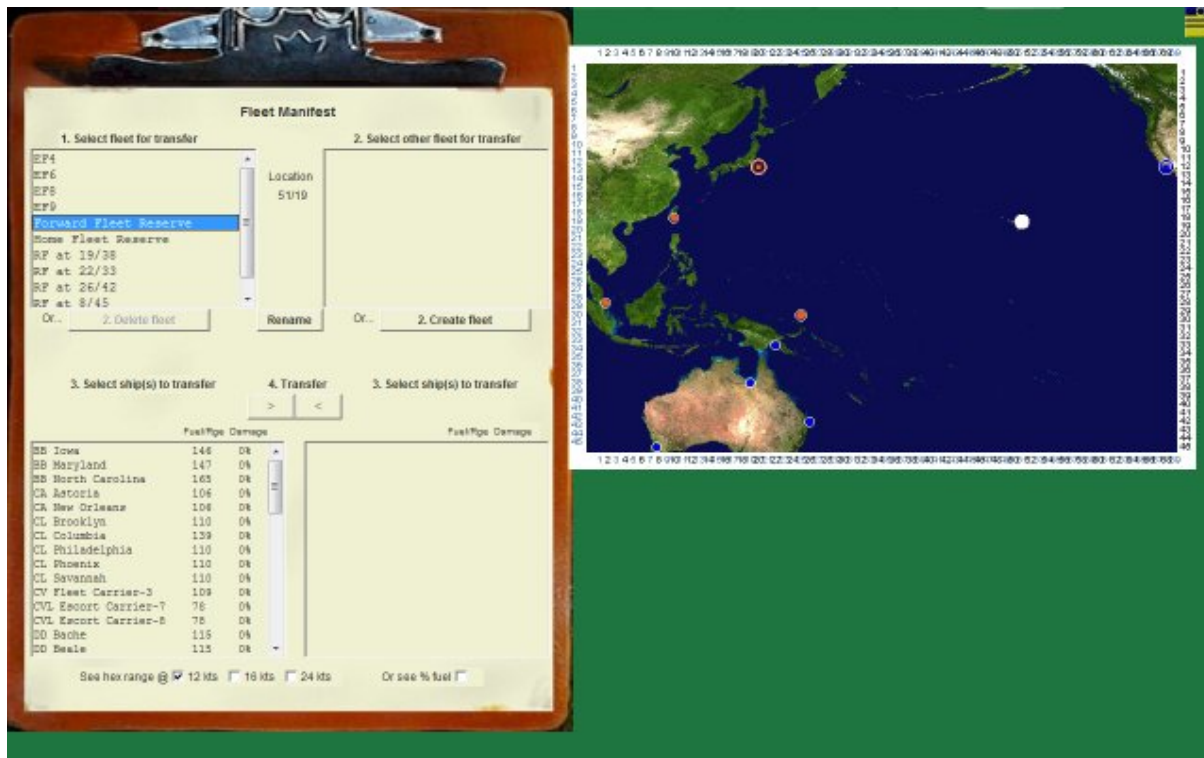


## The *Fleet Manifest*

You need now to bring up the fleet editor. Do this by clicking on the "Form Fleets Manually" button at the top right of the screen:



The Fleet Manifest will now appear:



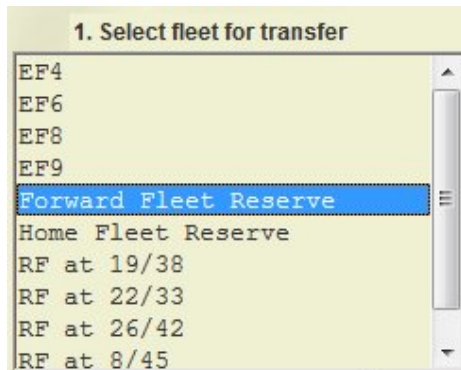
On the left is a clipboard with controls for creating and deleting fleets, and assigning ships between fleets.

On the right is a smaller map view. If a fleet is currently selected in the top left list on the clipboard, the map will show the location of the fleet with a big white circle.

The blue and red circles represent your own and the enemy's ports - just as they do on the theatre map.

## Creating a fleet

To create a new fleet, first select a current fleet in the top left list on the clipboard:



The reason you have to first select a fleet is that when a new fleet is created it has to start at the location of an existing fleet. (This is to allow the transfer into it of ships).

Therefore, the fleet you select must be where you want the new fleet to start. Remember that the location of the selected fleet (and the soon-to-be new fleet) is shown on the map with a big white circle.

You will now see the "Create fleet" button enabled. It is on the clipboard right hand side, half way down:



## Special rule regarding Emergency Fleets

Note that if the fleet you have selected is an emergency fleet, the create fleet button will not be enabled. The reason for this is that emergency fleets are automatically created by the computer at run time, in response to things like fuel shortages, or damage. Ships in these fleets need to return to the nearest suitable port, and that is the orders that the computer has given the fleet. If you were able to move ships out of the emergency fleet, the computer at run time would just put them back again.

You can recognise emergency fleets because the computer always names them with an "EF" prefix. ("EF" stands for emergency fleet). (See [fleet name conventions](#) for more information about the names the computer uses when it creates other kinds of fleets).

As explained below, (see [renaming a fleet](#)), these names, like the names of the fleets you manually create, can be changed if you prefer more descriptive names.

## The ***Fleet Name Editor***

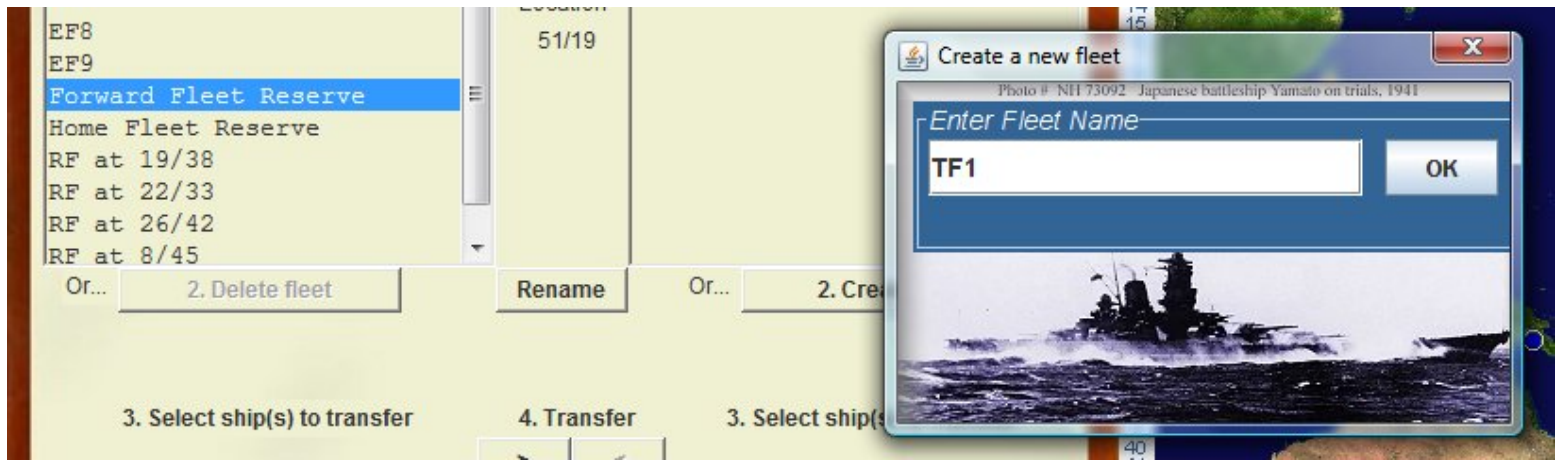
Click on the "Create fleet" button now to see the *Fleet Name Editor*.



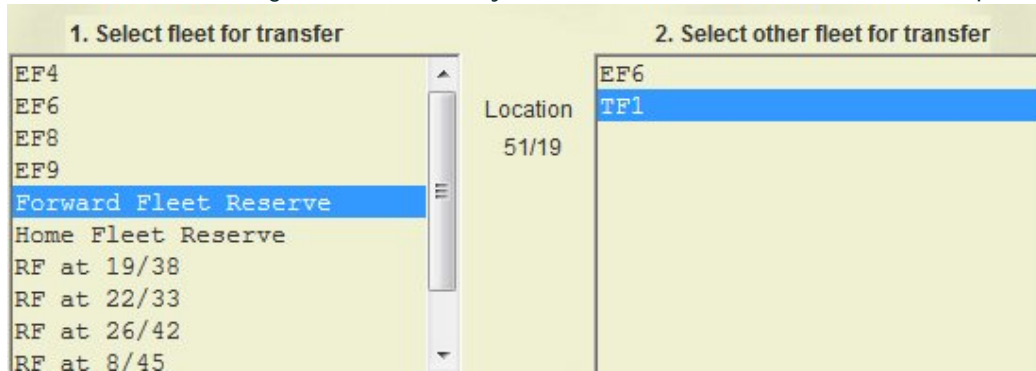
Type in a name, then click the "OK" button.

The name can be any name not currently given to an existing fleet. (Capitalisation is taken into account though). You will get an error if the name is not unique. In this case, and also if the name is blank, the fleet name editor will stay open waiting for you to enter a valid name.

In the illustrations below, a new fleet "TF1" is being created, at the location of the existing "Forward Fleet Reserve". Here, the fleet is being named:



And here, after clicking the "OK" button, you can see the new fleet listed in the clipboard:



The new fleet is shown in the right hand list. When a fleet is selected in both the top left and right hand lists, you can immediately start transferring ships. See [assigning ships to fleets](#) for more information.

## Cancelling the create fleet operation.

If you change your mind, you can cancel the create fleet operation while the Fleet Editor is still showing (before you have clicked "OK"). Just click on the "X" button at the top of the Editor. This closes the Fleet Editor.

## Renaming a fleet

Whenever a fleet has been selected, you can rename it. You can rename a fleet any number of times.

Just click on the "Rename" button.



The same Fleet Name Editor will appear. Type in the new name and click the "OK" button. The editor will close and you will see that the fleet name in the list has been changed.

## Deleting a fleet

You can delete any fleet after it has been created, but first you have to transfer all the ships in it to one or more other fleets at the same location. See [assigning ships to fleets](#) for more information.

Once the fleet is empty of ships, provided it is showing as selected in the top left list, you can delete it simply

by clicking on the "Delete fleet" button that is just below the top left list:

**2. Delete fleet**

## Special rules regarding Reserve Fleets

Every port has a reserve fleet that always stays in being, whether it is empty of ships or not. The reserve fleet is the home fleet for that port. Reserve fleets can never be deleted. When you select a reserve fleet you will notice that the "Delete fleet" button is disabled.

If the port is your home port, the reserve fleet there will be the one that takes newly constructed ships. Also, at the end of every turn, all ships in port are returned to the reserve fleet there. Think of the reserve fleet as your "pool" of ships available at the port. You (or your 2IC) can draw undamaged ships from this pool to create active fleets. The reserve fleets are non combatant - they can not move anywhere, although ships in them will fight back from inside the port, if bombarded by enemy forces.



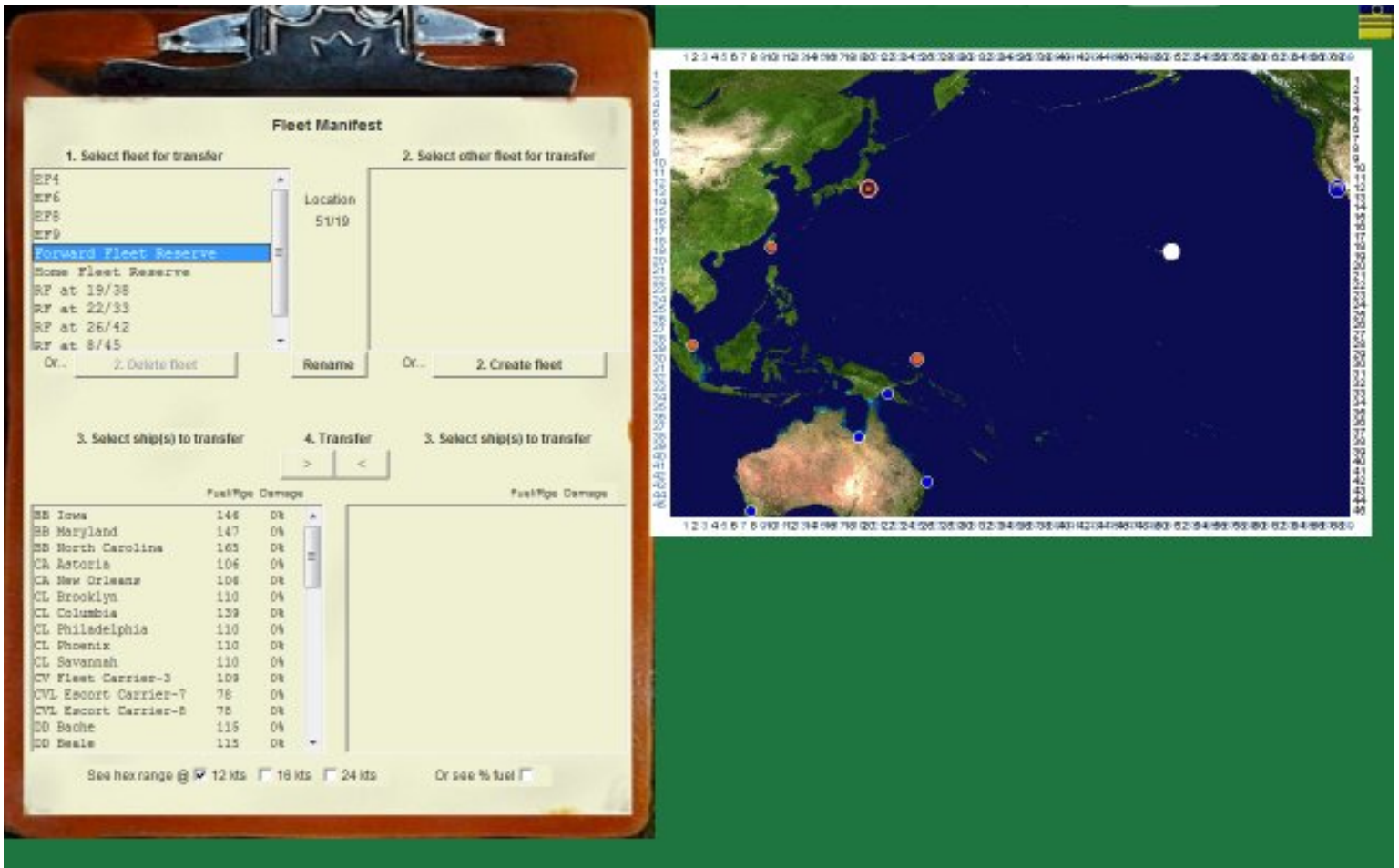
## How to assign ships to a fleet

There are two situations where you would want to assign ships to fleets:

- When you are manually creating your own missions from scratch. (In this case, you must first create some fleets yourself - see [how to create \(and delete\) fleets](#)).
- When you simply want to change the ships in the fleets that your 2IC has already created.

# The *Fleet Editor*

In either case, you start with the Fleet Editor. This is same screen you use to create fleets. If you need help to get to this screen - see [how to create \(and delete\) fleets](#). The editor looks like this:



In summary, assigning ships to fleets is a simple 2 step process:

1. Select the fleet you want to assign ships to, and the fleet where the ships are to come from. (Both fleets must be at the same location).



2. Select the ships to move, and click on the appropriate button to transfer them.

These steps are explained in more detail below:

## Selecting the fleets

You use the top two lists in the clipboard to select the fleets:

- First, select a fleet in the left hand list. The right hand list will now be re-populated with all fleets that are at the same location. If there are none, you will want to create one. (See [how to create \(and delete\) fleets](#)).
- Now, select a fleet from the right hand list.

## Selecting the ships

When a fleet is selected, all ships in the fleet are listed in the bottom box directly beneath the fleet list.

To transfer one or more ships from one fleet to the other:

- First select the the ship(s) in the left or right ship list (the lists allow multiple selection)
- click on the ">" or the "<" transfer buttons to move them into the other fleet.

That's all there is to it. You can freely transfer ships between fleets at the same location, transferring them back if you change your mind.

## An example

The following screen shots show some ships being moved from the Home Fleet Reserve into fleet "TF4":

- The Home Fleet Reserve and fleet TF4 have been selected in the top lists:

### 1. Select fleet for transfer

Forward Fleet Reserve  
Home Fleet Reserve  
RF at 19/38  
RF at 22/33  
RF at 26/42  
RF at 8/45  
TF1  
TF2  
TF3  
TF4


Location  
68/12

### 2. Select other fleet for transfer

TF4

- From the list of ships in the Home Fleet Reserve, five ships - an escort carrier and four destroyers/destroyer escorts - have been selected for transfer:

	Fuel/Rge	Damage
CVL Escort Carrier-2	52	0%
CVL Escort Carrier-5	52	0%
DD Ellett	70	0%
DD Lang	70	0%
DD Mayrant	70	0%
DE Alger	56	0%
DE Cannon	56	0%
DE Christopher	56	0%
DE Fogg	53	0%
DE Foss	53	0%
DE Gantner	53	0%
Small Merchant-8		0%
Small Merchant-9		0%

- The ">" transfer button  has been clicked, to move the ships from the left fleet to the right. The ships are now shown as part of fleet TF4, and they have been removed from the Home Fleet Reserve:

Fuel/Rge Damage			Fuel/Rge Damage		
CVL Escort Carrier-5	52	0%	CVL Escort Carrier-2	52	0%
DD Lang	70	0%	DD Ellett	70	0%
DD Mayrant	70	0%	DE Alger	56	0%
DE Fogg	53	0%	DE Cannon	56	0%
DE Foss	53	0%	DE Christopher	56	0%
DE Gantner	53	0%			
Small Merchant-8		0%			
Small Merchant-9		0%			

## What to look for when assigning ships

Although you can freely assign ships, some basic guidelines apply:

- Check the cruising range of each selected ship to make sure it is sufficient for what you intend the fleet to do.
- Also check each ship's damage status. There is no point putting very damaged ships into fleets that are intended for an active role. They are better off in port where they will be undergo repair during the turn (provided the port has enough resources). Note that the percentage damage figure refers to the cost of repairing the damage as a percentage of the original build cost. Anything over 10% is more than a minor repair job, and the ship should probably not be put to sea unless things are desperate. The computer AI will send ships back to port when it calculates they are too damaged. The calculation depends on the amount of damage but also the aggressiveness of the ship's orders: if it has timid orders, it is sent back if damaged only slightly; with aggressive or very aggressive orders, it is almost never sent back as its role is to stay and fight. Cautious orders are somewhere in between.

The ship list shows at a glance the damage status and bunkering or endurance of each ship. In the example below, the hex range and degree of damage (as a percent) are shown for the carrier and one of the destroyers:

Fuel/Rge Damage		
CVL Escort Carrier-5	52	0%
DD Lang	70	0%

The fuel status is for a cruising speed of 12 knots - there is a selector at the bottom of the Fleet

Editor where you can select different speeds, or show the bunkering as a % of full:

See hex range @ ☒ 12 kts ☐ 16 kts ☐ 24 kts Or see % fuel ☐

Sometimes, it pays to check the other speeds. Here, the hex range is shown for a speed of 24 knots. It shows a much reduced range for the destroyer, and zero range for the carrier. This is a quick way to detect if ships are suited to the kind of operations you are planning:

	Fuel/Rge	Damage
CVL Escort Carrier-5	0	0%
DD Lang	28	0%

The selector is shown set to 24 knots:

See hex range @ ☐ 12 kts ☐ 16 kts ☒ 24 kts Or see % fuel ☐

To determine if this is due to design constraints or the current fuel position of the ships, you can elect to show bunkering as a % of full. In this case, you can see that the ships are at 100% capacity:

	Fuel/Rge	Damage
CVL Escort Carrier-5	100%	0%
DD Lang	100%	0%

The selector is shown as set to %:

See hex range @ ☐ 12 kts ☐ 16 kts ☐ 24 kts Or see % fuel ☒

# ***How to set rules of engagement***

Rules of engagement ("RoE") tell a fleet what odds it should accept when facing an enemy fleet, and, in combination with each ship's orders, determines the aggressiveness of each ship in a surface battle - how much damage it will accept before retiring and how close to the enemy it will try to get.

In fleets set up by your 2IC, as part of the missions he creates, default RoE apply based on the mission type.

You can change these orders; and you can also set up orders for the fleets you create yourself.

Before discussing how to do this, it is important to provide a short overview of the types of orders you can give.

## Overview of fleet orders

The fleet RoE determine the odds a fleet will accept in a surface battle. The odds are calculated based on the total naval tonnage for each side, but accounting also for known and suspected damage.

When a fleet meets an enemy that is too strong given its RoE it will flee before battle if it can, or escape from battle as soon as it can (unless the odds change favourably during battle).

Who has the sighting advantage is therefore important and depends on the weather conditions, relative size of the fleets, the sighting range of units (including aerial reconnaissance from float or carrier-borne aircraft), crew experience and, if radar is present, its quality. There is also a degree of luck involved. But a small highly trained raiding fleet with say a battlecruiser stands a good chance of being able to escape from a large enemy fleet, especially if it has better radar.

There are seven standard RoE for a fleet, plus the ability to create custom RoE. In order of aggressiveness, from most to least, they are:

1. Sacrificial attack - to be reserved for fleets that are intended to fight to the last shell and torpedo against any odds. This is the default order for any mission involving submarine flotillas. (They are considered expendable, have special rules to determine if they can and should attack in a given situation, and can be attacked anyway only by ASW escorts (or patrolling aircraft). You could order it also for a fleet if you wanted to make a last, desperate "do-or-die" effort against a superior enemy, a last throw of the dice.
2. Bold attack - the fleet will accept battle against an enemy not more than twice as strong. This is the default order for a number of 2IC-generated missions: some key offensive missions (bombardment, blockade, and combined ops (amphibious assault) - where you are walking into the lion's den and need to make the effort worthwhile, as well as the critical defensive missions (defensive patrol and ready reaction)- where you can not afford to let the enemy pass. It is also the default order for offensive patrols if your strategy is aggressive or very aggressive. You can also set it for any fleet you want if you are confident in the quality of your ships and crews.
3. Cautious attack - the fleet will accept battle against a slightly superior enemy (up to 25% stronger). This is the default order for offensive patrol (for cautious strategies) and aerial bombardment missions. It is a good choice in any situation where you want to make a controlled offensive operation with relatively acceptable risk.
4. Probing attack - the fleet will accept battle against an enemy not more than 80% as strong. In other words, the fleet needs to retain a small margin of superiority. This is not a default setting for any missions - it is

in between "Hit and Run" RoE (which is the default order for some missions - see below) and "Cautious Attack". You may want to choose this for manually created raiding missions that are more than just hit and run affairs but where you still need to put self preservation first.

5. Hit and Run - the fleet will accept battle against an enemy no more than two-thirds as strong. In other words, the fleet needs to retain a fair margin of superiority. This is the default order for 2IC-generated minelaying missions which will be composed of escorts only and which do not want to be diverted from their principal task to chase enemy fleets they sight. It is also the default order for offensive patrols when your strategy is very cautious. You may also want to set this for raiding missions where self preservation is unequivocally your highest priority and you are happy if the mission achieves no more than nuisance value. (Of course, you might nevertheless strike it lucky and come upon a lightly escorted fat juicy convoy or two..!)
6. Reconnaissance - this is intended for fleets with a reconnaissance role only. The fleet will always try to avoid or disengage from battle. This is the default order for 2IC generated reconnaissance missions.
7. Convoy escort - this is the default order for all 2IC-generated convoy missions and is a hybrid order - the fleet always attempts to avoid battle, but once in one, the naval ships act as though they have sacrificial attack orders - to allow the merchants to escape. Protection of merchant shipping is the highest duty of escorting naval vessels by default. If you do not accept this should be so - as evidenced by the Royal Navy in the famous convoy PQ17 - you can change the order for any convoy you (or your 2IC) sets up.
8. Custom RoE - If these RoE are not quite what you want, you can select custom RoE and set some other odds, such as 1:2, 3:4, 1:1, 4:3, or 3:2 (expressed as a ratio of the enemy's strength to your's).

## Overview of Ship Orders

Once in battle, each naval ship will fight until its orders indicate it should try to retire; and it will fight from a distance that also reflects its orders.

It is the combination of fleet and ship orders that determines ship behaviour.

There are four ship orders:

1. Extremely aggressive - the default order for escort ships, which are more expendable, need to fight for as long as possible often in order to get into attack range, and are tasked to screen the larger, more valuable cruisers and capital ships.
2. Aggressive - the default order for cruisers and submarines.
3. Cautious - the default order for battleships.
4. Timid - the default order for battlecruisers. (Note that the computer rates a capital ship as a battlecruiser based on its combination of speed, gun power and armour).

The fleet and ship order together determine the percentage of damage or ammunition loss a ship will accept before trying to retire. The more aggressive the combination, the higher the damage and ammunition loss that is acceptable. Also affected is the range the ship seeks to fight from. With cautious ship orders - such as battleships have by default - the ship will try to stay within its calculated immunity zone (if it has one) against the enemy it is currently targeting. More aggressive orders put higher priority on doing more damage, which means getting in closer, making more gun and torpedo hits but taking more punishment as well. With timid orders the ship will stay at the outer end of its maximum attack range, scoring less hits but also with reduced chance of hits from the enemy.

Note that carriers and merchant ships ALWAYS try to flee from a surface battle as quickly as possible.



The exact percentages of damage and ammunition loss are shown in the RoE Editor - which is explained shortly.

## An example

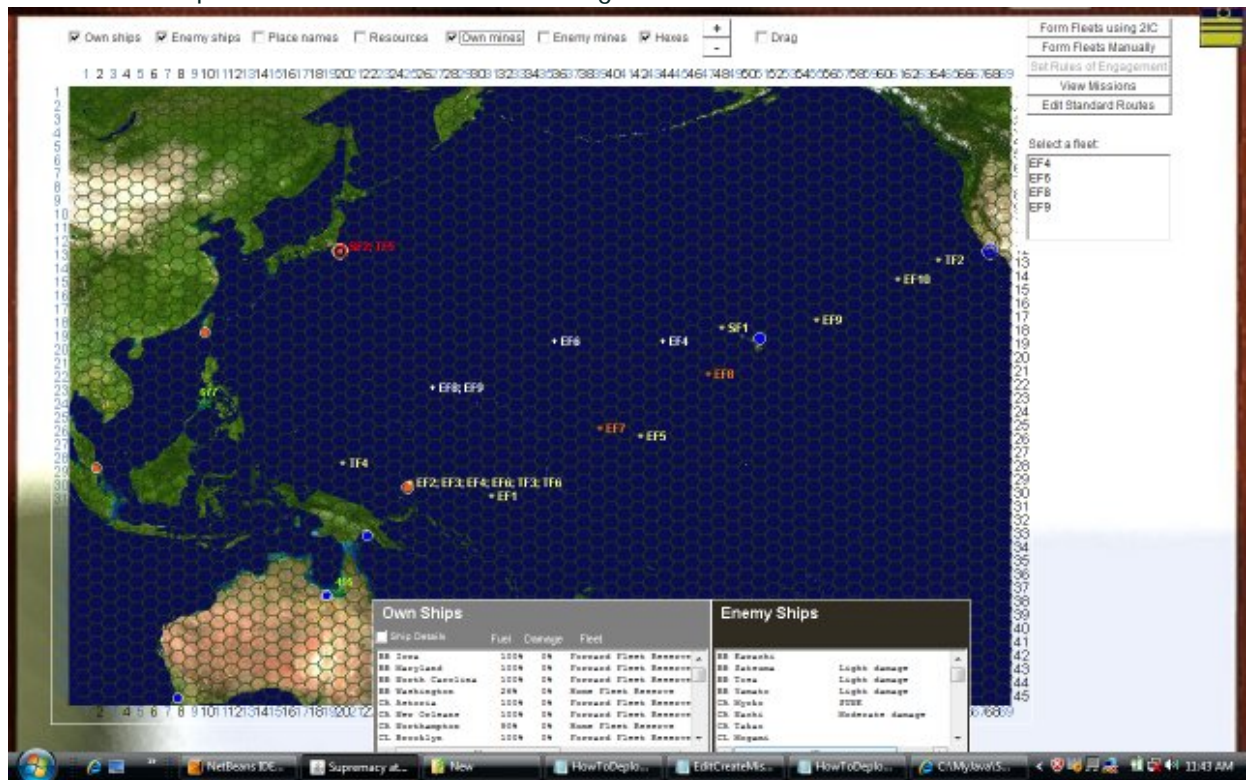
Before discussing how you use the RoE Editor, an example may help illustrate how RoE work:

- If you wanted to set up a classic raiding fleet, say of a Battlecruiser, heavy cruiser and a few escorts, you would probably give the fleet "Probing Attack" or "Hit and Run" fleet orders. The Battlecruiser would probably have "Cautious" or even "Timid" ship orders, the heavy cruiser would be one step less cautious (say with "Cautious" or "Aggressive" ship orders), and the escorts would probably have at least "Aggressive" and probably "Very aggressive" ship orders so that they can shield the bigger ships, allowing them to escape if necessary.

## The *Theatre Map*

To edit RoE for a fleet and the ships in it, you first need to access the theatre map. (See [accessing the theatre map](#)).

The theatre map for the Pacific will look smething like this:



Now, from the fleet list to the right side of the map, select the fleet you want to edit. Illustrated below is the selection of fleet "TF2"





Fleet TF2				
Offensive Patrol orders RoE: Bold Attack				
BERTHED at Advanced Port.				
Cruising Range: 78/70/0 hexes @ 12/16/24 kts				
	Fuel	Damage	Ammo	Ship Order
BB Iowa	100%	0%	100%	Very Cautious
BB Maryland	100%	0%	100%	Cautious
BB North Carolina	100%	0%	100%	Very Cautious
CA Astoria	100%	0%	100%	Aggressive
CA New Orleans	100%	0%	100%	Very Cautious

It tells you what the mission orders and current fleet RoE are, and for every ship, its fuel, damage, ammunition status and current ship order.

Use this information to determine if you need to edit the RoE.

## The **RoE Editor**

Assuming you do want to edit the RoE, just click on the "Set Rules of Engagement" button to the top right of the theatre map:

Set Rules of Engagement

This brings up the RoE Editor, which looks like this:

**Fleet: TF2**

**Fleet Rules of Engagement**

**Bold Attack**

**Maximum Acceptable Odds**  
*Enemy Size: Own Size*  
2:1

Your fleet will engage any enemy that is not more than twice as strong.

(Strength of fleets is measured by their total naval tonnage, but is reduced by damage).

The fleet will try to avoid battle or to disengage during battle when the odds are worse.

Your ships will accept quite a lot of punishment, even more if they have aggressive orders but less if they have timid orders.

**Ship Orders**

BB Iowa  
BB Maryland  
BB North Carolina  
CA Astoria  
CA New Orleans  
CL Brooklyn  
CL Columbia  
CL Philadelphia  
CL ...

**Cautious**

Ship Iowa has Cautious ship orders.

In combination with the Bold Attack fleet order, this means that in a surface battle the ship will

- Fight until it is damaged more than 60% or has less than 40% of its main ammunition left. (After that, the ship will withdraw from battle as quickly as it can).
- As noted above for the fleet order, the ship will also withdraw from battle along with the rest of the fleet when the overall odds become too bad.
- Until it withdraws, it will attempt to stay at an effective range from the enemy, striking a balance between minimising the damage it receives and maximising the damage it can do. It will try to stay within its immunity zone against enemy shell fire (if it has one).

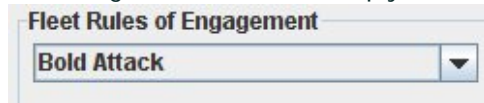
Close



The RoEEditor lets you set any of the seven standard RoE for a fleet, as well as selecting custom RoE. It also lets you change ship orders for any ships.

Two text boxes give a clear explanation of how the current RoE and ship orders will affect fleet and ship behaviours in a surface battle.

To change the fleet RoE, simply select a different one from the "Fleet Rules of Engagement" combo box:

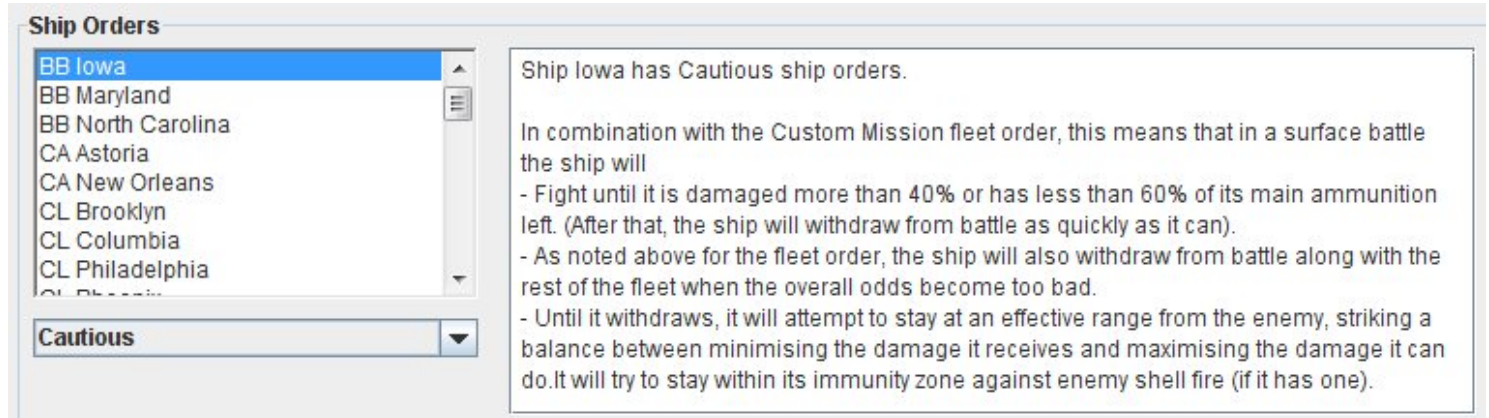


If you select "Custom Mission", the "Maximum Acceptable Odds" combo box will become enabled, allowing you to set your own odds:

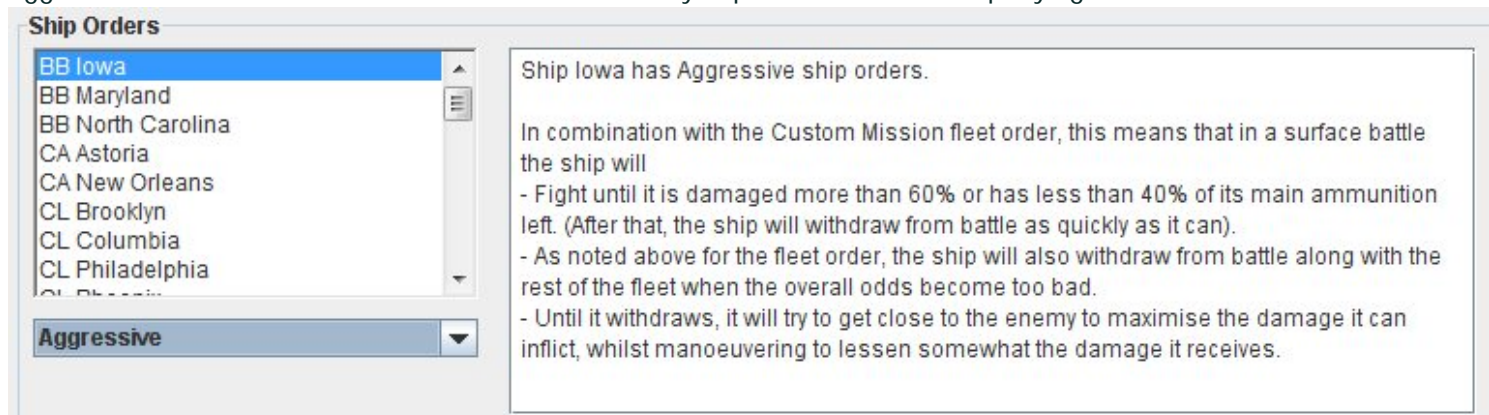


As you change the RoE, the text will update in both text windows. Review the text to make sure you are happy with the change.

Changing ship orders is just as easy. Simply select a ship in the "Ship Orders" section:



Then, select a different ship order from the combo box. The picture below shows the *Iowa* now with aggressive orders. The effect of this new order is clearly explained in the accompanying text window:



You can see that with the new, more aggressive order, the ship will accept more damage and fight from closer in instead of staying necessarily within its own immunity zone.

When you are happy with the fleet RoE and ship orders, just close the RoE Editor by clicking the "Close" button at the bottom of the screen. This returns you to the theatre map.

You can relaunch the RoE Editor any number of times, and change the orders whenever you want. It is only the last set of orders you give that takes effect at run time.

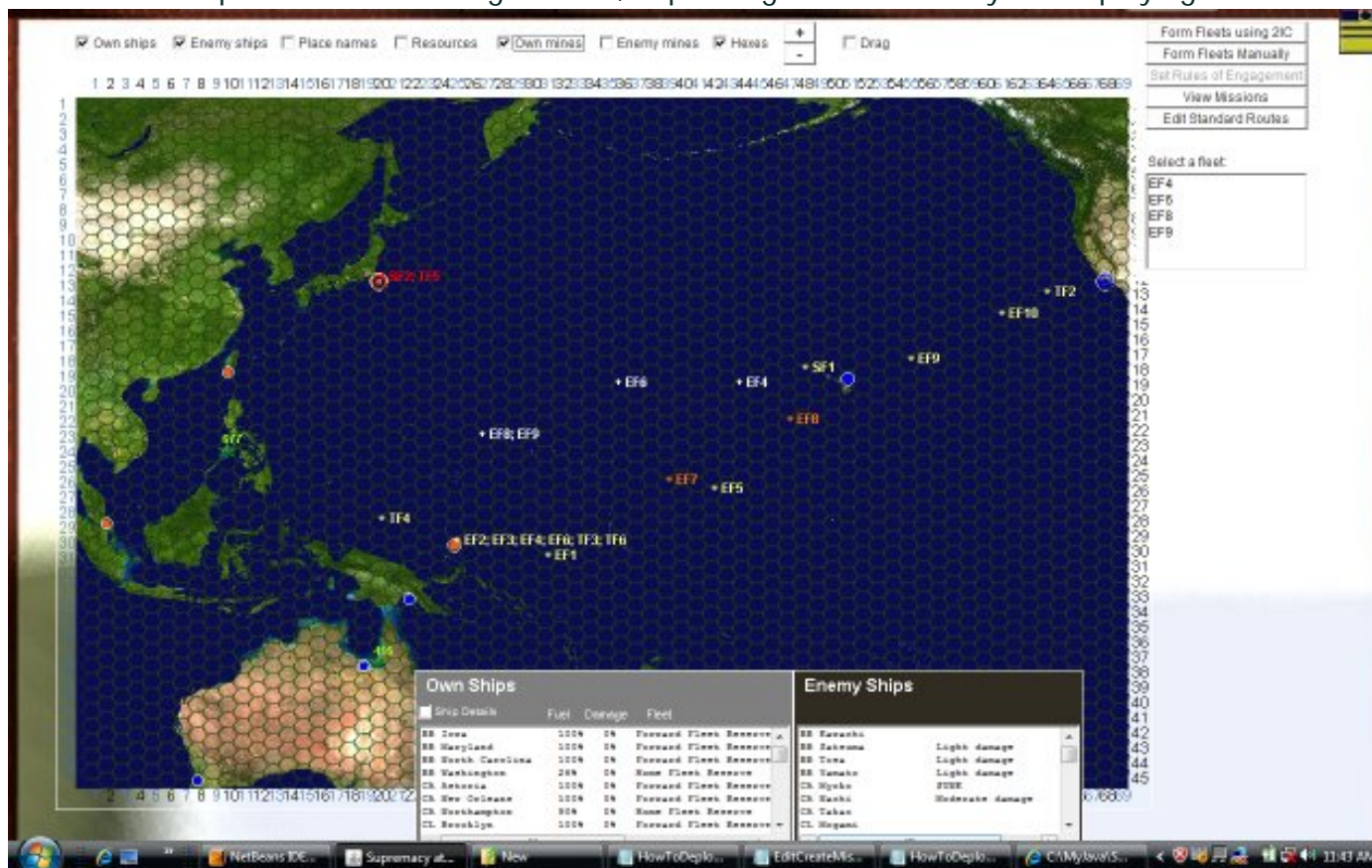
# ***How to set the movement path for a fleet***

You can manually set the hex path for any of your fleets, whether they are ones your 2IC generated for missions, or ones you created yourself for your own missions.

## The ***Theatre Map***

To edit the movement path, you need to be looking at the theatre map. (See [accessing the theatre map](#)).

The theatre map will look something like this, depending on the theatre you are playing in:



To set the movement path, follow these steps:

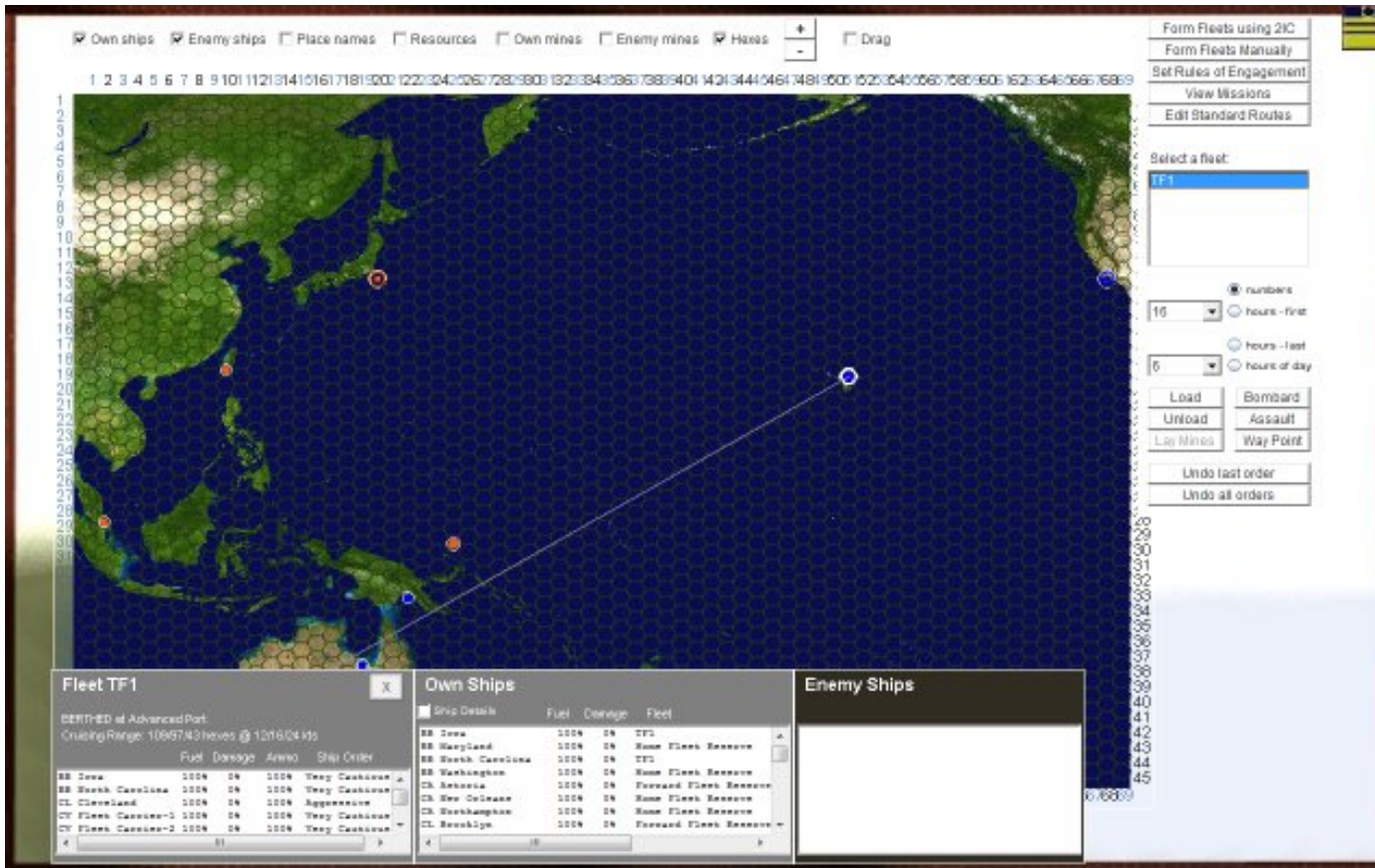
1. Select the fleet
2. Enable the map for data entry
3. Optionally select the mode of display for the hexes
4. Select a cruising speed
5. Select the hours per hex
6. Select a point to move to
7. Optionally set special commands
8. Optionally set standard routes

These steps are explained below.

## Select a fleet

Fleet selection for all purposes in the theatre map is done using the "Select a fleet" list at the right side of the map. For illustration, shown here is the selection of fleet TF1 - with two BBs, two carriers a cruiser and several destroyers at Pearl Harbour. The fleet details box at the lower left of the screen gives details of the fleet and points to its current location:





In the following steps, we are going to manually create an offensive patrol for the fleet that will take it on a wide arc west of Pearl Harbour, returning to Pearl Harbour for refuelling.

## Enable map for data entry

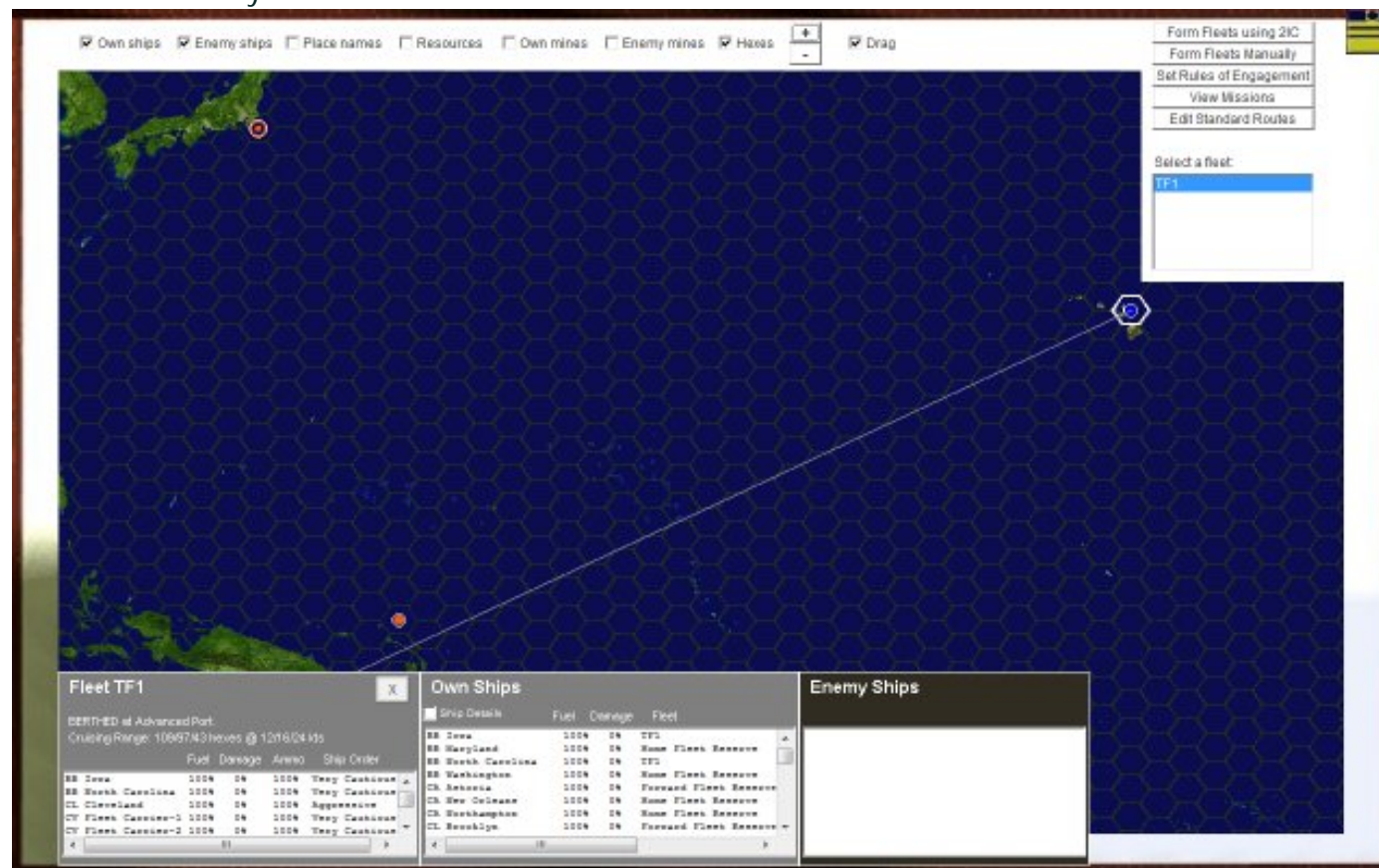
By default, the map is ready for data entry, i.e., when you click in the map, the hex path will be added to.

But often it will be handy to first zoom in or out and drag the map so that you can better see the area you are interested in. The zoom and drag feature is explained in [map view](#) but in summary, after zooming in or out, the mouse becomes a hand to drag the map instead of a pointer for entering hexes. A checkbox at the top of the screen indicates whether you are in "Drag" mode:

☐ Drag

If so, uncheck the check box. You are now ready for data entry.

For illustration here, the map in which hexes will be entered has been zoomed in a little so that the hexes show more clearly:



You can disable hexes in the theatre map, which gives a less cluttered view and is prettier, but for data entry it is strongly recommended that hexes are enabled. There is a "Hexes" check box at the top of the screen. If this is unchecked, make sure it is checked before you proceed further:

☒ Hexes

## Optionally select the hex display mode

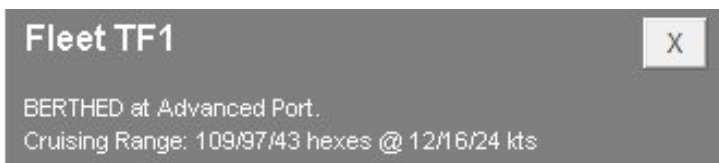
The hex path for a fleet can be displayed in any of four modes. These modes are selectable using the

radio buttons at the right of the map:

- ☒ numbers
- ☐ hours - first
- ☐ hours - last
- ☐ hours of day

Each mode provides a useful perspective that can help your planning.

The default mode is "numbers". In this mode, hexes are numbered in the order in which they are to be travelled through. This shows clearly the route order, but also tells you quickly how many hexes the fleet is to sail through - which is important to cross check against the fleet cruising range data in the fleet details box at the bottom left of the screen:



The "hours - first" and "hours - last" modes are used for fine planning, when it may be important to know the exact hour that the fleet will first enter a hex or when it is due to exit. Also, toggling between these modes tells you clearly how many hours the fleet is scheduled to stay in a hex. Finally, for the power user, these two modes let you coordinate the actions of several fleets. For example, you may want two separate fleets to converge on an area at much the same time. You can delay or accelerate either fleet to achieve this - see [select a cruising speed](#) and [select the hours per hex](#) for more information).

The "hours of day" mode is very useful for quickly seeing what time of day it will be when the fleet is entering each hex. You can use this information to better plan approaches to enemy territory to maximise the darkness of night.

For illustration here, the default ("numbers") mode will be used.

## Select a cruising speed

There are five standard cruising speeds: 6, 8, 12, 16 and 24 knots. A fleet though is limited to the

maximum cruising speed of the slowest ship in the fleet, so not all these options may be available.

Those speeds that are available for your chosen fleet are selectable in the "Fleet Speed" combo on the right hand side of the map:



Simply choose one of the speeds, and this will apply *until you choose another one*. You can change the fleet speed any number of times during the course of setting a fleet's movement path. The choice of fleet speed applies to every hex until a new speed is chosen.

## Select the hours per hex

As well as setting the fleet speed, you can also set the number of hours per hex that the fleet will spend as it moves. The *minimum* number of hours is always the hex size divided by the fleet speed. For example, in the Pacific theatre, where the map hexes are 96 nautical miles across, the minimum number of hours for a fleet cruising at 16 knots would be 6 hours. The computer prevents you from selecting less than that. But you can set more than this. Typically, you would do this for special hexes, such as hexes where you wanted the fleet to carry out extensive patrols. When your 2IC creates patrol missions, he will in fact try to maximise the time the fleet can spend in each of its objective hexes.

The "Hours in Hex" selector is also on the right hand side of the map, beneath the fleet speed selector:



The selection of hours per hex applies to every hex until a new value is chosen.

## Select a point to move to

Now you are ready to set the actual movement path.

When you click in the map on a valid hex, the computer calculates the path to it from where the fleet last

was. This is unnecessary when the hexes selected are all adjacent to the previous hex; but it is much quicker to just select key hexes and let the computer calculate the path in between.

The computer will generally choose the shortest valid path. (But instead it will choose a "standard route" if you have created one between the points concerned (See [setting standard routes](#) for how to do this).

## Valid hexes

All land hexes are invalid. Enemy port hexes are also invalid - you can not move into a hex containing an enemy port. It must be captured first by amphibious assault.

All other hexes are valid.

## Auto berthing and unberthing

Note that whenever you click on a hex containing one of your own ports, the fleet hex path will take it into the port itself and include the order to berth it, so that the ships may refuel, rearm and so on (provided the port has enough resources).

Then, when you click away from the port hex, the movement path will automatically include the command to unberth.

Berthing and unberthing both add a small amount of extra time to the fleet's movement schedule (a standard 12 hours in each case).

## Cancelling auto berthing

Hexes are quite large - in the Pacific for example, they are 96 nautical miles across and certainly bigger than the size of any port.

If for some reason you want to pass through a hex containing one of your own ports but not berth inside the port, click on the port hex as you normally would. Then click the "Undo last order" button. This will remove the additional berthing order that the computer has just automatically added. Effectively, this means that the



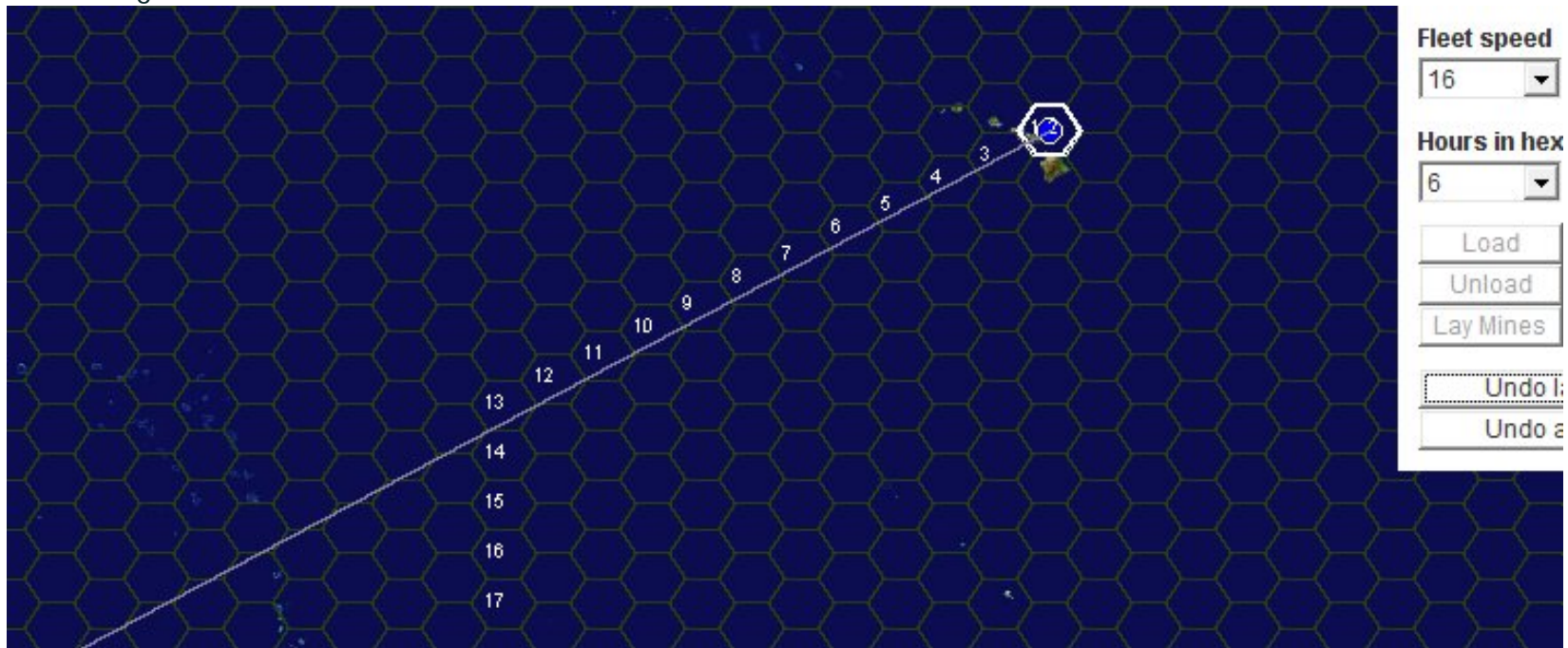
fleet has been ordered into the hex where the port is but is cruising past.

## An example

Now it is time to put this together and show a working example.

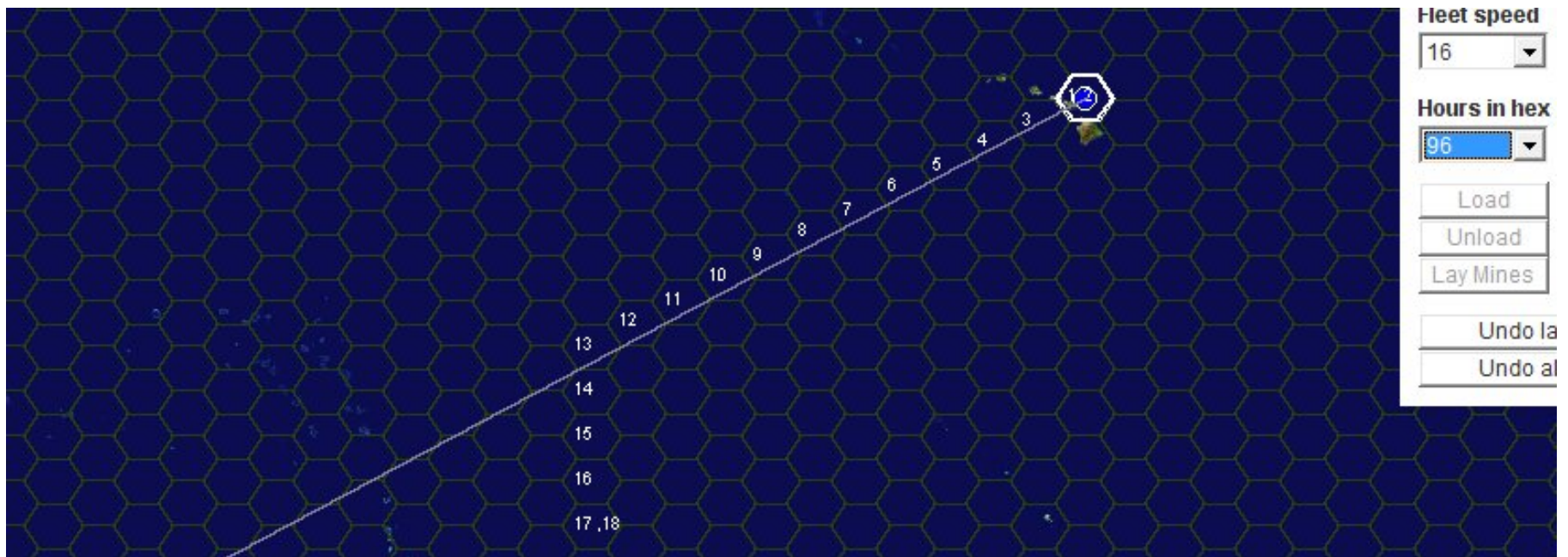
In the illustration below, the route that is shown was created following these steps:

1. A speed of 16 and hours in hex of 6 was selected. Then a hex was selected south west of Pearl Harbour, almost due east of Rabaul and roughly midway between Pearl and Rabaul. The computer filled in the intervening route:

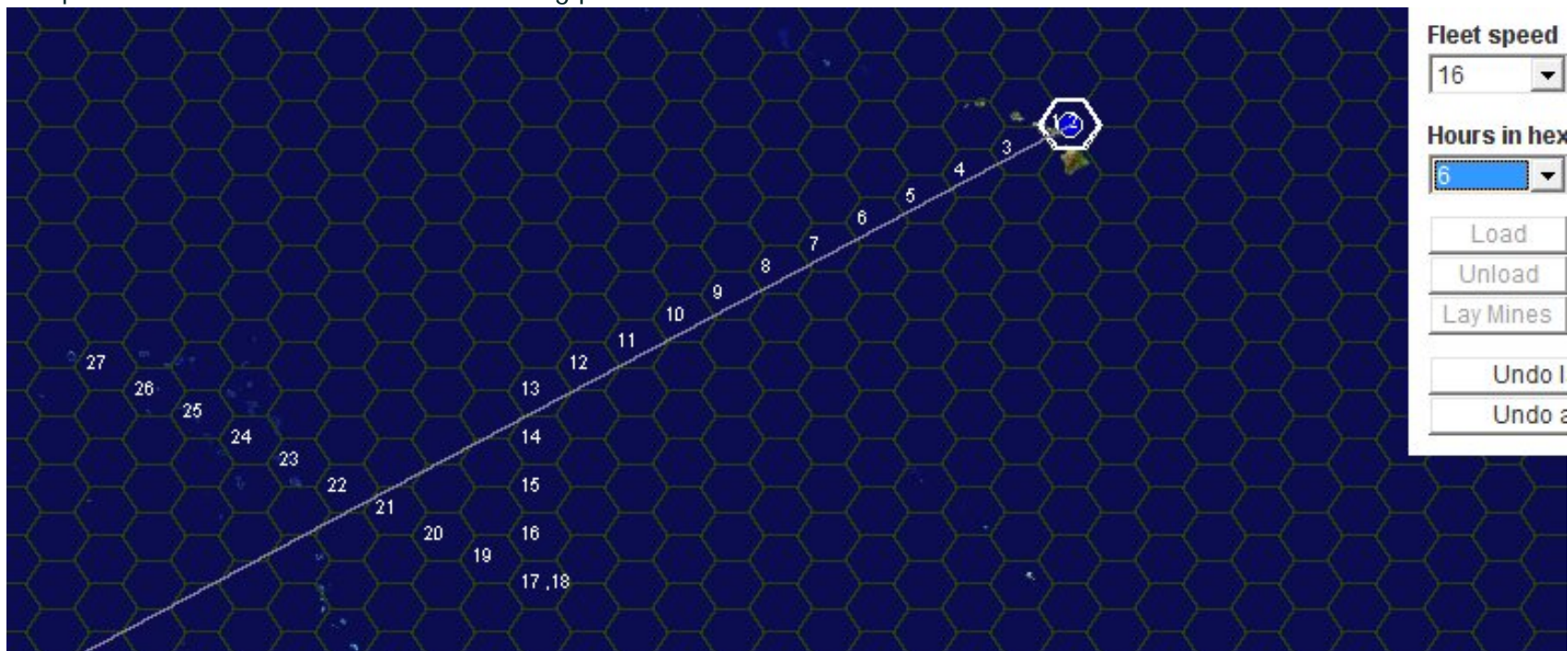


2. Then, the hours in hex was changed to 96 (ie 4 days) and the last hex was clicked in again, meaning that the fleet has been ordered to patrol (at the current fleet speed of 16 knots) in the hex for 4 days:

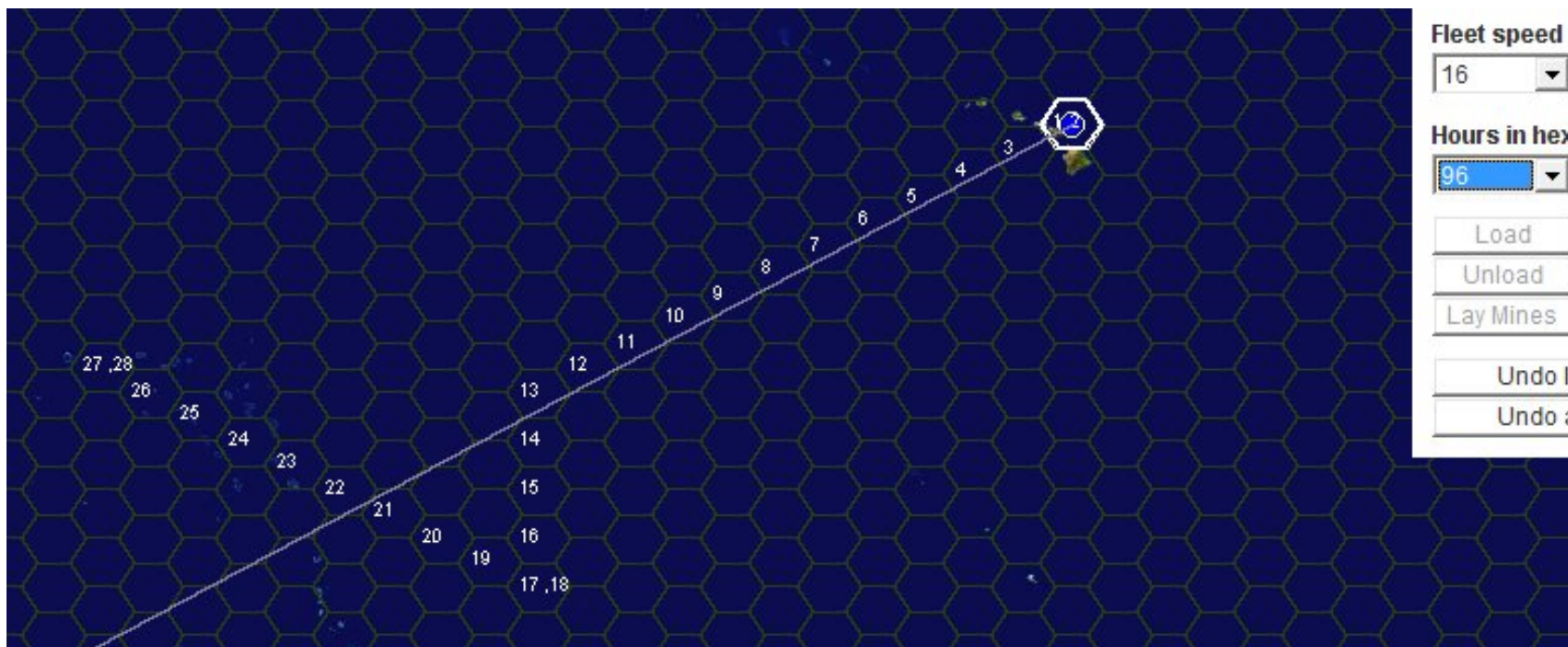




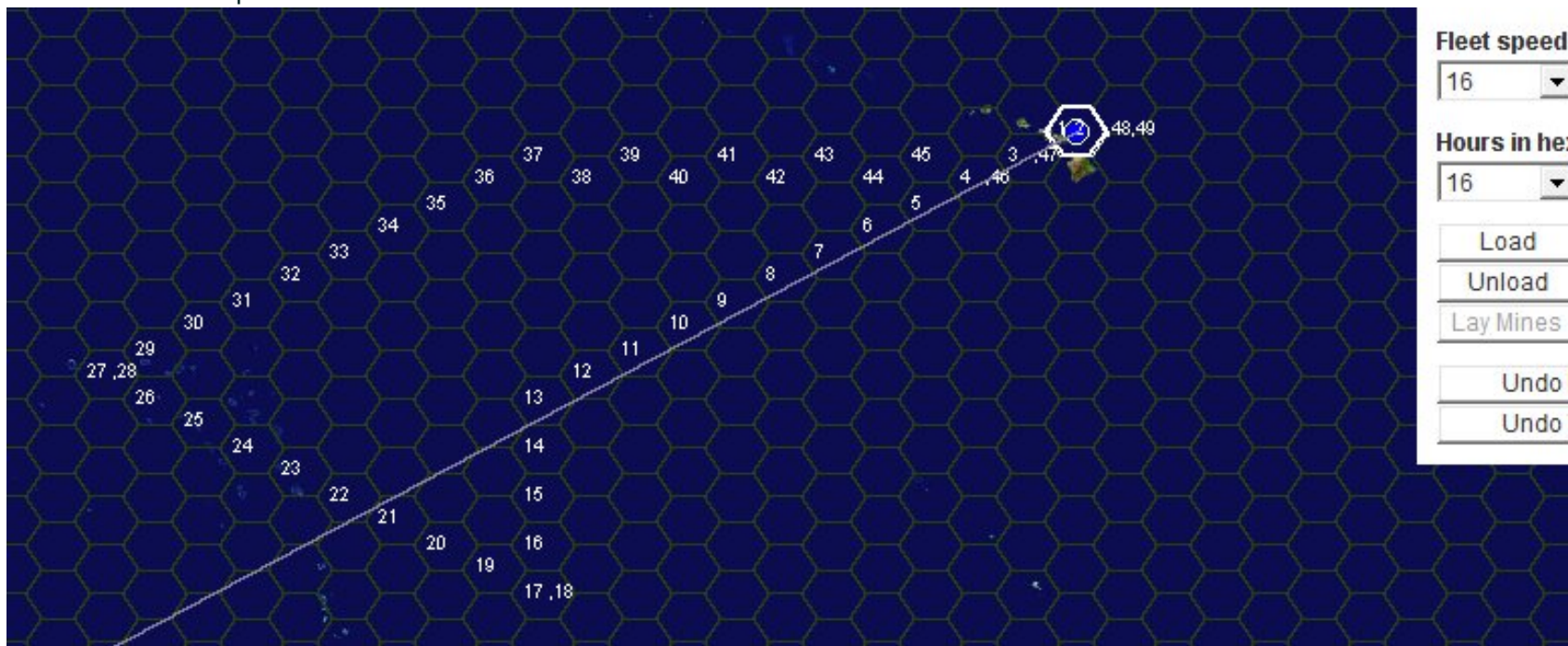
- Then, the hours in hex was set to 6 again, and a hex north east of Rabaul was selected. Again, the computer calculates the shortest intervening path:



- Again, the hours in hex was changed to 96, and the last hex clicked in again, to order the fleet to patrol for 4 days:

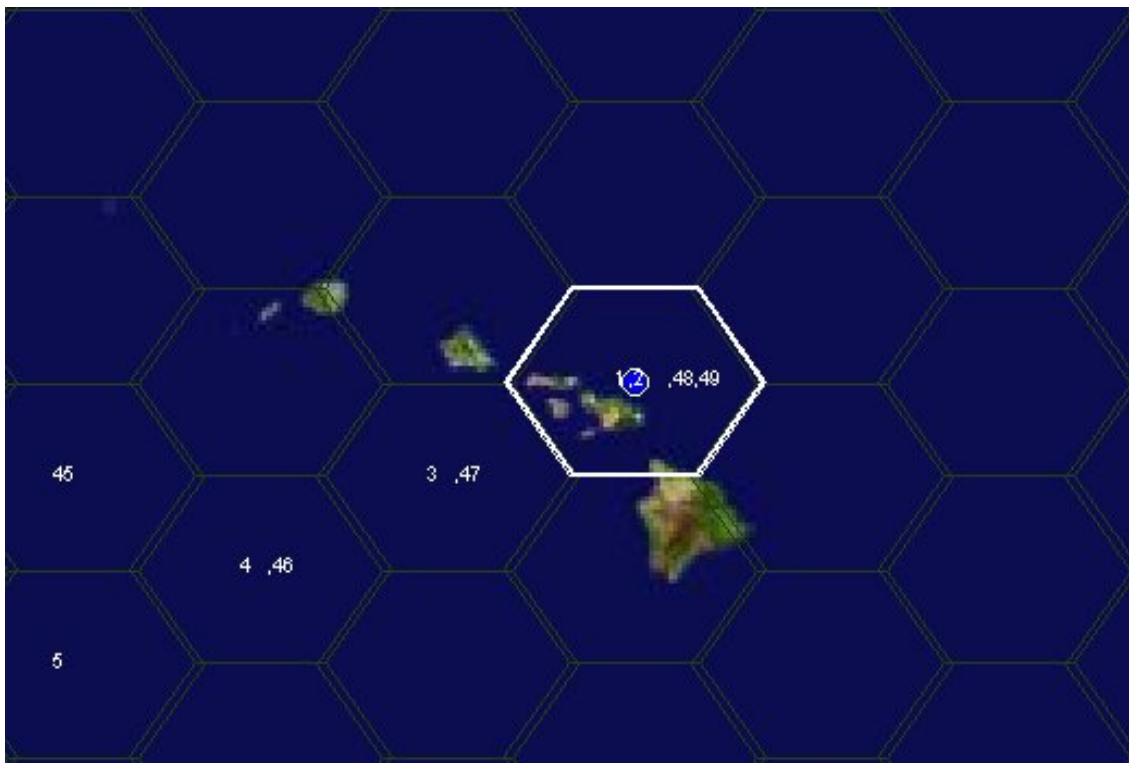


- Finally, the hours in hex was set back to 6 again, and Pearl Harbour was clicked on to get the fleet to sail back to Pearl. The computer calculated the return route.



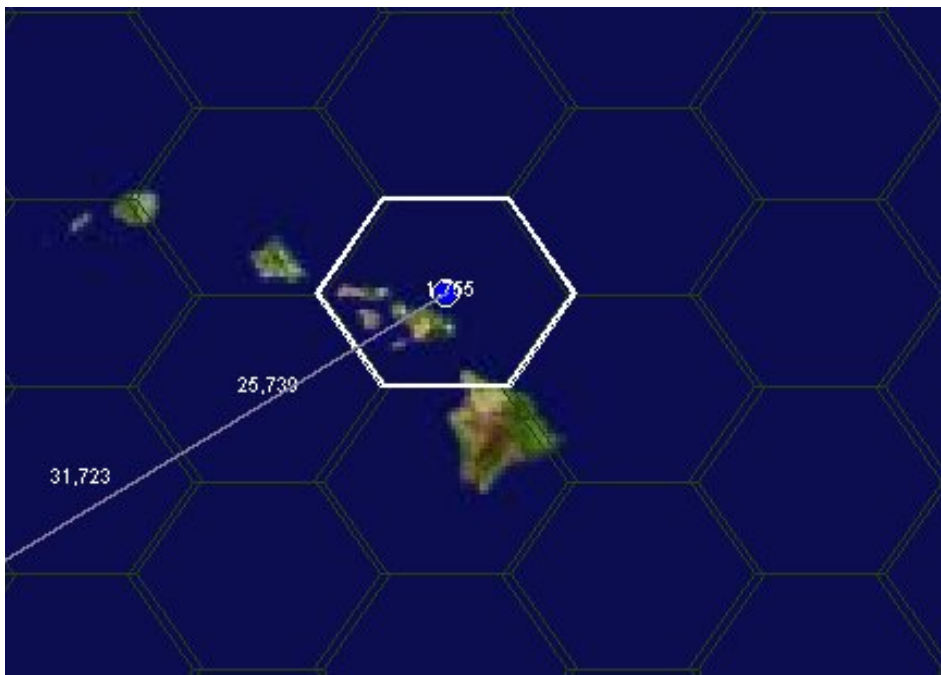
When you zoom in to the Pearl Harbour hex:





you can see there are four numbers in the hex:1,2,48, and 49. (Multiple numbers in the same hex are displayed separated by commas). This indicates the auto unberthing and berthing feature mentioned earlier: number 2 refers to the auto-generated unberth command, and 49 to the auto-generated berth command. In both cases, an extra 12 hours has been added to the fleet schedule.

To check that the path gets the fleet back by the end of the turn, select the "hours - first" display mode. By zooming in you can see the fleet is entering Pearl Harbour on hour 755 - nearly four days after the end of the month. (This example was taken from a campaign where the operational turn was 4 weeks - or 672 hours in duration).



In view of this you may want to shorten the patrol somewhere - using the "Undo" feature discussed below. (It is often important to plan to have your ships returned to port by the end of the turn. They can refuel and rearm and be in the "pool" of ships available for deployment next turn (unless they have been damaged, or the fleet has deviated too much from its planned course due to emergency responses at run time). Using the "hours - first" or "hours - last" mode frequently during path creation will prevent mistakes like this.

This example shows that fleet movement orders can be set up in a few mouse clicks. For finer control of the route, you can select more way points, forcing the computer to follow more exactly the route you wanted. (You can even click on every single hex if you want to!).

Another way of controlling the route without clicking on too many hexes is by setting standard routes - see [set standard routes](#).

## Undo a movement path

If you change your mind at any stage, you can undo the hex path, hex by hex or in toto.

To undo (remove) the last hex from the path, click on the "Undo last order" button on the right side of the map:

Undo last order

Each time you click, the last hex will be removed.

To remove ALL hexes from the fleet movement path, click on the "Undo all orders" button:

Undo all orders

Be warned though that these undo operations can not themselves be undone, other than by recreating the movement path. So be careful before you click the "Undo all orders" button.

## Set special commands

### Waypoints

In any mission, you can set one or more way points.

A waypoint is a designated hex that the fleet must try to return to if at all possible, if it deviates from the scheduled route for any emergency reason at run time.

To designate a hex as a waypoint, simply click on the "Way Point" button at the right of the map:

Way Point

This designates the most recently entered hex in the hex path as a waypoint. You can set any hex or hexes to be a waypoint. This can be a useful means to - for example - force your fleets to return to designated patrol hexes after any emergency tactical maneuvers.

By default, key hexes in certain missions are automatically also waypoints. These are explained below.

### Minelaying

In manually created missions, you need to tell the fleet where to lay mines. You do this by clicking on the "Lay Mines" button at the right side of the map just after entering a hex for the fleet to move to:

Lay Mines

Note that fleets can often only lay mines in a single hex before needing to return to port to rearm.

Note also that the "Lay Mines" button will be disabled if the fleet is not capable of laying mines. (Only escort ships can lay mines). And the fleet must have a current cruising speed of 12 knots or less.

A hex designated as a minelaying hex is automatically also a waypoint - you do not have to separately designate it as one.

A final note on minelaying - because fleets need to frequently return to port to rearm, it can become tedious setting up minelaying missions. This is one case where using your 2IC to create these missions makes sense in almost all cases. You can still set the minelaying hexes by setting the objective hexes. (See [setting mission objectives](#)).

## Bombardment

A bombardment mission is one where surface forces attack an enemy port from an adjacent sea hex. The adjacent hex becomes the bombardment hex.

Note that the concept of bombarding from an adjacent hex takes a small liberty with reality, because even large battleship guns had a maximum range of 40km or so - certainly less than the size of hexes in the Pacific and Atlantic. But it is necessary to bombard from an adjacent hex, not the port hex itself because of the hard and fast rule that you can never enter a hex containing an enemy port. (It must be captured first). It can be assumed that when your fleet is bombarding, it is doing so from the outer edge of the adjacent hex, and the port extends to or close to the outer edge of the port hex in the direction where the bombarding is coming from.

To indicate a suitable adjacent hex to the enemy port as the hex to bombard from, select the hex to create a path to it, and then click on the "Bombard" button on the right side of the map:

A rectangular button with a thin black border and the word "Bombard" in a sans-serif font.

The bombard hex is automatically a waypoint.

## Combined Ops/Assault



A combined Ops mission is one where surface forces, with or without carrier air support but always including at least some convoyed troops, attempt an amphibious assault on an enemy port. The fleet automatically bombards the port at the same time - in effect an assault operation is also a bombardment mission. Just like a bombardment mission, your forces attack from an adjacent sea hex.

To indicate a suitable adjacent hex to the enemy port as the hex to assault from, select the hex to create a path to it, and then click on the "Assault" button on the right side of the map:



The assault hex is automatically a waypoint.

## Aerial Bombardment

An aerial bombardment mission is identical to a bombardment mission except that because the bombardment is to be done by aircraft, from carriers in the fleet, the hex from which the bombardment is launched can be further from the enemy port than an adjacent hex.

To indicate a suitable hex in aerial attack range of the enemy port as the hex to bombard from, select the hex to create a path to it, and then click on the "Bombard" button on the right side of the map:



The bombard hex is automatically a waypoint.

## Cargo missions

There are three kinds of cargo that ships can carry: raw materials, finished war materiel, and troops.

All ships can carry cargo. Obviously, merchant ships have the biggest capacity, but do not forget that your warships (except for all but very large submarines) can be useful carriers of cargo, especially troops.

Setting up a load and unload orders for a cargo mission (convoy or just warships) is a bit involved and is covered in a separate help page: see [Ordering the loading and unloading of cargo](#).

# Set standard routes

Sometimes, you may not like the computer's choice of the shortest route between points. When manually creating a movement path, you can overcome this by setting more points, thereby more closely defining the route. But the problem remains for all missions that your 2IC sets up - here the computer will use its shortest path algorithm.

To override the computer - for manual as well as for 2IC-generated fleet paths - you can set any number of "standard routes".

Your fleets will then use a standard route whenever they can.

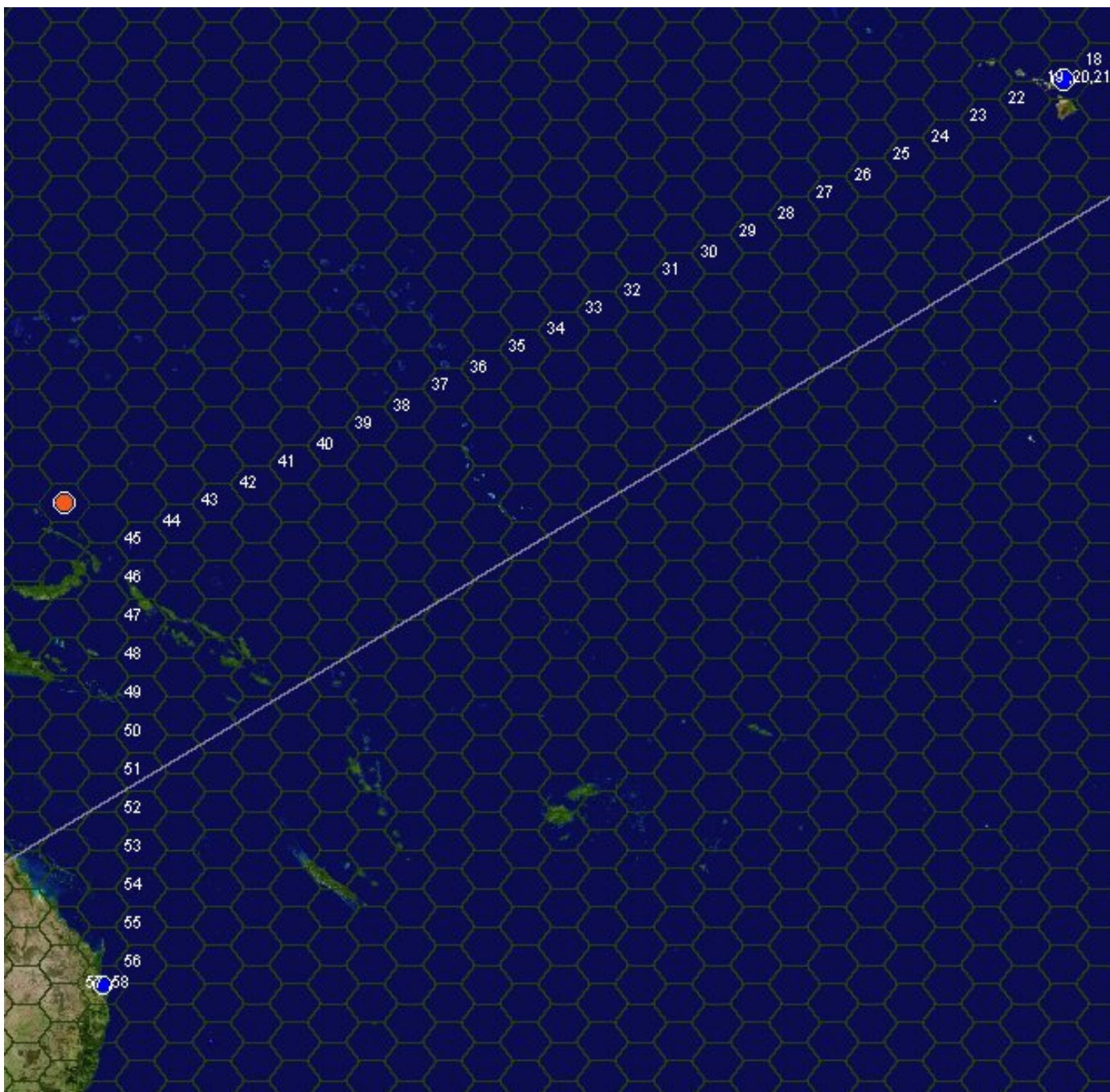
The most common use of standard routes is to set a safe convoy route between ports. It may be longer than the shortest path, but it can go around areas deemed unsafe, such as areas too close to enemy airfields and naval bases.

In the following example, we will see how a standard route can help keep US-Australian convoys safer.

## Example: Route Between Pearl Harbour and Australia

### The shortest route

First, we will see how a convoy from Pearl Harbour to Brisbane would be routed by the shortest path algorithm. Here, we have simply taken the convoy CF1 on to Brisbane from Pearl, by clicking on the port of Brisbane:



You can see that the shortest path takes the convoy within 2 hexes (about 200 nautical miles) of the enemy base at Rabaul - well within attack range by land-based aircraft, and dangerously close also to likely enemy naval units stationed there.

## A new standard route

Now we will create an alternate, safer route that will be used by all fleets sailing between these points. It will sail much more to the south and east of Rabaul.

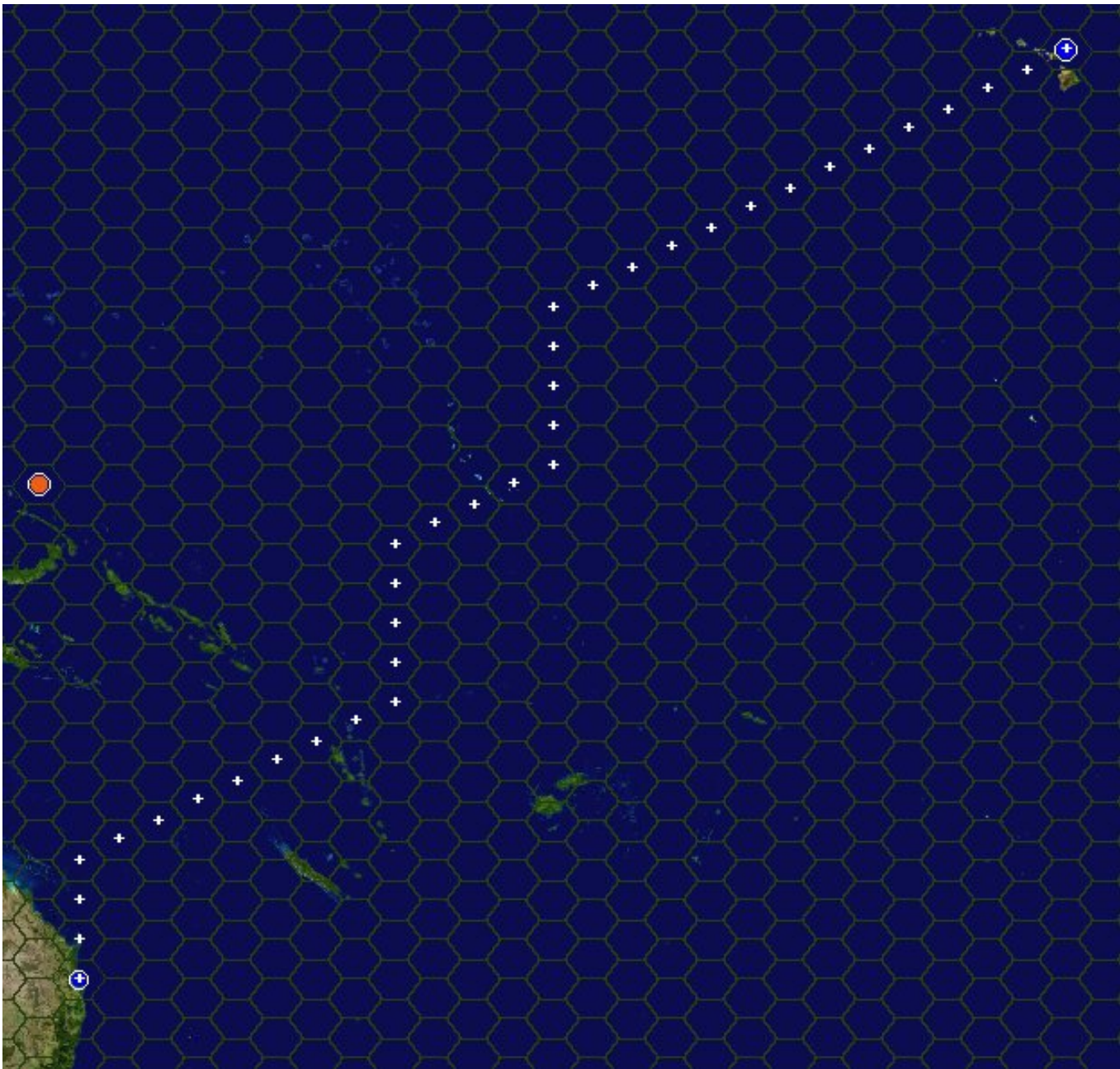
To activate the shortest path editor, click on the "Edit Standard Routes" button on the right side of the map:

A rectangular button with a thin black border and the text "Edit Standard Routes" in a dark, sans-serif font.

If the "Drag" checkbox at the top of the map is checked, uncheck it, to enable data entry in the map.

Now, define a standard route by clicking in the map. The first time you click, the hex will be the starting point of the route. Each time you click, the computer calculates the shortest path to the hex you have selected - just as it does when you are creating an actual movement path for a selected fleet. To define a route more like the one we want, several intermediate hexes have been clicked, with the last hex being the port of Brisbane. You can see the standard route now marked as follows:





To clear this route to start again, if you do not like it, click on the "Clear this Route" button on the right side of the map:



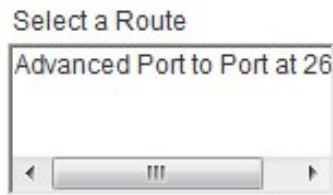
To save this route for use by all of your fleets sailing between directly between Pearl Harbour and Brisbane,

click on the "Save Route" button on the right side of the map:



Here, we will save, this by clicking on the button. You will now see the route listed as a saved route in

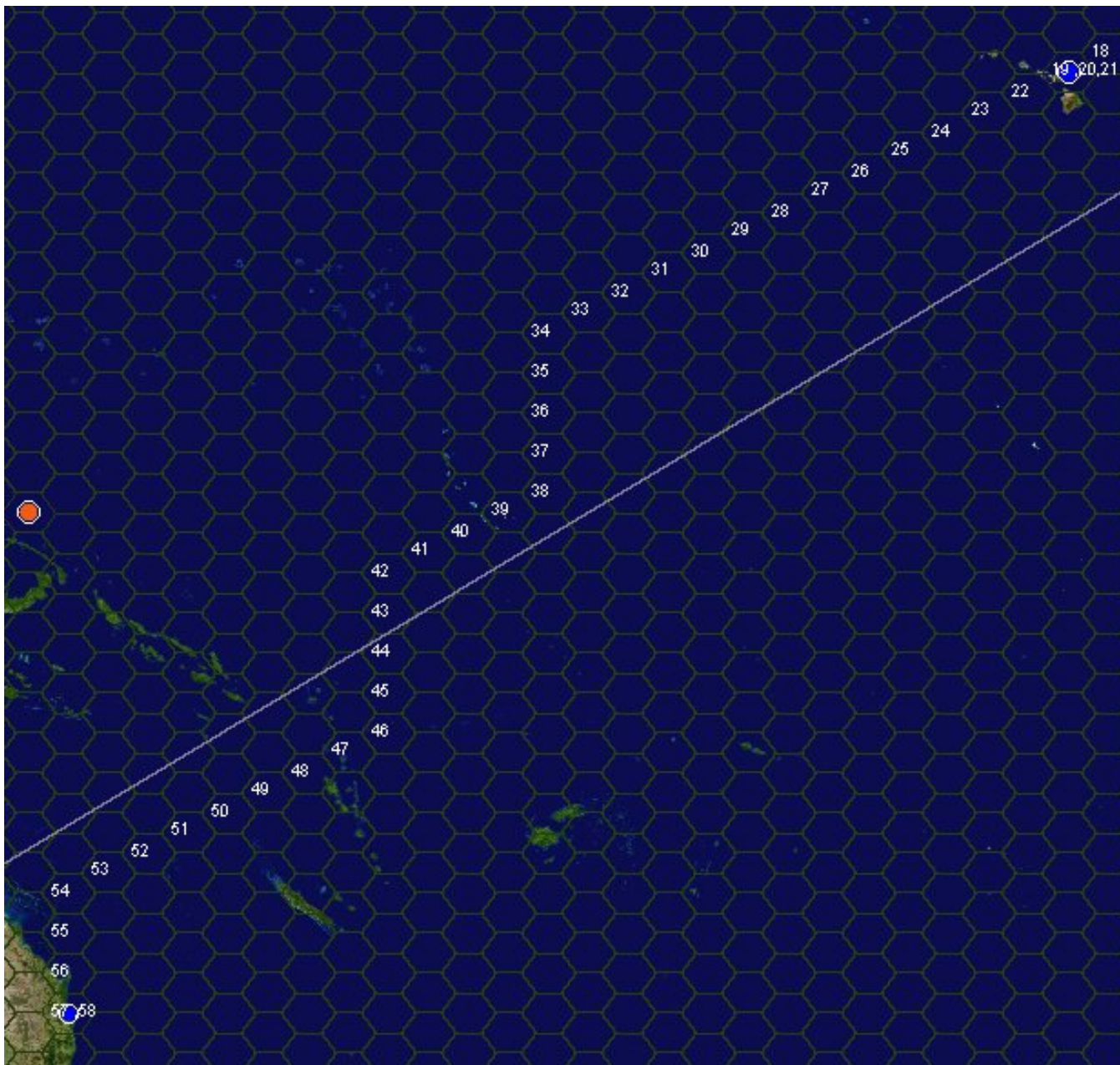
You will now see the route saved in a list of routes on the right side of the map:



## Applying the standard route

Now, by undoing the fleet path earlier created all the way back to Pearl Harbour, and clicking on Brisbane again, you will see that this time the computer has selected your saved standard route in preference to its shortest path calculation:

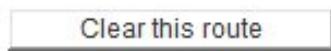
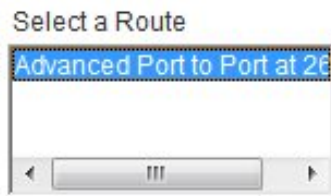




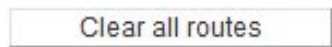
This new route is obviously much safer, and almost as importantly, it is no longer: you can see from the hex numbers that the length of the path is the same as the previous one. This highlights an important fact: the computer's choice of shortest path is governed by an algorithm (a version of the Dijkstra algorithm). This always finds the shortest path, but it is not guaranteed to find the path you most like if there are two or more that are equally short.

## Deleting standard routes

You can delete any standard route you have defined: just select it in the list of standard routes and click on the "&Clear this route" button:



To delete all current standard routes, click on the "Clear all Routes" button:



Note that deleting a route does not affect the movement path already set for any fleets that have used it. The deletion only has effect prospectively.

# **How to deploy aircraft to carriers and airfields**

Each turn, after you have built aircraft (see [how to build aircraft](#)), your 2IC will automatically deploy them to your airfields and aircraft carriers. This takes the tedium out of making decisions for hundreds of aircraft across multiple locations. The automatic deployment has regard to the desired balance of aircraft, and to the capabilities of your airfields and carriers. For example, only carrier-capable aircraft are deployed to carriers; and heavy bombers are deployed only to airfields that can support them.

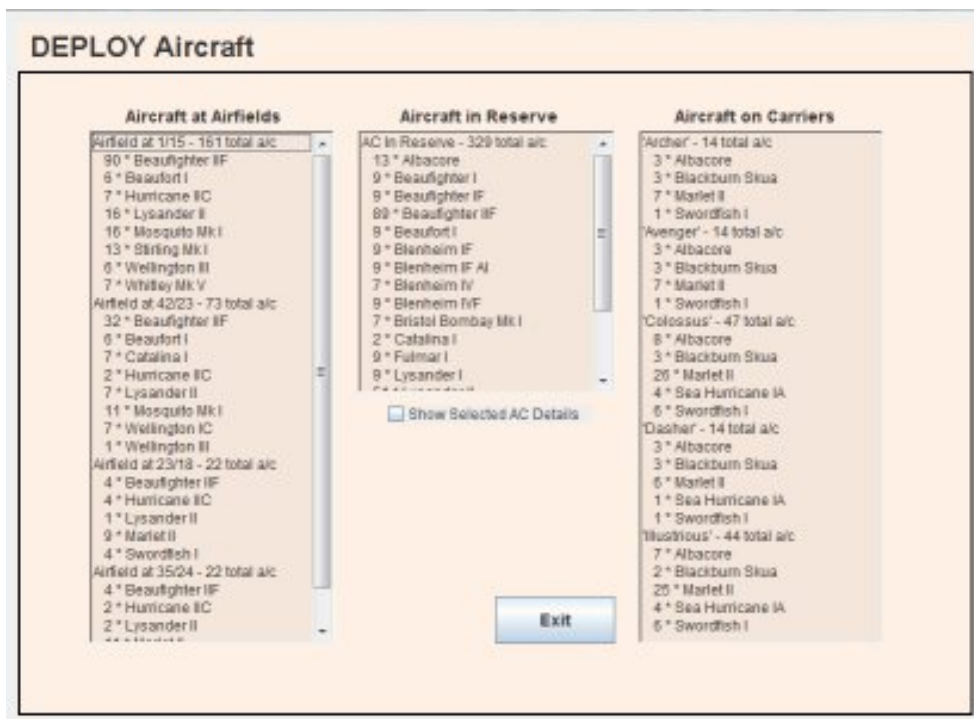
Also, your 2-I-C automatically swaps aircraft around to ensure that the most capable aircraft reach the front-line, and more obsolete aircraft are progressively retired to reserve to make way for the better replacements.

But you can easily amend any planned deployments if you want to.

## The Deploy aircraft screen

To view (and possibly amend) current deployments, from your [Admiral's Office](#), click on 'Deploy' on the [main blackboard menu](#), and then click on 'A/C' on the [deploy menu](#).

You will now see the Deploy Aircraft screen:



Listed on the left are the deployments of all aircraft to all of your airfields. On the right, deployments to carriers are shown. In the middle, remaining aircraft - which are in reserve - are listed.

## Viewing aircraft details

The lists show the numbers and locations of aircraft but to see the specifications of particular aircraft, you must select them individually. If the 'Show selected AC Details' tick box is ticked, you will see the aircraft details screen. (This is the same screen you can see also from the build aircraft screen):

## BUILD Aircraft

(Maximum number that can now be operated = 522 ac of all types).

?

### RESTRICTED

Division of Air Intelligence - Aircraft Recognition and Characteristics

#### F4F-4 WILDCAT

Fighter

Light Bomber

Max Speed: 300 mph.

Cr. Speed: 171 mph.

Endurance: 5/4/- hrs.

Bombload: -/200/- kgs.

Firepower: 6

Ruggedness: 5

Manoeuver: 6

Carrier capable



#### Production Notes:

Introduced: November 1941

Quota:8

Cost: 0.33 RPs

☐ Restrict

Production this turn:

Ordered:112

☐ Prioritize

Create Order

#### Historical Notes:

Additional armor and 2 extra guns reduced maneuverability.

Close

## Changing deployments

### Limits on deployment

Each airfield and carrier can support a maximum number of aircraft. For carriers, the maximum is the number that historically were operated. For airfields, the maximum is determined by the level of infrastructure. The infrastructure level also determines the *type* of aircraft that can be operated. In summary:

- The maximum *number* of aircraft is generally equal to the square of the infrastructure level, times 2. But the level must be at least 2 -if it is less, then no aircraft can be operated. For example, if the infrastructure level at an airfield is 4, then no more than 32 aircraft can be deployed there.
- The *type* of aircraft is limited as follows:



- Airfields with a level of 8 or more can operate all kinds of aircraft
- Those with a level of between 5 and 8 can operate all aircraft except heavy bombers.
- Those with a level of between 2 and 5 can operate only fighters and short range reconnaissance aircraft.

The automatic deployment will send the maximum possible number of suitable aircraft to your airfields and carriers.

## Deployment in 'packets'

The computer deploys aircraft in 'packets' of several aircraft of the same type at a time. The size of a packet is equal to the minimum number of aircraft needed to make one squadron of that type of aircraft operational. Squadron sizes are based on aircraft type and the squadron organisation applicable in each country. See [aircraft squadron organisation](#) for information.

## Changing a deployment

You can freely swap aircraft around, subject to the limits just mentioned. Aircraft can be deployed to airfields or carriers only from reserve; and if you are removing them from airfields or carriers, they return to reserve.

To return one or more aircraft of a selected type to reserve:

- Select the type in the left or right lists.
- Select the number to return.
- Click the 'Transfer' button.

To transfer one or more aircraft of a selected type from reserve to an airfield or carrier:

- Select the type in the middle list.
- Select the airfield or carrier you want to transfer to.
- Select the number to transfer.
- Click the 'Transfer' button.

Remember that you can not transfer aircraft to a carrier or airfield if it is at its limit already - you will get an error message in that event. You would need first to transfer some back to reserve to 'make room' for the new aircraft.



Remember also that an airfield or carrier has limits on the type of aircraft it can operate. If the selected aircraft is unsuitable, you will get an error message.

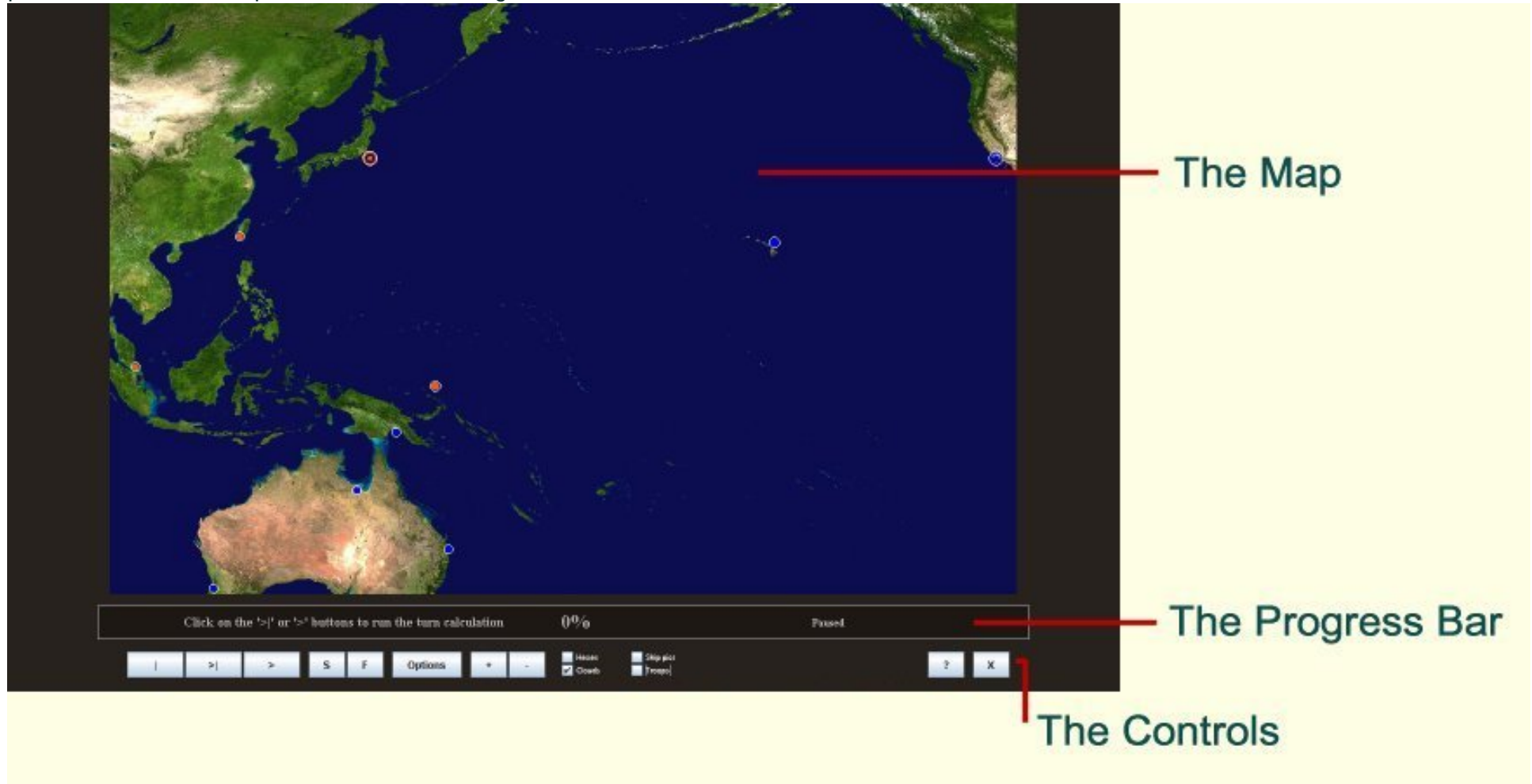
## Exit

When you have finished, click the 'Exit' button. The screen will close, returning you to your [Admirals Office](#).

Note that unlike building aircraft, which can be done only once per turn, you can re-visit the deployment screen any number of times, and change deployments if you want to. It is the final deployment before a turn is calculated that is important.

# Run the Turn

After clicking on "Go!" on the blackboard in your Admiral's Office, provided both sides have finished their turns, the turn calculation screen will appear after a few seconds. The calculation is initially paused at hour one, having just calculated the first hour. The calculation is now paused, waiting for you to continue. The picture below is a sample screen from running a demonstration Pacific scenario:



The screen shows the theatre map, controls for running the calculation, and a progress bar that gives status information on the calculation.

## New tactical options

The screen not only lets you control the speed of the calculation and view and stop on nominated events; it also gives you very significant tactical control, letting you respond reactively and proactively to the unfolding situation by changing fleet movements and rules of engagement and controlling air strikes. The tactical options have been greatly expanded since ver 1.0, especially by version 1.1, and are summarised in the help file on [tactical responses](#).

## New air power mappings

Also new to ver1.1 is an information feature that lets you see mappings of your own air power, or the enemy's, across the whole map and from selected airfields and carriers.

The information can be used not only for interest but also to help you plot new courses for fleets dynamically as the turn progresses.

See the help file on [enabling air power maps](#) for more information.

## The Controls

The buttons and checkboxes at the bottom of the screen are your controls. They let you run the calculation at the speed you want, see just the information that is of interest, zoom the map in or out at will, and open an Options screen for adjusting many options.

You can also exit from the calculation at any time. This returns you to the state the game was in before any calculations were run.

## Hot keys


This screen also now supports hot keys (introduced in ver 1.1). See [hot keys for the Run Turn and Replay Turn screens](#).

The following is an overview of these controls.

## Pause

You can pause the calculation at any time.

There are three ways to do this:

- The quickest way is to click anywhere on the map. (This is a feature introduced in v1.0.4.2 to allow you to pause the calculation quickly, without having to move the mouse down to the controls bar).
- You can also hit the 'Pause' key or click on the Pause button: . This has exactly the same effect.


Note that the calculation is always paused when the screen first appears.



The Progress Bar shows whenever the calculation is paused:

## Run

Similarly, to start (or re-start) the calculation after a pause, you have two methods available:

- You can click anywhere on the map. (This is a new feature introduced in v1.0.4.2).
- Or you can click on the Run button: .

The calculation will now run forward hour-by-hour, stopping only if you have elected to make tactical responses. (See [tactical responses](#) for more information.)

## The Progress

Sunday, 14th. of December, 1941, 3 PM (Hour 327)

48%

Bar:

shows you how much of the turn has been calculated - as a percentage and a graphic, and also shows you the exact time that is currently being calculated.

You can control the speed of the calculation - as explained next.

## Run slower or faster



These two buttons are labelled "S" and "F" respectively:

They slow down or speed up the calculation. Each click will increase or reduce the amount of delay before a new hour is calculated.

The 's' and 'f' hot keys perform the same function.

The amount of delay is shown in the Progress Bar. It can vary from no delay through to many seconds.

The purpose of the delay is to allow you to follow the action. With no or minimal delay, the calculation will update the screen very rapidly. Any event messages you have enabled will appear only briefly, perhaps disappearing before you have been able to study them. (See [Options](#) for more information on enabling event messages.)

The default delay is 0.2 seconds between each hour - which is just enough to see key messages as they appear while keeping the pedal down on the calculation.

Nevertheless, players who just want to run the calculation as fast as possible will want to have zero delay.

But be warned - you can not reverse the calculation - so events that are notified too quickly to take in can not be seen again except in the [turn replay](#) - which is exactly like the turn calculation but without the chance to influence events with [tactical responses](#).

There is one safeguard however: you can exit the calculation at any time, and re-start it. See the note below on the Exit button for information.

You will need to experiment yourself to find the speed that you are comfortable with. Every player is different.

## Force a stop on key events

There are 9 key events that you can force the calculation to stop on. You enable these event stops from the 'Options' dialog.

The events are:

1. A sighting of an enemy fleet
2. An air strike - either your own, or one by the enemy
3. An air interception
4. The start of a surface battle
5. The end of a surface battle
6. The end of a submarine - surface ship battle
7. A land battle
8. A bombardment (your own or by the enemy)
9. An aerial ASW attack - by you or the enemy

The message boxes for events 2, 3, 4, 5, 6 and 7 have hyperlinks that allow you to go straight to the battle result reports.

See [Options while running and replaying a turn](#) for more information.

## Run one hour at a time

As an alternative to slowing down the calculation, you can elect to just run one hour at a time using this

button: 



Each time you click the button, (or hit the 'n' hot key) one hour's worth of action will be calculated, and any event messages you have enabled that are triggered will appear on screen and stay there until you click again.

Note that if your running one hour at a time, you can also run the next hour by clicking anywhere on the map. (This is a new feature introduced in v1.0.4.2).

## Zoom in and out, and drag the map

You can zoom the map in or out during calculation using these controls:



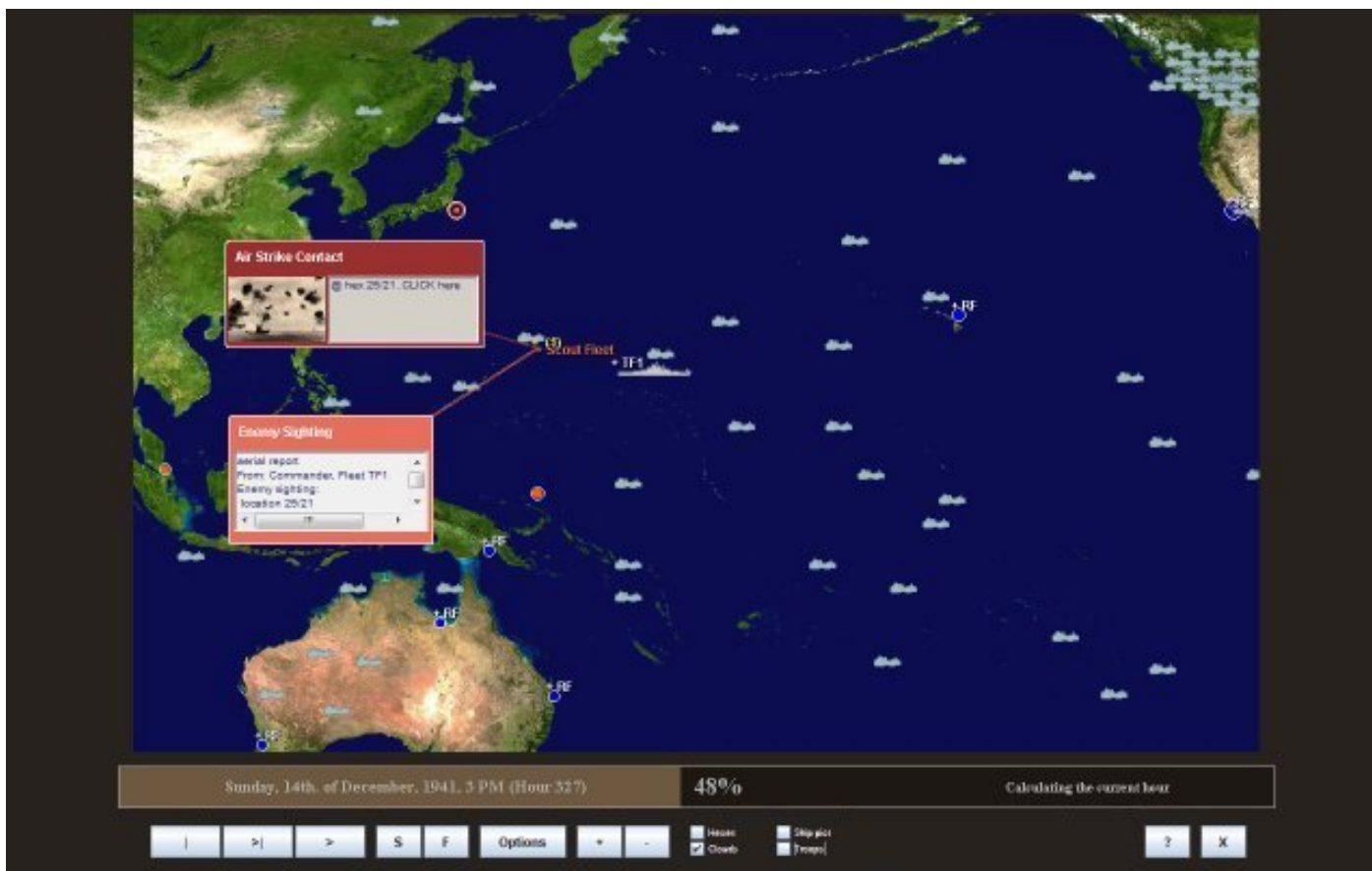
Click on the "+" button to zoom in (enlarge the map); the "-" button zooms out (makes the map smaller).

The 'z', and '+' hot keys (for zooming in) and the 'x' and '-' hot keys (for zooming out) perform the same function.

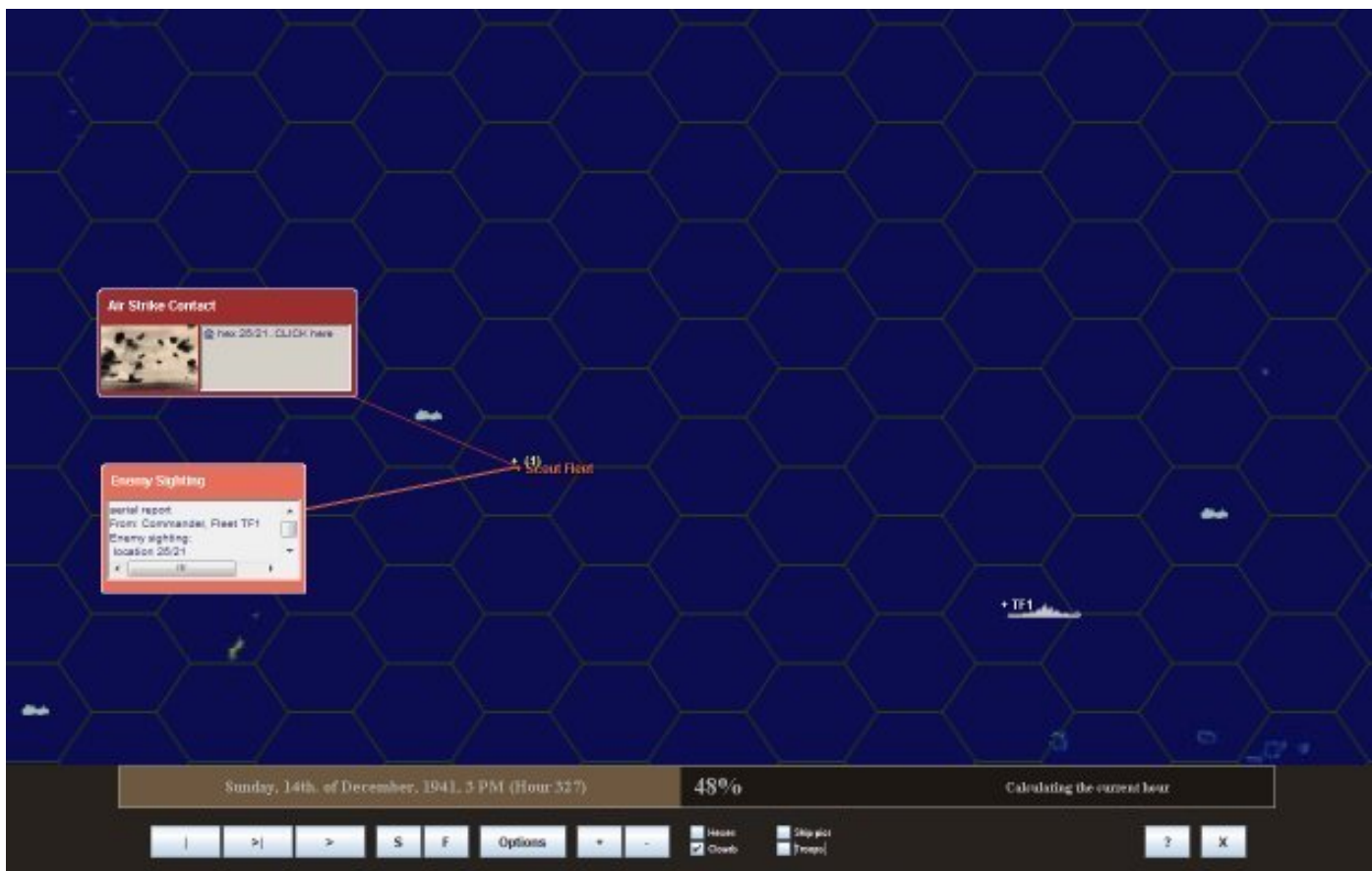
Each click will increase (or reduce) the map size by a set amount. You can zoom in and out virtually indefinitely.

When the map is bigger than the screen you will need to drag the map around. Do this simply by clicking on the map and dragging, or by using the four keyboard arrow hot keys.

An example of the zoom in feature is shown below. The first picture shows the map at the default size (which fits one screen):



After zooming in several times, to enlarge where the action is, the map now looks like this:



## Show hexes

Note that in the picture above, you can also see the hexes marked.

Hexes are turned off by default, but you can turn them on at any time by the 'h' hot key or by ticking the

Show hexes tick box:

☒ **Show Hexes**

Note that the hex scale depends on the map. In the Pacific and Atlantic maps, each hex is 96 nautical miles across, whilst in the Mediterranean, each hex is half that size - only 48 nautical miles wide.

## Show Clouds

Weather is depicted by the use of clouds of varying sizes and densities - the bigger and darker, the worse the weather.

To turn off the depiction of clouds, untick the 'Clouds' tickbox.

This removes only the depiction of weather; the weather in each hex is still calculated normally, and still affects gameplay in the normal way.

## Show ship graphics

The flagship of each fleet is shown by a side profile on the map.

At any time during calculation you can toggle these profiles on and off by using the 'Ship pics' tickbox.

## Exit

To stop the calculation and exit at any time, just click the Exit button:



When you exit, you will be returned to your [Admiral's Office](#), with the state of the game exactly as it was before any calculation was attempted.

Exiting is "cheating" in a way, in that it gives you advance information about how the "future" will pan out given your current orders and those of the enemy. Armed with this information, you can change your orders and try again! Beginning players are likely to find this useful.

Exiting also allows you to re-run the calculation at a different speed, in case you missed some events that you wanted to know about.

Remember though that you can [replay the calculation](#) later, forwards and backwards, at variable speed, as many times as you want if it is just information you want, rather than the chance to make different [tactical responses](#).

## Event messages

When the turn is being calculated, not only will you see your fleets move on the map, you will also see enemy fleets highlighted when they are spotted, and will see many different kinds of event messages telling you what is happening hour-by-hour.

Some players will want to see all or most messages; others may want to keep the "noise" to a minimum, concentrating on a selected few messages, such as reports of battles. As always in **SAS**, the choice is yours.

## Moving the messages

The messages appear on the map in one or more popup boxes. They are all moveable if needed if they are currently obscuring parts of the map that are of interest. (Or the map can also be dragged around).

The message boxes appear by default in the top left of the screen.

To move a box if you want to see beneath it (instead of just moving the map instead) just click in the coloured semi-transparent top section of the box, and drag it.

To return it to its default position, just move the mouse off the message. The box will "snap" back to its default position.

## Message text

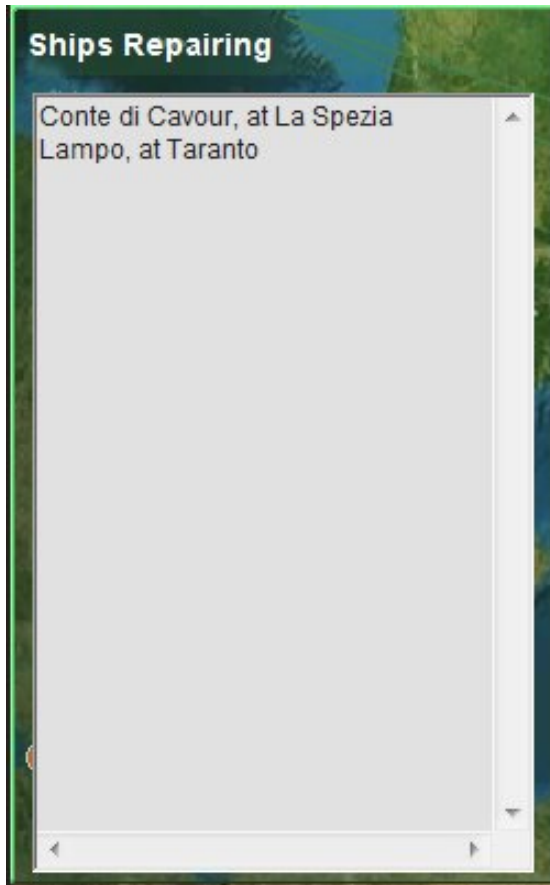
Most message boxes are minimised by default, with just the name of the event showing, as shown in this example:



The box points to the location(s) of the event(s).

When you move your mouse over it, it expands to show the text of the message(s) *provided you*

*have enabled this feature* (with the 'e' hot key toggle):



(The reason for the 'e' key toggle is to avoid message boxes expanding unless you specifically want this behaviour). Note though that the special red event messages - for battle reports - ***always*** expand when you pass the mouse over them. This is because these messages are critical, and 99% of players will want to see the reports as quickly and easily as possible). When the 'e' key toggle is 'on', you will see a message to that effect in the control bar:

Mouse-over event messages enabled

The text box is scrollable if needed.

If your mouse is currently over the text box part of the message, moving the mouse off the message will cause the box to minimise again. But if you move the mouse up to the coloured top section of the message box, and then move it off the box, the box stays expanded, and will still be expanded when the box next re-appears. This way, you can choose the message types (if any) that will show the full text by default.



Shown below is an example of having chosen to keep expanded the enemy sightings and air strike launched message boxes:



## Message colour coding

The boxes are colour coded: red boxes are for critical events such as battle reports (aerial; surface; submarine; bombardment and amphibious assaults) as well as ship sinkings and mine damage. Black is for enemy signal intercepts, while pale red is for enemy sightings and emergency fleet orders. Other colours are for less critical events: brown boxes show air strikes as they move; yellow boxes show cargo handling, and green boxes are used for everyday events such as ship refuelling and repairing.

## Message types

There are over two dozen types of event messages.

For more information on message types, see [event message types](#).

# Options

The types of event messages you see are controlled via the Options button:



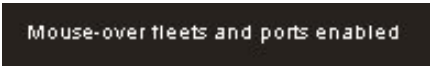
When you hit the 'o' hot key or click the Options button an options screen will appear, allowing you to enable or disable many different kinds of event messages. See [Options when running and replaying a turn](#) for more information.

The options screen also allows you to enable or disable the ability to make tactical responses for your surface fleets and air strikes. See [tactical responses](#) for more information.

## Viewing and controlling fleets hour-by-hour

When the calculation is paused, you can also review up to date information - as at that hour- on all your fleets and enemy fleets, and for the selected fleet change its rules of engagement, tactical responses and air strike targets. You can also re-plot its movement path and issue new orders like bombard, lay mines, load and unload etc!

You access the dialog for viewing and controlling fleets by moving the mouse over fleets. But you first have to enable this feature with the 'Ctrl' key toggle. When the 'Ctrl' key toggle is 'on', you will see a message to this effect in the control bar:

A black rectangular message box with white text. The text reads "Mouse-over fleets and ports enabled".

Mouse-over fleets and ports enabled

See [access to hex assets while running the turn](#) for more information.

# **Tactical Responses**

Although **SAS** is primarily a strategic and operational simulation you can also make critical tactical decisions *if you want to*. You are never forced to make them - the computer AI is very sophisticated and in most cases you will be hard pressed to improve on it. But some players will want to exercise this tactical control for at least some of their fleets or aircraft.

When you run the turn, hour by hour, you can make major tactical decisions:

1. You can **reactively** review and amend the computer AI's decisions, as they occur, to divert your fleets from their path in order to intercept, avoid or shadow priority enemy targets.
2. You may **reactively** review and amend the computer AI's calculation of when ships need to return to base due to fuel or ammunition shortage or excessive damage.
3. You can **proactively**, also at any time, **initiate** new orders and change fleet movements based on a review of the status of your own ships and the enemy's.
4. You can **proactively** change general policy preferences affecting how your 2IC creates strikes - which enemy gets targetted, from where, and with how many fighters and bombers - as well as how he creates defensive combat air patrols (CAPs).
5. Finally, you can **reactively** view all air strike decisions by your 2IC for any selected carriers and airfields, and individually abort them, change targets or strike composition and bombloads, or even order the carrier or airfield to hold back from launching air strikes until further notice.

The second option is covered in the help file on changing return to base orders.

The third option is covered in the help file on access to hex assets while running the turn.

The fourth option is covered in the help file on viewing and editing air strike preferences.

The fifth option is covered in the help file on viewing and editing air strikes.

The rest of this help page deals with the first option, ie. reviewing and amending computer-generated fleet tactical responses.

## Enabling fleet tactical responses

At any time during turn calculation you can enable or disable tactical options from the Options screen. Click the 'o' hot key or the "Options" button on the run turn controls to bring up this screen. The turn calculation will now be paused until you close the options screen by clicking on the 'X' button or the 'q' hot key. (See running the turn for an explanation of how to run a turn and use the controls).

At the bottom of the Options screen (pictured below) there are four tickboxes and four buttons that you use to

enable or disable tactical response options.

Information and Control Options

?

X

Information options:

Event messages 'pop-ups':

See

☒ Surface Battles starting

☐

☒ Surface Battles

☐

☒ Air Strikes

☐

☒ Air Interceptions

☐

☒ Aerial ASW

☐

☒ Sub Battles

☐

☒ Bombardments

☐

☒ Land Battles

☐

☒ Enemy Fleet Sightings

☐

Stop for

☐

☐

☐

☐

☐

☐

☐

☐

☐

See

☒ A/C Operations

☒ Emergency Fleet Orders

☒ Emergency Ship Departures

☒ Encounters avoided

☒ Ship Launchings

☒ Cargo Handling

☒ Ship Refuelling

☒ Ship Repairing

☒ Minelaying & sweeping

Control options:

☐ Control fleet tactical responses

☐ Control fleet returns to base

☐ Control air strikes from airfields

☐ Control air strikes from carriers

Select fleets for control

Select airfields for control

Select carriers for control

Edit air strike preferences

Enable sound

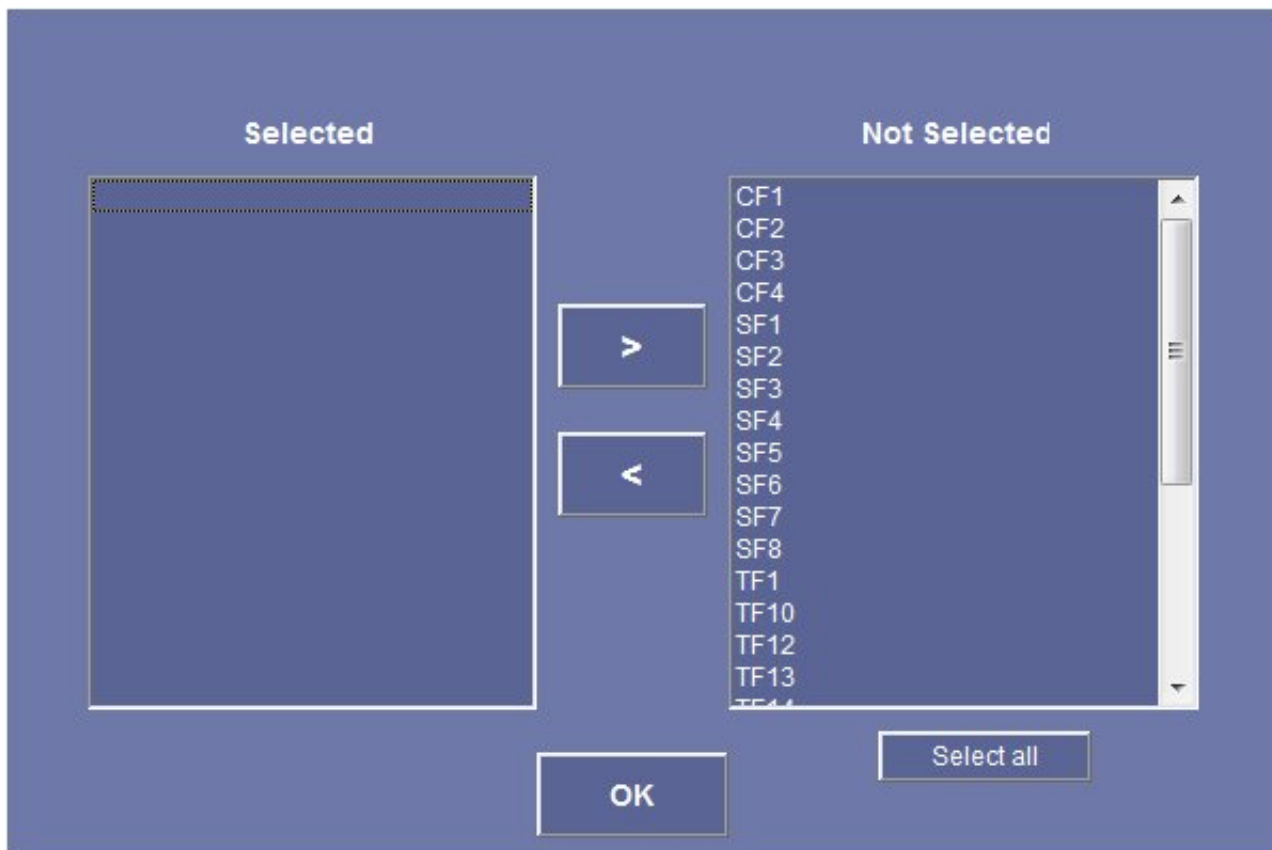
To enable tactical responses for your fleets, make sure the 'Control fleet tactical responses' tickbox is ticked.

When it is ticked, the computer will alert you whenever any of the fleets you have selected for tactical control needs to decide whether to ignore, avoid, shadow or intercept the most dangerous (or attractive!) enemy fleet of those you currently know about. As your intelligence of the enemy changes during turn calculation, you will be prompted to make new decisions.

## Selecting fleets

Note that by default NONE of your fleets are candidates for your intervention. To select only those you are most interested in click the "Select fleets for control" button alongside.

You will now see this screen:



Those of your fleets currently selected for player-controlled tactical responses are listed on the left. Your remaining fleets (if any) are listed on the right.

You can swap fleets freely between these lists by selecting one or more and clicking the '>' or '<' button as needed to move them to the other list. The 'Select all' or 'De-select all' buttons allow you to quickly select or de-select all fleets in a list.

Click the 'OK' button when you have finished.

## Changing tactical responses

Whenever your 2IC wants to change the tactical response for a selected fleet, you will see a dialog like this:



The dialog gives you easy control over what your fleets do. For each of them, you can accept the computer AI's recommendation, or override it. See the [tactical fleet response dialog](#) help page for full instructions.

## Persistence of the options

The options you have selected, including the fleets you have selected for control (if any), are saved at the end of the run turn calculation, and will be in force when next you run the calculation. But by then of course, you will have new fleets and perhaps new carriers, so you will want to re-visit these options each turn.



# **Changing Return to Base Orders**

Every hour during turn calculation, the AI calculates whenever any ship must leave the fleet it is in and depart immediately for the most suitable friendly base.

## Rules for determining ship departures

### Basic rules

A ship must leave when it is:

- Too low on fuel
- Too damaged or damaged enough to be too slow to keep up with the fleet
- Too low on ammunition

If it is currently in a surface battle, this calculation is deferred until the end of the battle.

A ship is 'too' low on fuel when it has less than 10% of its maximum capacity remaining. Note that merchant ships are exempt from this calculation - they can never run out of fuel.

A ship is 'too' damaged when the total hull or superstructure damage or flooding exceeds a threshold that is based on the orders of the ship and the fleet it is in. As an example, that threshold would be 40% for a ship with cautious orders in a fleet with cautious orders. It would be 90% for a ship with aggressive orders in a fleet with aggressive orders. It would be 20% for a ship with 'weak attack/withdraw' orders in a fleet with cautious orders. Ships with sacrificial attack orders are exempt from this calculation EXCEPT for battleships and carriers - which will always try to retire when damaged more than 80%, and cruisers - which will always try to retire when damaged more than 90%.

The calculation of a ship being 'too' low on ammunition is similar except that the ammunition expenditure can be up to twice the damage level before a ship is considered too low on ammunition.

### Additional rules

As is explained below, the basic rules force ships to depart whenever any of the triggers are met. But additional rules then operate to determine if any additional ships in the fleet ***should*** also leave at the same time, in order to accompany the departing ship(s).

These rules try to maintain an escort for the departing ships; and, if all of the more important ships in the fleet have left or are about to leave, then the computer will recommend that the whole fleet mission be cancelled and all ships return to port.

### Selection of Port

The AI assesses the suitability of all of your ports based on their closeness, and their capability to refuel,

rearm and repair the ships that are leaving. (The capability depends not just on the resources currently there but also the level of dock infrastructure).

The AI selects what it regards as the most suitable port to return the ships to.

## Changing the AI's orders

You can optionally change:

- The computer's recommendations regarding any additional ships that are to leave. (But you can not stop ships that are *forced* to go, from going).
- The port to which the ships will return.

## Enabling the option to change

During turn calculation, you can click on the 'Options' button at any time. You will see a screen like this:

Information and Control Options

?

X

Information options:

Event messages 'pop-ups':

See

Stop for

See

☒ Surface Battles starting

☐

☒ A/C Operations

☒ Surface Battles

☐

☒ Emergency Fleet Orders

☒ Air Strikes

☐

☒ Emergency Ship Departures

☒ Air Interceptions

☐

☒ Encounters avoided

☒ Aerial ASW

☐

☒ Ship Launchings

☒ Sub Battles

☐

☒ Cargo Handling

☒ Bombardments

☐

☒ Ship Refuelling

☒ Land Battles

☐

☒ Ship Repairing

☒ Enemy Fleet Sightings

☐

☒ Minelaying & sweeping

Control options:

☐ Control fleet tactical responses

☐ Control fleet returns to base

☐ Control air strikes from airfields

☐ Control air strikes from carriers

Select fleets for control

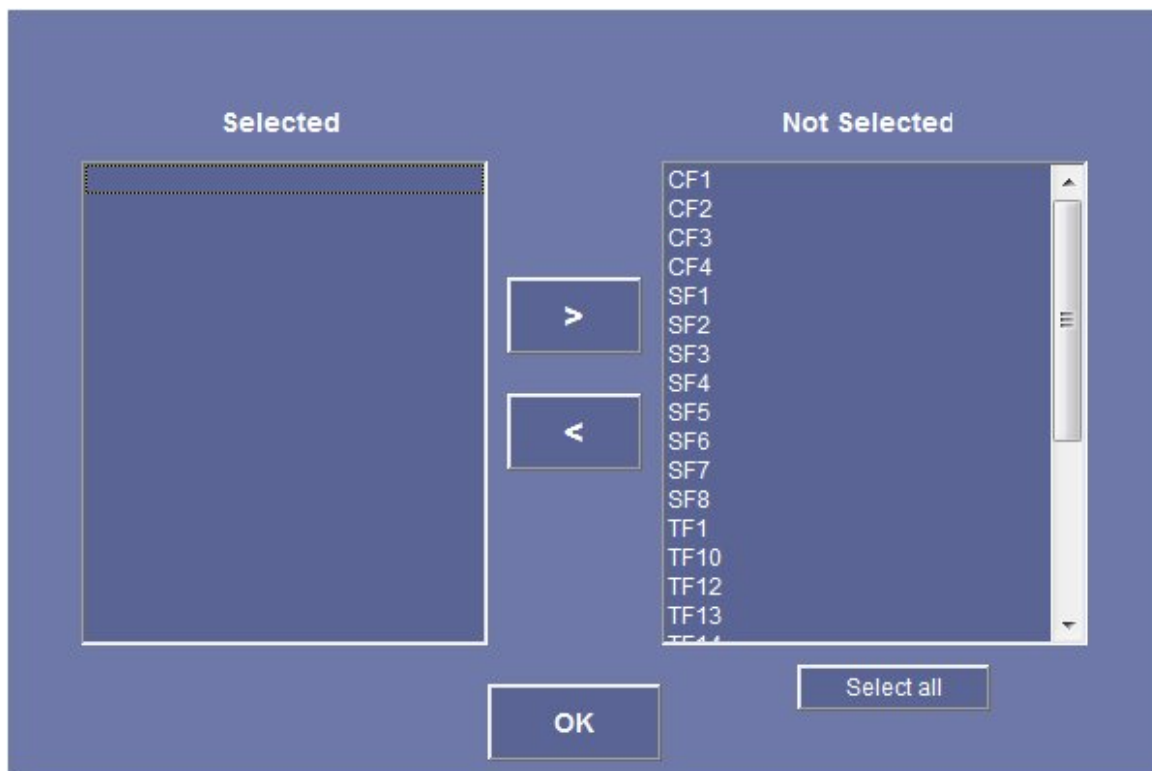
Select airfields for control

Select carriers for control

Edit air strike preferences

Near the bottom of the screen, make sure that the 'Control fleet returns to base' option is ticked.

Then, edit the list of fleets for which you want control over their returning to base. Click on the 'Select fleets for control' button. You will see a screen like this:



Use the controls to add to or subtract from the list of fleets you wish to control.

Note: this selection is the *same* list of fleets that apply to making fleet tactical decisions. (See [selecting fleets for tactical responses](#).

([See tactical responses for more information](#)).

## The Change Return to Base Orders Dialog

When the option is enabled (as just explained), the AI will alert you whenever any ships need to depart their fleet.

The calculation will be paused, and you will see a dialog window like this:

The top left of the dialog shows - in two lists - the ships that are about to depart from the fleet:

Ships Departing			
Name	Fuel	Ammo	Damage
DD Kingston	62%	41%	49%
DD Kandahar	64%	35%	69%
BC Barham	83%	0%	23%

Supported by:			
DD Nubian	71%	39%	29%
DD Jervis	68%	44%	25%
CL Perth	59%	0%	52%

## Ships that MUST go

The top list shows the ships that MUST depart - you have no choice. They are forced to depart because one or more of the basic rule triggers has come into play:

Name	Fuel	Ammo	Damage
DD Kingston	62%	41%	49%
DD Kandahar	64%	35%	69%
BC Barham	83%	0%	23%

Each ship is listed with the current state of its fuel, ammunition and damage shown in percentage terms. You can quickly see from this what the problem is. But the reason for departure is also explained in the middle section of the dialog:

Reason(s) for Departure(s)	
DD Kingston	Too slow to keep up.
DD Kandahar	Too slow to keep up.
BC Barham	Low on ammo. Too damaged.
DD Nubian	Supporting the ship(s) that must depart
DD Jervis	Supporting the ship(s) that must depart
CL Perth	Supporting the ship(s) that must depart

In the above example, the destroyers Kingston and Kandahar must leave because they are damaged and now too slow to keep up with the fleet, while the Battleship Barham is both too low on ammunition and too damaged.

## Ships that SHOULD go

Any additional ships that the computer believes should also be released - to accompany that ships that should go - are also shown.

They are listed in the lower of the two 'Ships Departing' lists:

Supported by:			
DD Nubian	71%	39%	29%
DD Jervis	68%	44%	25%
CL Perth	59%	0%	52%

Ships will be listed here if:

- They are an escort ship needed to support bigger ships (cruisers, battleships or carriers) that are forced to depart. (The number of escorts required is based on the number already leaving, the number available and the ratio (if any) for escorts to battleships, carriers and cruisers that the player may have set for the mission or else a default ratio of 2 escorts for every battleship and carrier and 1 for every cruiser.
- The AI assesses that the fleet's biggest ships have all gone or are going, and decides that cancellation of the whole mission is sensible.

When ships are added to support others forced to go, the reason is shown as 'supporting the ship(s) that must depart'.

When the whole mission has been cancelled, this is also explained, as shown in this example:

Reason(s) for Departure(s)	
DD Kingston	Too slow to keep up.
DD Kandahar	Too slow to keep up.
BC Barham	Low on ammo. Too damaged.
DD Nubian	Fleet mission has been cancelled.
DD Jervis	Fleet mission has been cancelled.
CL Perth	Fleet mission has been cancelled.
DD Kimberley	Fleet mission has been cancelled.

### Ships Remaining

The ships remaining in the fleet (if any) are listed at the top right of the dialog:

Ships Remaining			
Name	Fuel	Ammo	Damage
DD Kimberley	68%	32%	46%
DD Juno	55%	41%	38%
CL Gloucester	66%	0%	40%

### List of Ports

All your current ports are listed in the bottom section of the dialog. They have been listed according to their suitability (as assessed by the AI), from those most suited at the top to those least suited lower down.

The AI automatically selects the topmost port in the list:

Ports to Depart For						
Name	RPs	Hexes away	Can Handle:	%Tonnage	%Ships	%RPs
Gibraltar	543	30		100	100	100
Alexandria	0	11		100	100	0
Tobruk	18	7		0	0	31
Malta	19	8		0	0	33



How the rating of suitability is done needs a little explanation.

Each port is rated according to:

- The percentage of the total **tonnage** of ships that are leaving that it can handle based on the needs of each ship and the **current** level of dockyard infrastructure.
- The percentage of the total **number** of ships of the ships that are leaving that it can handle (based on the same criteria)
- The percentage of the RPs needed (to refuel/rearm and repair all the ships leaving) that the port **currently** has.
- The approximate distance of the port (in hexes) from the fleet.
- Whether the port is already on the movement path of the fleet.

The most favored port will be the port already on the movement path that can handle (and has the RPs for) the greatest proportion of the ships (by tonnage).

Note that some ports will show as being able to handle a high percentage of the ships yet have none or very low RPs. These ports are favoured over ports that have enough RPs but not sufficient infrastructure - for the simple reason that it is usually much quicker to acquire RPs at a port than to build infrastructure there.

## Changing the ships

By selecting one (or more) ships in the lower 'Ships Departing' or the 'Ships Remaining' lists, and clicking the '>' or '<' button as appropriate you can move the selected ship(s) between the lists.

You can quickly select all ships in a list by clicking the 'Select All' button underneath the list.

Remember though that you can not remove any ships from the 'Ships Departing' top list. These ships are the ones that **MUST** go, regardless.

As you make changes, the calculation of port suitabilities changes to reflect the new composition of the ships that are to leave.

## Changing the Port

Simply click in the 'Ports to Depart For' list to select any port if you do not like the selection made by the AI (which is always the top most port in the list).

## Closing the Dialog

When you have finished making any changes, close the dialog by clicking either the 'OK' button at the bottom, or the 'X' button at the top right of the dialog.

## Getting Help

This help page is always available by clicking the '?' button at the top right of the dialog.

# **Tactical Fleet Response Dialog**

This pop up dialog box allows you to control the responses of your fleets to known enemy fleets.



As explained in the [tactical responses](#) help page, you can elect not to be notified at all (and let the computer decide for you). Or you can elect to be notified, but only for selected fleets.

If you have the option enabled, the popup will appear during turn calculation whenever one or more of your selected fleets needs to decide whether to ignore, avoid, shadow or intercept a known enemy fleet.

On the left is a list of your fleets for which a tactical decision is pending. On the right is the list of relevant known enemy fleets. In the middle is a list of tactical response options.

First, you need to select one of your fleets in the left-hand list. As soon as you do this:

- The fleet is highlighted in the list
- The dialog points to the location of this fleet on the map
- The enemy fleet that is the current most dangerous threat or attractive target is

selected and highlighted in the right-hand list, and the dialog will point to its location on the map.

- The computer's recommended response is selected and highlighted in the middle list.

## Dragging the dialog and map

The dialog points to the location of your own fleets and the enemy's fleets. If these are currently obscured on the map by the dialog itself, you can:

- move the dialog around - by clicking on the top brown bar, and dragging.
- or you can move the map around by clicking anywhere on the map and dragging.

It is usually best to drag the dialog around, if needed, rather than the map.

## Changing the tactical response

Changing the computer's recommended response for the currently selected fleet is as simple as selecting a different tactical response in the middle list.

You can also select a different enemy fleet altogether as the main threat or opportunity, and then select the appropriate response.

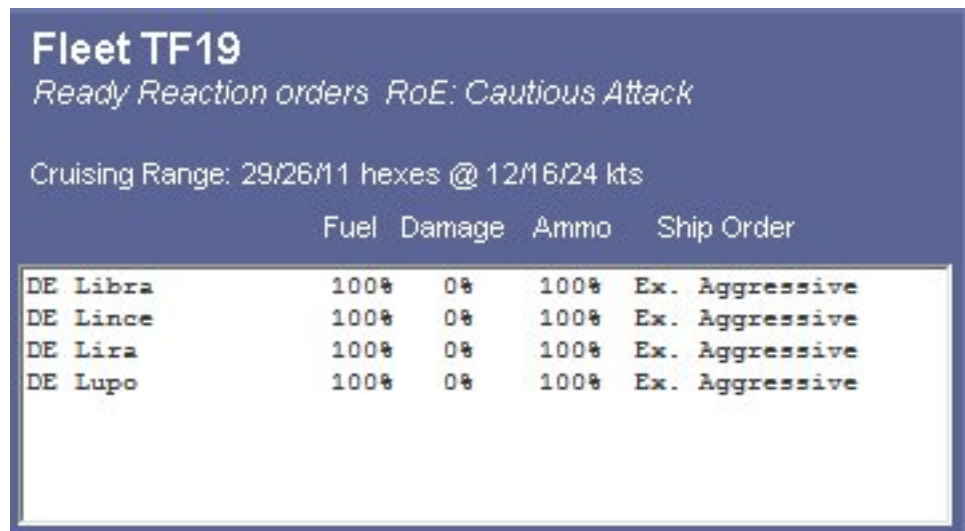
## Reviewing fleet details

Often you will want to review the details of your own fleets and the enemy fleets, especially if you are thinking of changing any tactical responses.

### Details of your own fleets

To see details of your own fleets when they are selected, tick the 'Fleet details' tick box

that is beneath the left hand list. You will now see details of your currently selected fleet:



	Fuel	Damage	Ammo	Ship Order
DE Libra	100%	0%	100%	Ex. Aggressive
DE Lince	100%	0%	100%	Ex. Aggressive
DE Lira	100%	0%	100%	Ex. Aggressive
DE Lupo	100%	0%	100%	Ex. Aggressive

The fleet details panel always appears immediately to the left of the fleet response orders dialog. The panel gives summary information on the fleet - its current orders and speed, plus summary details for each ship: its ship order and current fuel, damage and ammunition status.

The fuel, damage and ammunition status of key ships will help you decide how aggressive to be if you intend on changing the fleet's current tactical response.

Note that you may have seen this information panel before - it is the same panel that appears on the Theatre Map when you select a fleet. (See the [theatre map](#) help page for more information.)

## Details of enemy fleets

When the 'Fleet details' tick box beneath the right hand list is ticked, details will be shown of the currently selected enemy fleet:

### Enemy Fleet CF2

Steaming @ 8 kts. Heading: NW

Tgt val: 87 (Report reliability: Acceptable. Age: this hour)

```
3 * 12000 tonne merchant ship class
3 * 3000 tonne merchant ship class
4 * 6000 tonne merchant ship class
4 * 9000 tonne merchant ship class
5 * Small Escort class
2 * Super Fleet Carrier class
1 * Super Very large Cruiser class
```

The enemy fleet details panel always appears immediately to the right of the fleet response orders dialog. The panel gives summary information about the currently selected enemy fleet - its speed, heading (if known) and composition. Also provided is the 'target value' for the fleet, the age of the last intelligence on the fleet, and the reliability of that intelligence.

Be wary of sending your own fleets on a wild goose chase. If the enemy fleet report is old, and especially if it was also of low reliability, the enemy fleet is likely now to be somewhere else altogether.

## The 'Stop calc' feature

Sometimes, you may want to closely follow what happens in the hours immediately after making a tactical response.

To do this, tick the 'Stop calc' tick box at the top left of the dialog. This works in the same way as the same feature on the [tactical air strike orders dialog](#). As soon as you close the dialog, the turn calculation will be paused. You can then repeatedly click the '>|' button on the [run turn](#) screen to advance the calculation hour by hour. This allows you to closely follow the action. All event messages for the hour (including reports of any battles) will stay visible until you click again to calculate the next hour. To run the turn continuously again, simply click on the '>' button at the bottom of the screen.

The tick box remains ticked on all future tactical fleet response dialogs until you untick it.

## Editing RoE

This dialog also gives you quick access to editing the selected fleet's rules of engagement (RoE). Click on the 'Edit RoE' button. This opens the screen for viewing and editing RoE. See [how to set rules of engagement](#) for more information.

## Closing the dialog

To close the dialog when you have finished with it, click the 'q' hot key or the 'OK' button.



# **Access to Hex Assets while running the turn**

While the turn is calculating, (but not during the turn replay), you can pause the calculation ***at any time*** - by clicking anywhere on the map or using the Pause hot key or the Pause button - and then access some special functions that give you detailed information and let you control your fleets more closely.

You can:

- For fleets generally:
  - Review latest known intel on any enemy fleet.
  - For any of your own fleets:
    - Get up-to-the-hour status of any of your own fleets, and ships in each fleet - their damage, fuel status and so on.
    - Review ***and change*** their current rules of engagement.
    - Review ***and change*** their current emergency tactical response orders (if any).
    - Review ***and change*** their exact movement route, and any special orders such as bombard, lay mines, load and unload.
- For fleets with carriers, and for airfields:
  - get status information on all aircraft based there.
- For your ports, get status information on the current levels of infrastructure and RP storages.

These features are explained below.

Note that the feature available before v.1.1 where you could manually set targets for selected airfields and carriers has been replaced by a more extensive system of air strike control - see [viewing and editing air strikes](#) for information.

The Hex Assets dialog is used both to get information, and to change fleet orders. This

file discusses the information function, and then covers use of the dialog for fleet control.

## Information functions

With the turn calculation paused, you can get up-to-date information on any of your fleets or ports, or enemy fleets by passing the mouse over the hex where they are located. For this basic function, you do not click, just pass the mouse over the map.

### Enabling the Hex Assets dialog in information mode

Note - ver 1.1 has introduced a toggle for this feature so you can disable it if you want. The feature is disabled by default. To enable it, hit the 'Ctrl' key. You will then see this message in the control bar:



Mouse-over fleets and ports enabled

Hit the 'Ctrl' key again to disable it.

### What you can review

The dialog has up to three tabs, depending on what is in the hex:

- A 'Fleets' tab, listing of all fleets in the hex - both your own and the enemy's (if any).
- An 'Air groups' tab, listing all air groups based at your airfields and carriers in the hex.
- A 'Port Infrastructure' tab, showing details of the infrastructure at any of your ports in the hex.

The tabs are only displayed if relevant information is available. Eg, if there are no friendly ports in the hex, the Port Infrastructure tab will not be shown.

An example of the dialog with the three tabs is shown below:



## Navigating between tabs

You move between tabs using the 'Tab' hot key or by clicking on the tab header.

## The Fleets Tab

By default, the dialog will open with the fleets tab active.

If there is only one fleet, and it is one of your own fleets, the tab will look like this:

## Assets in hex: 26/11

➤ Fleets

Air Groups

### Own fleet: TF2

*Defensive Patrol orders RoE: Cautious Attack*

Steaming @ 16 kts.

Cruising Range: 98/88/39 hexes @ 12/16/24 kts

### Current tactical response order:

**NONE**

	Fuel	Damage	Ammo	Ship Order
BC Caio Duilio	96%	0%	100%	Cautious
CL Duca d' Abruzzi	95%	0%	100%	Aggressive
CL Luigi Cadorna	94%	0%	100%	Aggressive
CV Aquila	96%	0%	100%	Very Cautious
DD Antonio Pigafetta	94%	0%	100%	Ex. Aggressive
DD Antoniotto Usod..	94%	0%	100%	Ex. Aggressive
DD Emanuele Pessagno	94%	0%	100%	Ex. Aggressive
DD Giovanni da Ver..	94%	0%	100%	Ex. Aggressive
DD Lanzerotto Malo..	94%	0%	100%	Ex. Aggressive
DD Leone Pancaldo	94%	0%	100%	Ex. Aggressive
DD Nicolo Zeno	94%	0%	100%	Ex. Aggressive
DD Nicoloso da Recco	94%	0%	100%	Ex. Aggressive

The window shows information about the fleet as well as all ships in the fleet. Note that the ship information is at the current hour, so fuel usage and damage are shown.

Or, if the only fleet is an enemy fleet, it will look like this:

## Assets in hex: 30/21

### Enemy fleet: TF5

Speed unknown

Target value: 20 (Report reliability: Quite low. Age: 6 hours)

Summary fleet composition:

2 Carriers and/or Battleships and/or Cruisers; 4 Escorts.

More details:

4 \* Escort class

When there are multiple fleets in the hex, the tab has a listing of them in the top section:

## Assets in hex: 15/7

### Own Fleets:

SF5

TF1

### Own fleet: SF5

*Sub Offensive Patrol orders RoE: Sacrificial Attack*

Steaming @ 8 kts

Cruising Range: 68/0/0 hexes @ 12/16/24 kts

### Current tactical response order:

**NONE**

	Fuel	Damage	Ammo	Ship Order
SS Ascianghi	90%	0%	100%	Aggressive
SS Gondar	90%	0%	100%	Aggressive
SS Naiade	90%	0%	100%	Aggressive
SS Negheli	90%	0%	100%	Aggressive
SS Nereide	90%	0%	100%	Aggressive
SS Scire	90%	0%	100%	Aggressive

A handy feature is the ability to quickly select a fleet by moving the mouse up or down slightly - you will see the selected fleet change in the list, and the details for that fleet will appear in the lower section.

Sometimes, both friendly and enemy fleets are in the same hex. Then, the dialog looks something like this:



Assets in hex: 20/16

Own Fleets:

CF1

Enemy Fleets:

SF1

Own fleet: CF1

Troop Transport orders RoE: Convoy Escort

Steaming @ 8 kts.

Max. range is unlimited (Merchant ships only)

Carrying: 637 troops

Current tactical response order:

AVOID SF1

	Fuel	Damage	Ammo	Ship Order
MS2-1		0%	100%	

In this case, if you want to select the enemy fleet for viewing, you will need to click to 'lock' the dialog, and then click again in the enemy fleet list.

Note: sometimes, fleets may be close together on the map yet still be in different hexes. If you do not see all these fleets in the same window, that will be the reason. Use the 'hexes' function on the map controls to show hexes if you need to.

## The Air Groups tab

Information on all friendly air groups in the hex can be accessed via the Air Groups tab. Here is an example where several air groups are present. You can select an air group for viewing by shifting the mouse up or down, just as you could for fleets in the Fleets

tab:



## The Port Infrastructure tab

This tab shows summary information on any friendly port in the hex:

Fleets	Air Groups	➤ Port Infrastructure	
Current RPs:		0.0	
Infrastructure		Current Level	Planned Level
➤ Airfield:		10.0	10.0
➤ Docks:		5.0	5.0
➤ Defences:		7.0	7.0
➤ Export Industry:		0.0	0.0
➤ Domestic Industry:		2.0	2.0
➤ Raw Materials Index:		0.0	
➤ Domestic Materials Index:		2.0	

## Fleet control functions

To go one step further and use the dialog to change the orders of any of your fleets, with the Hex Assets dialog showing, click the mouse. This will 'lock' the dialog in place so that it does not dissapear when you move your mouse. The mouse can now be used to make selections on the dialog itself.

The dialog looks exactly the same when it is locked, except that it now has two buttons in the top bar: the '?' help button, and the 'X' exit button, and it also has three buttons in the lower section - 'Roe', 'Route' and 'Responses':



## Editing RoE

Click the 'RoE' button to bring up the RoE screen, where you can view and edit the fleets rules of engagement. (See [how to set rules of engagement](#) for help.)

## Editing tactical responses

Click the 'Responses' button to bring up the dialog for setting one of four responses - ignore, avoid, shadow or intercept, for any of your fleets against any known enemy fleet. This dialog is an enlarged version of the one you normally see when your 2IC presents it for you to confirm new tac respons orders. It is enlarged to allow you to see all of your

fleets as easily as possible:



It also does not have the 'Edit RoE' button that normally appears - because you have a similar button available on the Hex Assets dialog itself.

## ***Enabling the fleet for tactical response***

Note that, by default, the fleet is automatically flagged as one you wish to control for tactical responses. This means that anytime your 2IC wants to give the fleet tactical response orders, you will be notified, and can amend the new order if necessary.

## Changing fleet movement orders

Instead of just ordering a fleet to intercept, shadow or avoid a nominated enemy fleet, you can more finely control its movement by editing its exact movement path.

This is a new feature, introduced in v1.0.4.2, to further extend tactical-operational game play options.

To view and edit a fleet's movement orders, click on the 'Route' button:

The fleet's current movement route is shown on the map

And you will see the 'Edit Fleet Movements' dialog, which gives you full control over changing the fleet's intended movement path and special orders such as bombard, lay mines, load or unload, and so on.

See [using the Edit Fleet Movements Dialog](#) for more information.

## Closing the Hex Assets window

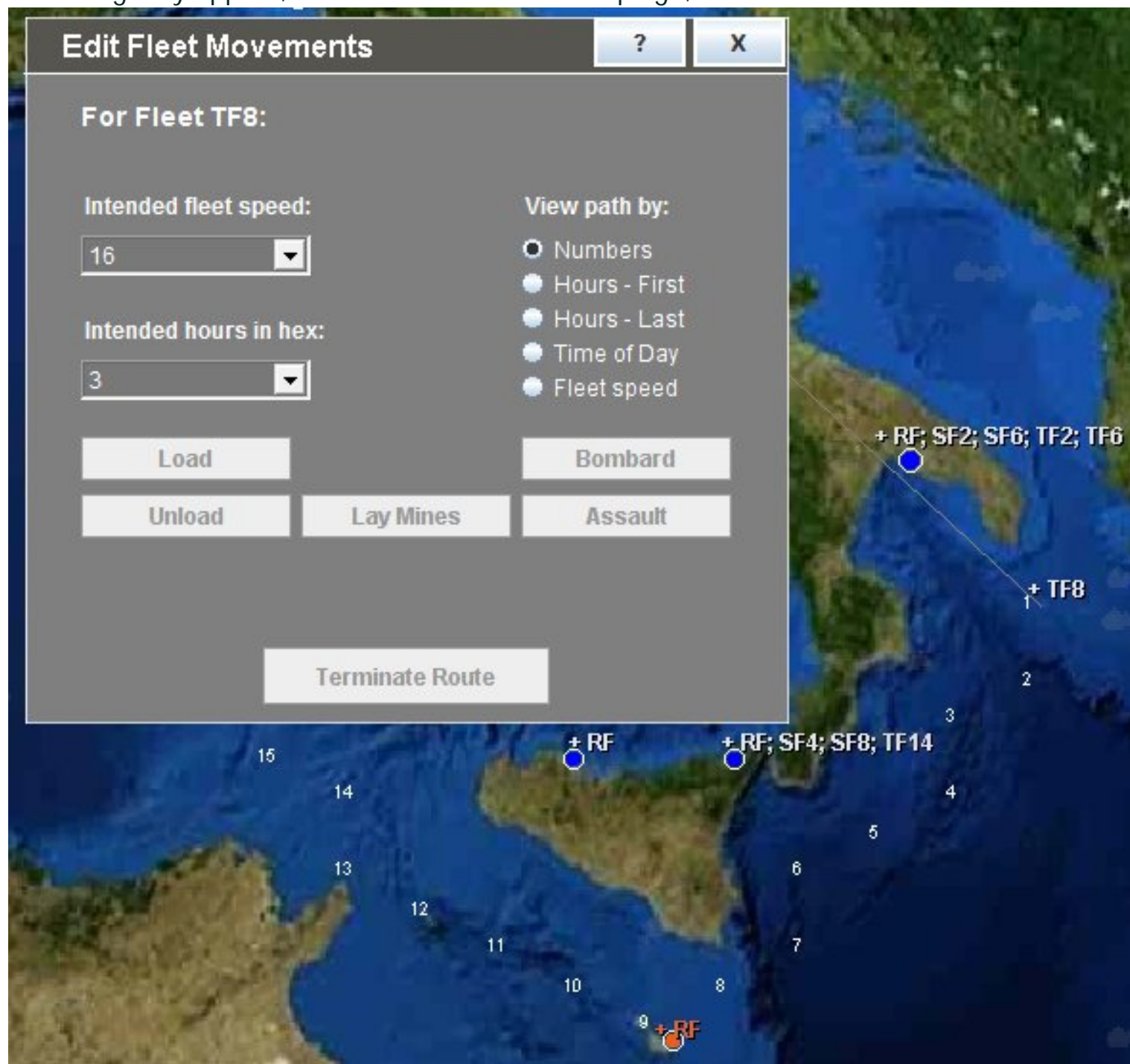
When the window is not locked, it will close as soon as you move your mouse away from the hex.

If the window is locked, the 'X' button will show at the top right of the window. You need to click this button to close the window, or hit the 'q' hot key.



# *Using the Edit Fleet Movements Dialog*

This help page describes how to use the Edit Fleet Movements dialog. An example of how the dialog may appear, from a Mediterranean campaign, is shown below:



If you are not at this dialog already and want to know how to bring it up, see [editing fleet movement orders](#) for background.

# Overview of the dialog

On the top bar is the '?' button, for bringing up this help page. The 'X' button or the 'q' hot key closes the dialog.

You can click and drag the dialog around if you want to.

The dialog tells you the name of the currently selected fleet:

**For Fleet TF8:**

## Viewing the route

The current route for the fleet will be shown as a numbered sequence of hexes.

Using the radio buttons on the right of the dialog you can see the route displayed in a number of other ways. These route display options are the same ones you have when setting up operational orders for the turn. 'Hours first' shows the hour that the fleet enters each hex; 'hours last' shows the hour it is to leave the hex; 'time of day' shows the am or pm time of day the fleet is to enter the hex, and 'fleet speed' shows the speed (in knots) of the fleet in each hex. (The 'fleet speed' option is new - introduced in v1.0.4.2)

Each time you select a different option, the route is re-displayed.

## Pointer to current editing point

The dialog has a grey line pointer to the hex where editing is to start:



It is very important to be aware of where this pointer is pointing as it shows where any new

path you enter will start.

When you first open the dialog, the pointer will point to the current location of the fleet. But as you add new sections of route, the pointer will shift, indicating where each new section is to start.

Shown below is an example. A new short path has been added that will take the fleet initially south and west of where it is currently ordered. The pointer has updated to point to the end of the new section:



## Setting cruising speed and time in hex

Each section that is added must have a nominated fleet cruising speed and time in each hex.

Each section can have a different speed or time in hex, but the time in hex can never be less than the time necessary for the fleet to traverse the hex at the nominated speed.

The speed and hours in hex are set using these drop-down controls:

Intended fleet speed:

16 ▼

Intended hours in hex:

3 ▼

The maximum cruising speed can not be greater than the maximum possible for the fleet, given the ships in it and their condition.

## Undoing

When one or more sections have been added, the 'Undo' button will be enabled:

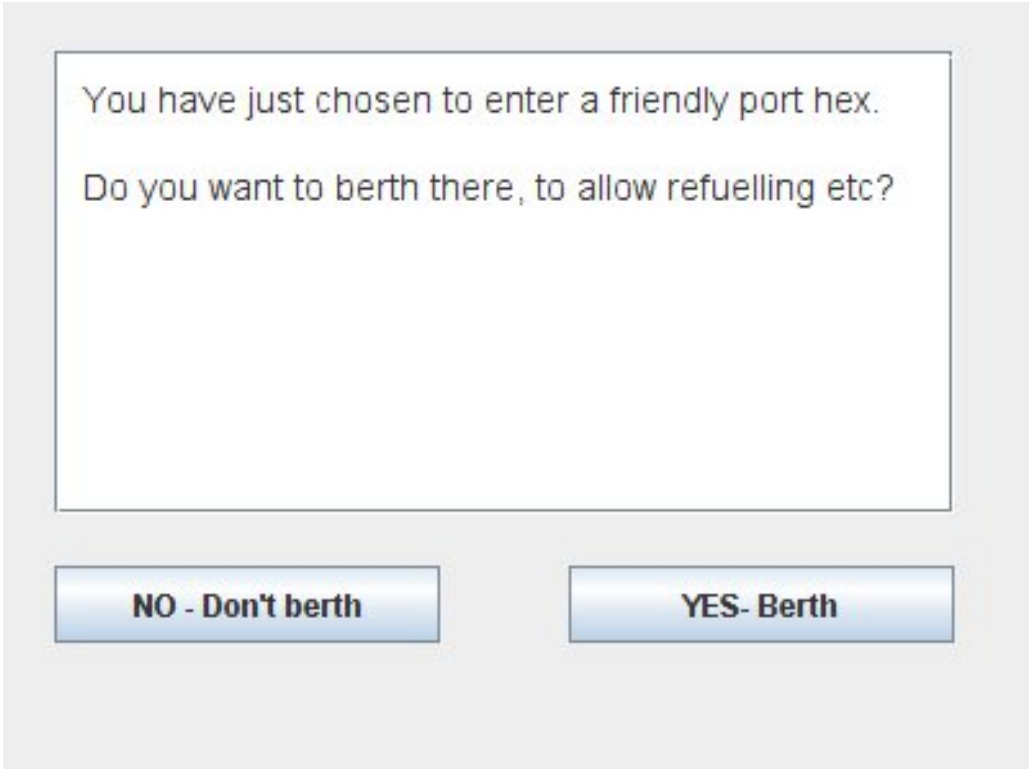


Each time you click this button, the last section you added will be removed.

When all new sections have been removed, the 'Undo' button will be disabled.

## Berthing

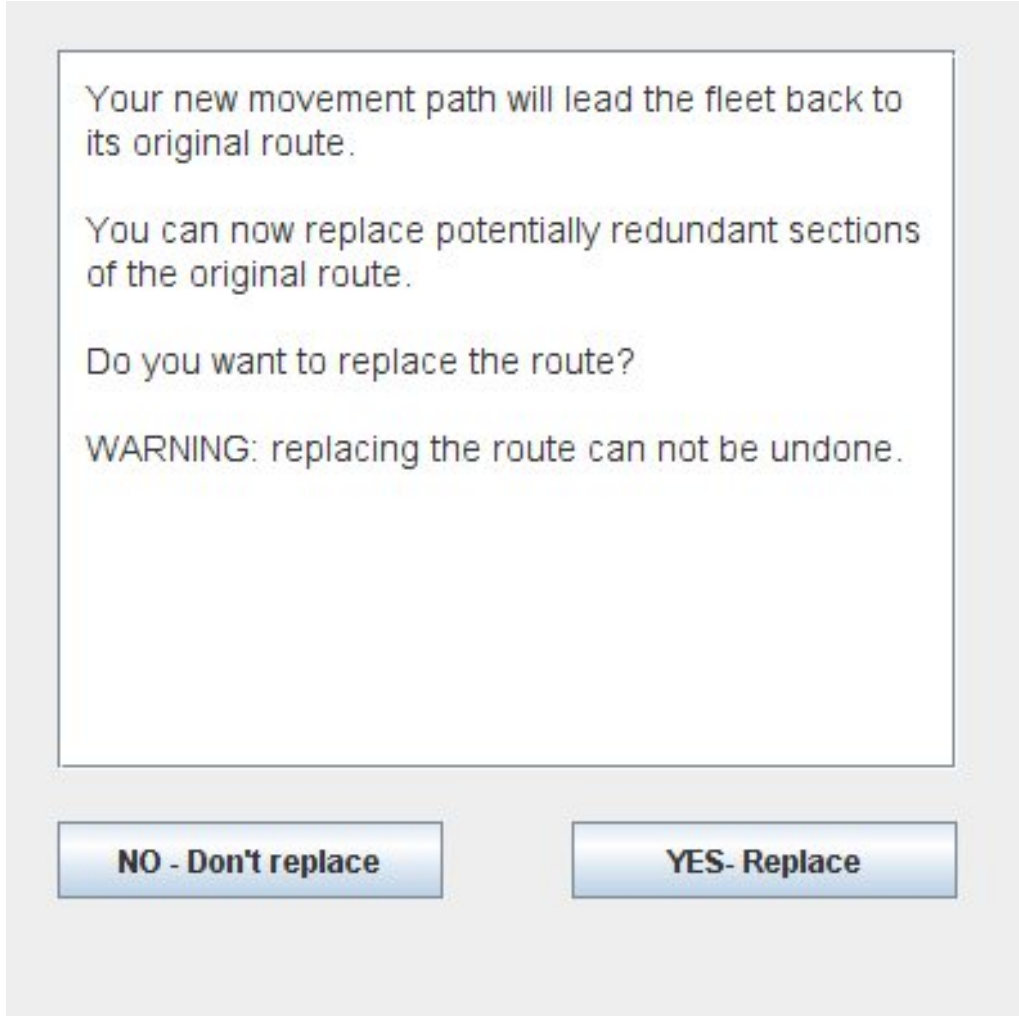
When you click on a friendly port hex, you will be given the option of berthing the fleet:



If you click 'NO - Don't berth', the fleet will stay in the port hex but outside of the actual port. If you click 'YES- Berth', the fleet will be given orders to sail in and berth. If the port has enough resources and docks infrastructure, the fleet can automatically start to refuel, rearm and repair when it gets there.

## Replacing a route

If you click on a hex that is already on the current route path, you will be given the option to replace the potentially redundant sections of the current route.



If you click 'NO - Don't replace', then the old route is left intact. If you click 'YES - Replace', the old route sections between where the fleet currently is and the most recently selected hex will be replaced by the newly added section(s).

As the dialog says, a replace operation can not be undone, so make sure before doing this.

## What happens when the last section is 'hanging'

Adding sections can be done for various reasons. Sometimes, you may just want the fleet to temporarily divert somewhere. If the last section you create ends away from your existing



route, this creates a gap in the route. This is OK - the AI automatically fills this in for you when you close the 'Edit Fleet Movements' dialog. But you need to be aware that in all such cases, the AI will return the fleet to its CURRENT location. Then, the fleet will resume its original route.

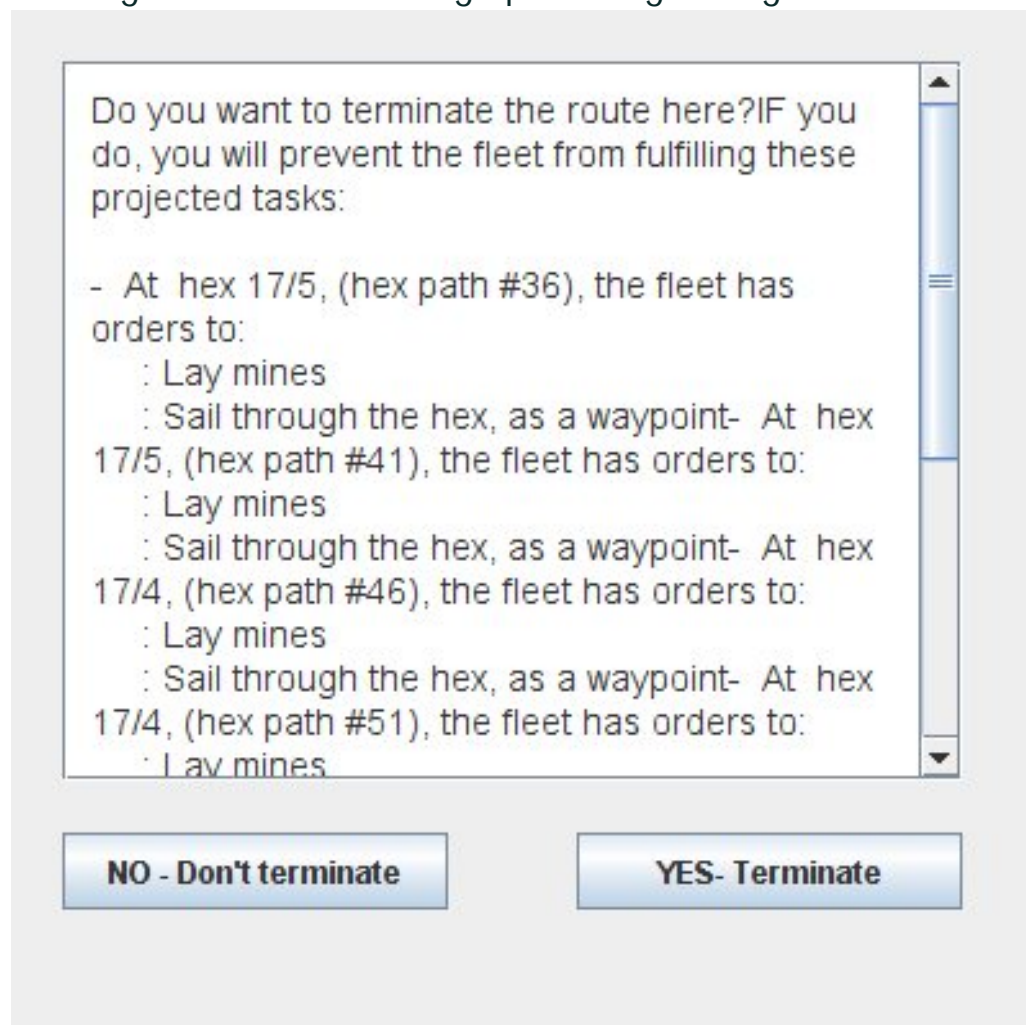
This also happens when you click on a hex that is on the existing route, and then select the 'NO- Don't replace' option. The fleet will automatically then sail back to it's current location, and then resume the original route.

## Terminating a route

After at least one section has been added, the 'Terminate Route' button will be enabled:



Clicking this button will bring up a dialog asking for confirmation:





Terminating the route will erase all pre-existing fleet orders beyond that point. Often this will prevent the fleet from fulfilling some special tasks in its original orders, such as laying mines, bombarding, loading etc.

The picture above shows an example of this.

The dialog also warns you that a termination action, like a replace operation, cannot be undone, so make sure before you proceed to terminate a route.

Of course, you can re-create a whole new route and special orders for the fleet using the 'Edit Fleet Movements' dialog, so no irretrievable damage is done from inadvertent termination (or replace) operations; but it will require some editing work of you if you need to re-create any orders.

## Enabling the fleet for tactical response

Note that, by default, any fleet for which you edit movement orders is automatically flagged as one you wish to control for tactical responses. This means that anytime your 2IC wants to give the fleet tactical response orders, you will be notified, and can amend the new order if necessary.

## Closing the Dialog

You can close the dialog at any time by clicking the top-right 'X' button or the 'q' hot key.

A terminate action will also close the dialog automatically.

## Giving Special Orders

There are five buttons that allow you to give special orders for the fleet.

When a button is enabled and is pressed, the order applies to the fleet when it gets to the hex that the pointer is pointing to.

Each button is disabled by default, and is only enabled for clicking when the preconditions necessary for the order have been fulfilled.

## Load

The 'Load' button is enabled whenever the currently selected fleet is in one of your ports.

The computer checks the current troops, supplies and raw materials loaded on the fleet as at that hour, and lets you load up to the remaining capacity, but never more than the amount available at the port at that time.

Note that raw materials can only be loaded on merchant ships, and only at ports that have been specified as sources of raw materials when the campaign was created.

Clicking the 'Load' button brings up a sequence of screens - like a wizard - that steps you through the process of loading troops, supplies and raw materials. The screens are the same as those you will see when manually giving load orders to fleets during the deployment phase, prior to turn calculation. (See [ordering cargo loading and unloading](#)).

## Unload

The 'Unload' button is enabled whenever the fleet is berthed in one of your ports and currently has troops, supplies or raw materials loaded, or it has already been given load orders during the current editing operation.

Clicking the 'Unload' button brings up a screen allowing you to specify the amounts to unload. This screen is the same as you will see when manually giving fleet orders during the deployment phase, prior to turn calculation. (See [ordering cargo loading and unloading](#)).

## Lay Mines

The 'Lay Mines' button is enabled whenever the fleet is at sea, contains ships capable of minelaying (ie escort ships) and is steaming at 12 knots or less.

Clicking on 'Lay Mines' orders the fleet to lay mines in the hex that the pointer is pointing to.

## Bombard

The bombard button is enabled whenever the fleet is a non-submarine fleet and the hex the pointer is pointing to:

- is a sea hex adjacent to an enemy port
- or, if the fleet has aircraft carriers, is a hex in aerial strike range of one or more enemy ports.

Clicking the 'Bombard' button orders the fleet to bombard the enemy port(s) in range, when it gets to the hex. The bombardment will be by guns if the fleet is adjacent to the port. If the fleet has carriers, aerial bombardment will also occur provided the fleet is in range at a time when one or more strikes can be launched.

## Assault

The 'Assault' button is enabled whenever the fleet is currently carrying troops and the hex the pointer is pointing to is adjacent to an enemy port.

Clicking "Assault" will order the fleet to commence an amphibious assault on the enemy port when it reaches the adjacent hex.

# Viewing and editing air strike preferences

Every hour of turn calculation, your 2IC checks if air strikes should be launched from all of your airfields and carriers. Many factors are considered: visibility, any damage to airfields or carriers, reliability of enemy intel, availability of valuable enough targets within range, readiness and availability of enough bombers to do sufficient damage and enough fighters to provide cover, etc.

You can modify a number of these factors if you want - they represent your air strike policy preferences. This help guide shows you how to view and edit these factors. (You can also [select particular airfields or carriers for more detailed control](#) - follow the link for help).

## Viewing air strike preferences

There are three ways to see the 'Air Strike Preferences' dialog, where you can view and edit key preferences governing how your 2IC creates air strikes:

- From the dialog where you set [options when running a turn](#), click on the 'Air Strike Preferences' button
- Alternatively, from the dialog where you [view and edit your own air strikes](#) while running a turn, either click on the 'Preferences' button OR hit the 'p' hot key

Either way, you should see a screen like this:

Air Strike Preferences		?	X
Min Target Value for a strike:	30		
Min Bomb Weight Per BB (tonnes):	5		
Optimum Bomb Weight Per BB (tonnes):	10		
Level bombing height:	medium		
		View promotable strikes:	<input checked="" type="checkbox"/>
		View withheld strikes:	<input checked="" type="checkbox"/>
		View invalid strikes:	<input checked="" type="checkbox"/>
% of fighters for CAP Duty:	20 %		
Enable fighter sweeps:	<input checked="" type="checkbox"/>		
Threshold for fighter sweeps:	20%		
Min fighter:fighter ratio:	1:4	Optimum fighter:fighter ratio:	2:1
Min fighter:bomber ratio:	None	Opt fighter:bomber ratio:	1:4
Enable fighter mins vs shipping:	<input type="checkbox"/>		
Max age of Intel for enemy at sea:	3 Hours	Avoid concurrent strikes:	<input checked="" type="checkbox"/>
Max age of Intel for enemy in port:	24 Hours	Enforce preferred radius:	<input checked="" type="checkbox"/>

Max age of Intel for enemy in port:

24 Hours

Enforce preferred radius:



Turn calculation will be suspended until you close the dialog, either by clicking the 'X' button, or by pressing the 'q' key.

You can call this dialog up anytime, and make new changes. The values stay in effect indefinitely, until you make further changes. As soon as you make changes and close the dialog, your 2IC *re-calculates all air strikes* using the new preferences.

The meaning and use of each of these policy preferences is explained below.

## View promotable, withheld and invalid strikes

As explained in help on [viewing and editing your own air strikes](#), you can elect to watch over the strikes in preparation by your 2IC every hour, for any selected carriers or airfields. As well as viewing any 'pending strikes', which are ones ready to go and which you see by default, you can elect to see (or hide) tabs that show strikes considered 'promotable', 'withheld' or 'invalid'. The meaning of these terms is explained in the aforementioned help file.

*Here*, in this dialog, you can choose whether you want to see the 'Promotable', 'Withheld' or 'Invalid' tabs.

Simply tick (or un-tick) the relevant boxes. The default is for the promotable tab to be ticked, and the other two un-ticked.

## Minimum target value

Your 2IC determines the target value (TV) of enemy fleets and ground installations (airfields, port structures, aircraft on the ground, etc). The target value for fleets is based on the total fleet tonnage (which in turn is a reflection of the resource points (RPs) needed to construct the ships). Ground targets are rated by a formula that accounts for the RP value of the infrastructure and aircraft there. The TV is expressed as a number that represents ten times the notional RP value of the fleet or port to the enemy.

If the target value is below the minimum required for an air strike, the strike will be marked as 'withheld'.

Here, you can vary the minimum target value - anywhere from between 10 and 500, i.e. anywhere between a notional value to the enemy of 100 and 5000 RPs.

The default value is 30. (In other words, by default, your 2IC will try to target any enemy fleet of 30000 tonnes or more, and any enemy port which - including ships in the port itself, RP storages and infrastructure - has a notional RP value of 300 or more.

## Minimum and optimum bomb weights

Your 2IC determines the number and type of bombers in a strike based on the number needed to carry at least

a minimum total weight of bombs to the target, given its target value. (The optimum bomb weight is used as a guide to the optimum number of bombers). The bomb weight values are expressed as 'tonnes per BB', i. e. tonnes per 45000 tonnes of enemy shipping (or the equivalent target value for ports). For example, if the minimum bomb weight is '5' and the target is an enemy fleet of say 45000 tonnes in total full load weight, this means that your 2IC will try to launch against it strikes each carrying a total of at least 5 tonnes of bombs. If the fleet has twice that tonnage, the bomb weight would be doubled.

The optimum bomb weight - which must be the same or more than the minimum - is a guide to the maximum number of bombers needed for a strike.

Both the minimum and optimum weights can be set as values between 1 and 30.

The minimum bomb weight is the more crucial factor because if your 2IC cannot find enough bombers to carry the required minimum weight, he will hold the strike back as a 'promotable' strike and indicate he could not find enough bombers. You can override this, and promote any such strike to 'pending' status, meaning that it will be launched. (See [viewing and editing air strikes](#)). But to do this, you would need to have selected the carrier or airfield for tac response, and then you would have to make the decision on a case-by-case basis.

Therefore, think carefully before making this value too high. Equally, making it too low will force the 2IC to prepare strikes against targets of low value, with the consequence that aircraft may not be available when needed to attack really juicy targets that suddenly present themselves.

The default minimum value is 5 and the default optimum is 10.

## Level bombing height

Medium and heavy bombers that deliver their loads when flying level (as opposed to being dive bombers) can drop them from one of four altitude categories: extremely high, very high, high or medium. There are pros and cons to each option: the higher the drop height, the less accurate will be the bombing, but the less susceptible to attack (by Ack Ack and enemy fighters) will be the bombers.

The default drop height is initially set by a player's strategy - more cautious strategies favouring higher drop heights. But you can change the height here.

Note that this control is the same as the one you see when you are editing a particular strike, so you have two places where you can vary drop heights. (See [changing the bombing height](#) for help on using this control whilst editing a particular strike).

## Percentage of fighters on CAP

Fighter aircraft can be used not only to fly with and protect bombers in a strike, but also, and just as importantly, to form a defensive shield - called a combat air patrol (CAP) around an airfield or carrier. Although aircraft on the ground (or carrier deck) can scramble to intercept enemy strikes, they are slower to get in the air and less effective than the CAP would be at intercepting the enemy at distance, and at the required altitudes.

Choosing the proportion of available fighters to be on CAP, as opposed to being available for bomber escort,



is always a question of balance between defensive and offensive priorities.

The default proportion is based on a player's strategy: from 50% (for very cautious) down to 20% (for very aggressive). You can vary this figure here: anywhere from zero to 100%.

Note that this percentage is calculated as a *percentage of the theoretical fighter establishment* for an airfield or carrier, given its size and infrastructure. In other words, as fighters get destroyed through combat, proportionately more of the remaining fighters will be held back for CAP.

## Enable fighter sweeps

A fighter sweep is any strike that has fighters only, carrying no bombs.

The purpose of a fighter sweep is twofold:

- To tempt enemy fighters in the area into battle, thereby reducing enemy fighter defences.
- To perform ground strafing with aircraft that survive any attacks from enemy fighters and defensive Ack Ack.

Fighter sweeps can be set up manually at any time, by removing bombers from any pending strike set up by your 2IC. (See [viewing and editing air strikes](#) for help).

But your 2IC will also create fighter sweeps on his own initiative, when conditions are suitable, *provided 'enable fighter sweeps' is active*. In this dialog, you can enable or disable auto fighter sweeps at any time by ticking or un-ticking the 'Enable fighter sweeps' tick box.

Fighter sweeps are enabled by default.

Note: if you disable fighter sweeps, there may still be some air strikes launched by your 2IC that in the action report are called fighter sweeps - this will happen in circumstances where all bombers sent on the strike are shot down before the strike reaches the target.

## Threshold for fighter sweeps

When fighter sweeps are enabled, your 2IC will create a fighter sweep against a target instead of a normal strike (with bombers) when the ratio of one's own to enemy fighters is considered suitable for a sweep.

Conditions are considered suitable when you have at least the minimum number of fighters available but less than a certain threshold figure. The threshold figure is calculated by taking the difference between the optimum and the minimum number of fighters needed for the strike, and applying the 'Threshold for fighter sweeps' percentage.

An example will make this clearer: suppose that your 2IC calculates that against a certain target, you need a minimum of 10 fighters, and optimally 20 fighters. (How the minimum and optimum numbers are calculated is explained in the next section). If the threshold percentage is 50, this means that if you have at least 10 but less than 15 fighters available, he will make the strike a sweep instead by removing any bombers he would otherwise have attached.

The threshold figure is best understood this way: the higher it is, the more likely your 2IC will order sweeps instead of bombing strikes.

The idea behind making the threshold related to the difference between the minimum and optimum fighter numbers is this: it controls the risk you want to take with your bombers: the higher the optimum number of fighters needed, and the higher the threshold figure becomes, your 2IC will judge it important to send in one or more fighter sweeps first, to reduce enemy fighter defences, before committing your bombers in a strike.

The default threshold percentage is 20.

## Minimum fighter: (enemy) fighter ratio

Your 2IC calculates how many fighters to add to a strike by considering two things: how many enemy fighters may be encountered, and how many bombers there will be to escort.

The minimum fighter-to-(enemy)-fighter ratio sets the minimum number that is needed to fight the expected number of enemy fighters. The enemy fighter estimate is taken not only for those likely to be over the target, but for all enemy fighters in potential range of any part of the strike flight path. Of course, it is an estimate only, based on intelligence, likely to be wrong to varying degrees.

The ratio can be anywhere from 'None' to 4:1. The default ratio is based on a player's strategy and ranges from 2:3 for a very cautious strategy to 1:4 for a very aggressive strategy.

Note that the actual minimum number of fighters your 2IC will consider is necessary will be the *greater* of what results from the minimum fighter-to-fighter ratio calculation, and the minimum fighter-to-bomber ratio. (This ratio is explained shortly).

## Optimum fighter: (enemy) fighter ratio

This ratio helps set the optimum number of fighters considered necessary for the strike.

The default value is always 2:1

**down; a very aggressive strategy is interested in getting the best offensive result, ie most enemy aircraft shot down.**

As with the minimum ratio, the optimum ratio is one of two determinants to setting the optimum number of fighters: the other is the optimum fighter-to-bomber ratio (which is explained shortly). Your 2IC takes the *greater* of what results from the optimum fighter-to-fighter calculation, and the optimum fighter-to-bomber ratio.

## Minimum fighter:(own) bomber ratio

As well as a fighter-to-fighter ratio, your 2IC calculates how many fighters are needed as a minimum given the number of bombers in the strike.

The default ratio is based on a player's strategy: it is 1:3 for very cautious, and 1:4 for other strategies.

If this calculation results in more fighters needed, as a minimum, than would be called for by the minimum fighter-to-fighter ratio, your 2IC will take the higher figure.

## Optimum fighter:(own) bomber ratio

The optimum fighter-to-bomber ratio helps set the optimum number of fighters needed for a strike.

The default ratio is based on a player's strategy: it ranges from 2:3 for very cautious down to 1:4 for very aggressive strategies.

If this calculation results in more fighters needed, as the optimum number, than would be called for by the optimum fighter-to-fighter ratio, your 2IC will take the higher figure.

## Enable fighter minimums against shipping

By default, this is disabled, which means that your 2IC will ignore the minimum fighter requirements when creating strikes against enemy fleets at sea (as opposed to enemy ground installations). The rationale for this is that aircraft losses are more acceptable when the opportunity exists to sink or damage enemy ships.

Tick the box if you want however to enable fighter minimums against ships as well as land targets.

## Maximum age of intel

It is pointless to send a strike against a target you don't know enough about - either its composition or location.

Consequently, your 2IC takes the age of your enemy intel into account.

He will ignore targets where the latest intel is older (in hours) than a set maximum.

There is one maximum for enemy fleets at sea, and another for enemy fleets in port (and the port itself). The default values are 4 hours and 24 hours respectively, but these can be changed as desired by a player.

Making these maxima higher will often result in more strikes being launched but proportionately fewer finding their target.

## Avoid concurrent strikes

By default your 2IC *will* launch a strike against a target from a carrier or airfield that already has one in the air with the same target.

You can change this to 'Avoid concurrent strikes' by ticking this tick box.

## Enforce preferred radius

By default your 2IC will *not* add to a strike any bomber that can not carry at least a medium weight of bombs to the target. Medium weight is a relative term - relative to the load capacity of the aircraft itself.

The purpose of the constraint is to achieve reasonably efficient use of your bombers by preventing them taking off with only light bomb loads.

A negative consequence is that the choice of bombers becomes a little constricted because bombers often have reduced range at medium or heavy loads compared to light loads. Depending on where a target is, the constraint may rule out of use bombers that could otherwise have participated in the strike.

You can override the default constraint by unticking the 'Enforce preferred radius' tick box.

# **Viewing and editing air strikes from selected airfields and carriers**

Every hour of turn calculation, your 2IC checks if air strikes should be launched from all of your airfields and carriers. Many factors are considered: visibility, any damage to airfields or carriers, reliability of enemy intel, availability of valuable enough targets within range, readiness and availability of enough bombers to do sufficient damage and enough fighters to provide cover, etc.

You can select particular airfields or carriers for detailed fine tuning of these strikes. This help guide explains how. (You can also [modify a number of the general factors if you want](#). Your 2IC will then recalculate the air strikes. Follow the link for help)

## Enabling control

At any time during turn calculation you can enable or disable control of selected airfields or carriers from the Options screen. Click the 'o' hot key or the "Options" button on the run turn controls to bring up this screen. The turn calculation will now be paused until you close the options screen by clicking on the 'X' button or the 'q' hot key. (See [running the turn](#) for an explanation of how to run a turn and use the controls).

At the bottom of the Options screen (pictured below) there are four tickboxes and four buttons that you use to enable or disable tactical response options.

Information and Control Options

?

X

Information options:

Event messages 'pop-ups':

See

☒ Surface Battles starting
 ☐ Stop for

See

☒ A/C Operations
 ☐ Emergency Fleet Orders
 ☒ Emergency Ship Departures
 ☒ Encounters avoided
 ☒ Ship Launchings
 ☒ Cargo Handling
 ☒ Ship Refuelling
 ☒ Ship Repairing
 ☒ Minelaying & sweeping

☒ Surface Battles
 ☐

☒ Air Strikes
 ☐

☒ Air Interceptions
 ☐

☒ Aerial ASW
 ☐

☒ Sub Battles
 ☐

☒ Bombardments
 ☐

☒ Land Battles
 ☐

☒ Enemy Fleet Sightings
 ☐

☐ Enable sound

Control options:

☐ Control fleet tactical responses
 ☐ Control fleet returns to base

☐ Control air strikes from airfields
 ☐ Control air strikes from carriers

Select fleets for control

Select airfields for control

Select carriers for control

Edit air strike preferences

To enable control of airfields or carriers, make sure the 'Control air strikes from airfields' and/or the 'Control air strikes from carriers' tickboxes are ticked.

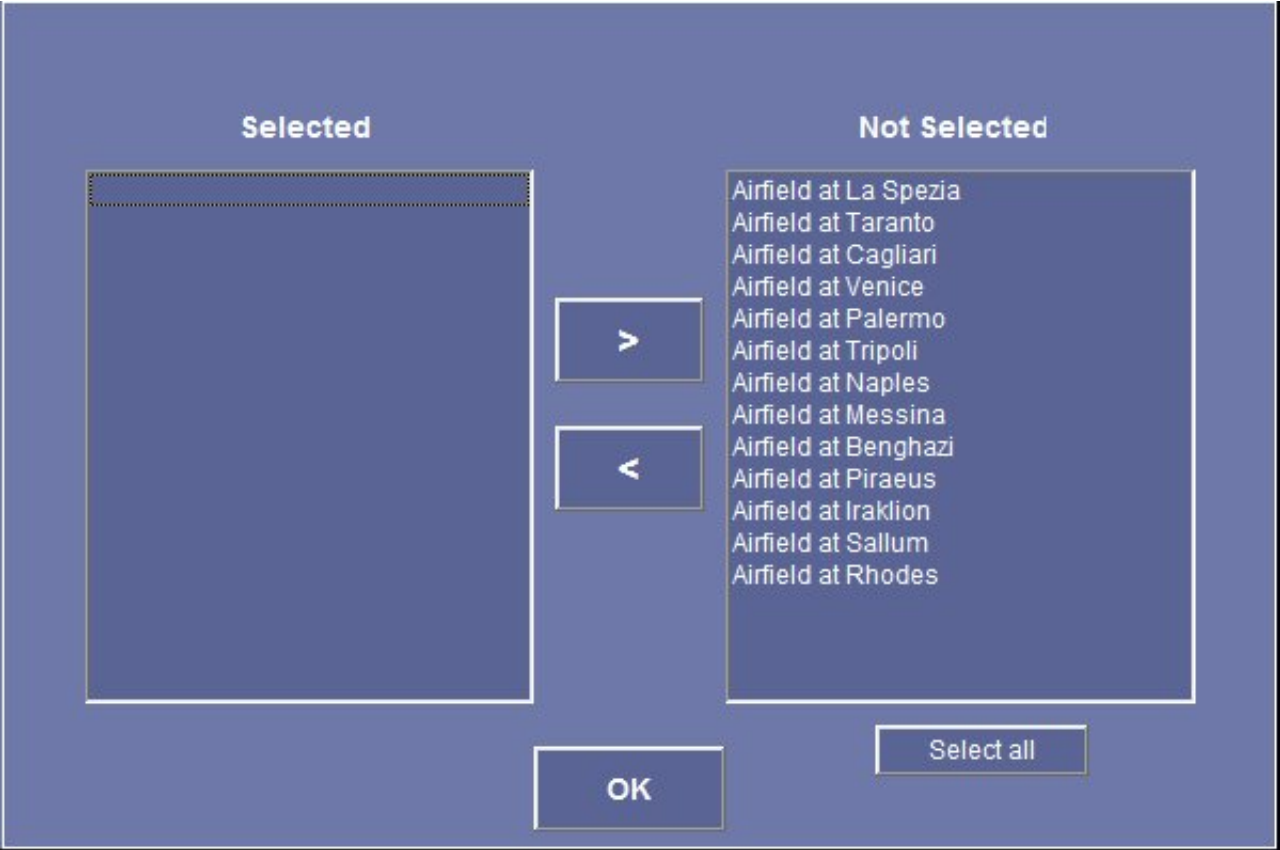
When either or both are ticked, the computer will alert you whenever your 2IC has strikes in preparation from any of the airfields or carriers you have selected for tactical control. The computer calculates potential strikes hour by hour based on the locations and characteristics of known enemy fleets and bases, and the number, type and endurance of your aircraft. As these factors change during turn calculation, you will be prompted to make new decisions.

## Selecting airfields and carriers

By default aircraft from NONE of your airfields and carriers are candidates for your intervention. To select only those you are most interested in click the "Select airfields for control" button or the "Select carriers for control" button.

You will now see a screen like this:





Use the screen controls to swap airfields or carriers into or out of control.

## Viewing and editing strikes

Every hour of turn calculation, the decisions made by your 2IC for the airfields and carriers you have selected can be viewed - and edited.

The 'Own Air Strikes' dialog will automatically appear. Calculation will be suspended until you close it. It will look something like this:

Own Air Strikes					Preferences		?	X	
➤ Pending		Promotable		Withheld			Invalid		
Group	Target		TV	AP	B	(RB)	F	(RF)	EF
MESSINA									
➤➤➤	Malta	RF at 23/18	49	0	0	(21)	15	(0)	0 ☆

## Editing general preferences

The button at the top labelled 'Preferences' takes you to the screen for viewing and editing general factors affecting your 2IC's selection of strikes. See the previously mentioned link for help on this.

The rest of this guide covers how to use the many features of the 'Own Air Strikes' dialog itself.

## How information is presented

The dialog presents all the information you need in a series of tabs.

- The Pending strikes tab: lists all strikes that are 'ready to go'. They meet all required criteria.
- The Promotable strikes tab: lists all strikes that have been held back only because enough fighters were not available or sufficient total bomb load could not be carried to the target. Any of these can be directly 'promoted' by you to pending if you wish
- The Withheld strikes tab: lists all strikes that have been held back for other reasons. You would need to change the general parameters before the 2IC might regard them as eligible to proceed.
- The Invalid strikes tab: lists all strikes that can not proceed for reasons out of your control - such as bad visibility, damage to the airfield or carrier, target beyond maximum range, etc.

## Enlarging the dialog

The dialog can be enlarged vertically if you want, so that more entries can be seen without needing to scroll. To do this, click and drag on the bottom bar of the dialog.

## Moving between tabs

You can move between the tabs that are showing, when there is more than one, using the Tab key, or by clicking on the tab header.

## Closing the dialog

To close it, click on the 'X' button, or else hit the 'q' hot key. As soon as you do this, the dialog will close. Unless you were calculating hour by hour, or had paused the calculation, the calculation will resume.

You can also close the dialog and start the calculation running again with a single action: hitting the 'g' hot key or the '>' button on the Run Turn screen control bar will close the dialog and re-start continuous running of the action. Hitting the 'n' hot key or the '>|' button on the control bar will close the dialog and do a calculation of the next hour's worth of action.

## The 'Pending strikes' tab

This tab will be visible whenever any of the selected airfields or carriers is able to launch a strike against at least one eligible target.

The tab lists all such pending strikes. Each entry in the list gives details for a potential strike from a selected airfield or carrier against one eligible target.

The airfield or carrier is named, along with the target. Also shown is:

- the assessed target value (in the 'TV' column)
- the number of attack points - based on total bomb weight (in the 'AP' column)
- the number of bombers and fighters in the strike (in the 'B' and 'F' columns)
- the number of bombers and fighters remaining behind (in the '(RB)' and '(RF)' columns)
- and the estimated number of enemy fighters likely to be encountered (in the 'EF' column)

By default, each airfield or carrier will have a target selected by your 2IC as the priority. If the airfield or carrier has only one possible target, then that will be the default selection. When there is more than one to choose, the selected target will be the one with the highest 'TV'. 2IC selected targets are shown with a star

MESSINA  
>>> Malta RF at 23/18 49 0 0 (21) 15 (0) 0 ☆

The Pending strikes tab allows you to:

- View detailed information on the current strike composition, the remaining aircraft at the airfield or carrier, and on the target itself.
- Change the target, or set no target at all
- Mark the strike for fine-tuning (which allows you to edit the actual strike composition and orders)

### Viewing detailed information

The Pending strikes tab allows you to get details on the current strike composition, the remaining aircraft at the airfield or carrier, and on the target itself.

If you click anywhere on an entry, the dialog will expand to show this information:

Own Air Strikes					Preferences		?	X	
➤ Pending		Promotable		Withheld			Invalid		
Group	Target	TV	AP	B	(RB)	F	(RF)	EF	
MESSINA									
➤➤➤	Malta RF at 23/18	49	0	0	(21)	15	(0)	0	☆
Total AC in Group:									
➤ Pilot quality: Mediocre									
➤ 3*C.200CB (Saetta), 5*Ca 310 (Libeccio)/Ca 311, 21*He111 H-3, 3*Ju 52/3m, 16*Ju 87B									
Bombers selected for strike:									
➤ (None)									
Fighters selected for strike:									
➤ 3*C.200CB (Saetta), 12*RE.2001 (Falco II)									
Target info									
➤ Fleet RF at 23/18: Last sighted 1 hrs ago Location: hex 23/18 Speed: 0 kts Headi									
➤ Port of Malta									
➤ Enemy aircraft in hex:									
➤➤ 1*Level Bombers: 1*Lysander II									
<div><div></div><div>III</div><div></div></div>									

To get just this information, without invoking any control options (which are explained below), make sure you click only in the very left hand portion of the entry, where the chevrons are:

MESSINA								
>>>	Malta RF at 23/18	49	0	0	(21)	15	(0)	0 ☆

## Changing or clearing targets

Using the mouse and the optional 't' hot key you can, for any selected airfield or carrier:

- temporarily set a different target as the one to go for this hour
- set a different target as the one to stay on at all times it is in range
- cancel targets until further notice

### Temporarily setting a target

Sometimes you will have a choice of target for an airfield or carrier - whenever there is more than one eligible target in range and against which enough aircraft can be sent. As already noted, your 2IC always goes for the target of highest value in these situations. Pictured below is an example - Benghazi airfield can strike against British fleets TF5 and TF7, and TF7 has been selected as its value is higher:

Own Air Strikes					Preferences			?	X
➤ Pending		Promotable		Withheld			Invalid		
Group	Target	TV	AP	B	(RB)	F	(RF)	EF	
BENGHAZI									
➤➤➤	TF7	92	102	18	(0)	0	(0)	0	☆
➤➤➤	TF5	58	152	10	(8)	0	(0)	0	
MESSINA									
➤➤➤	TF5	58	110	11	(45)	0	(0)	0	☆
PALERMO									
➤➤➤	TF5	58	152	10	(8)	0	(0)	0	☆

To change the target to TF5, simply click on the entry where TF5 is listed as the target. Make sure you click to the right of the chevrons; otherwise, the change will not be registered and you will just get information about the entry in the bottom pane. When you do this, the star changes place to indicate your new selection. In the picture below, TF5 is shown as the new target as it has the star alongside it:

BENGHAZI								
>>>	TF7	92	102	18	(0)	0	(0)	0
>>>	TF5	58	152	10	(8)	0	(0)	0 ☆

You can change your choice any number of times, until you close the dialog.

Setting targets this way, as temporary targets, simply overrides your 2IC for the current hour. He will continue to freely decide targets on subsequent hours. The next option shows you how to set target that the 2IC will stay on whenever he can.

## Setting a target to stay on

To set a target that an airfield or carrier will stay on *whenever the target is in range*, press and hold down the 't' hot key while you are clicking on a target.

A target set this way is indicated by a darkened star in a light circle:

BENGHAZI								
>>>	TF7	92	102	18	(0)	0	(0)	0
>>>	TF5	58	152	10	(8)	0	(0)	0 ⬤

Note that this setting applies only when the target is in range. When it is out of range, or invalid for some other reason (eg, it may have been an enemy fleet that has since been sunk), your 2IC uses his initiative to select other valid targets. If the target you set comes back into range of the selected airfield or carrier, your 2IC will remember your order and switch attention back to it.

## Clearing targets

If you click (once or twice) on an already selected target, the star alongside will be cleared. If you select no other target for that airfield or carrier, this means you have instructed your 2IC to set no targets for that airfield or carrier - not only for the current hour but also for subsequent hours, until you re-set a target.

Whether you need to click once or twice depends on whether you have also marked the target for fine-tuning. Clicking on a selected target marks it for fine-tuning. (This is explained below). Clicking again clears all settings, both the marker indicating fine-tuning is desired, as well as the star indicating it is the currently selected target.

The picture below shows an example - clicking on the entry for fleet TF5 (twice) will have removed it as a selected target. Benghazi now has no approved targets, on this turn and on subsequent turns (until you nominate one):

BENGHAZI								
>>>	TF7	92	102	18	(0)	0	(0)	0
>>>	TF5	58	152	10	(8)	0	(0)	0

## Marking a strike for fine-tuning

If you click on an already selected entry, it will be marked for fine tuning with a scizzors icon. Fine-tuning means that the Air Strike Orders dialog will be presented as soon as you close the current dialog. In the Air Strike Orders dialog you can amend the strike composition in detail (and even abort the strike if you wish). See the help page on the [Tactical Air Strike Orders dialog](#) for information.

Pictured below is an example of a strike that has been marked for fine-tuning:

BENGHAZI								
>>>	TF7	92	102	18	(0)	0	(0)	0
>>>	TF5	58	152	10	(8)	0	(0)	0 ☆ ✂

Clicking again on the entry removes **all** indicators, both the target selector star icon and the fine-tuning scizzors icon.

## The 'Promotable strikes' tab

This tab will be available whenever the 'show promotable strikes' option is enabled AND there is at least one potential strike from any of your selected airfields or carriers that is a promotable strike. (A promotable strike is one that has been held back only because enough fighters could not be found or enough total attack points - ie total bomb weight - could not be mustered).

The reason for holding the strike back will usually be given either as 'Can't get enough fighter cover' or 'Can't get enough attack points'. If the strike can't get enough attack points because preferred strike radius is being enforced, this is shown as 'Target outside preferred strike range'. An example is shown below:



Own Air Strikes				Preferences	?	X
Pending		> Promotable		Withheld		Invalid
Group	Target		TV	Reason for withholding		
BENGHAZI						
>>> Malta	RF at 23/18		50	Can't get enough fighter cover		
CAGLIARI						
>>> Malta	RF at 23/18		50	Can't get enough attack points		
IRAKLION						
>>> Malta	RF at 23/18		50	Can't get enough attack points		
LA SPEZIA						
>>> Malta	RF at 23/18		50	Target outside preferred strike range		

You can get the same kind of information about promotable strikes as pending strikes, by clicking on any entry (on the chevrons to the left).

To promote a strike from the promotable list to the pending list, simply click on it (to the right of the chevrons). It will then immediately disappear from the promotable tab list, and appear in the pending tab list. Focus will move to the pending tab automatically. From there you can elect to fine-tune the strike if you wish, like any pending strike.

Note that when you promote a strike, you automatically make the strike target a player-selected target for that airfield or carrier. This means the target will be shown with a dark star in a white circle, and it will remain the priority target for that airfield or carrier whenever it is in range, until you cancel it, or select another.

## The 'Withheld strikes' tab

This tab will be available whenever the 'show withheld strikes' option is enabled AND there is at least one potential strike from any of your selected airfields or carriers that is a withheld strike. (A withheld strike is one held back for reasons different to promotable strikes and which are *within a player's control to change* by adjusting air strike preferences).

The reasons for holding the strike back are many and various and include: 'Tgt value is < the specified minimum' , and 'Latest intel is too old' or 'Tgt outside preferred strike range'. An example is shown below:

Own Air Strikes			Preferences	?	X
Promotable		➤ Withheld	Invalid		
Group	Target	Reason for withholding			
BENGHAZI					
➤➤➤	Alexandria TF9	Latest intel is too old (5 hours)			
➤➤➤	Alexandria TF5	Latest intel is too old (15 hours)			
➤➤➤	Alexandria TF6	Latest intel is too old (7 hours)			
➤➤➤	Tobruk RF at 35/24	Tgt value is < specified min. (of 30)			
CAGLIARI					
➤➤➤	Gibraltar CF3	Latest intel is too old (6 hours)			
➤➤➤	Gibraltar Home Fleet Reserve	Target outside preferred strike range			
➤➤➤	Gibraltar CF1	Target outside preferred strike range			
➤➤➤	Gibraltar TF2	Latest intel is too old (7 hours)			
➤➤➤	Gibraltar TF8	Target outside preferred strike range			
➤➤➤	Gibraltar TF3	Latest intel is too old (7 hours)			
➤➤➤	Tobruk RF at 35/24	Tgt value is < specified min. (of 30)			

You can get the same kind of information about withheld strikes as pending strikes, by clicking on any entry (on the chevrons to the left).

## The 'Invalid strikes' tab

This tab will be available whenever the 'show invalid strikes' option is enabled AND there is at least one potential strike from any of your selected airfields or carriers that is an invalid strike. (An invalid strike is one that is ruled out *for any reason out of a player's control*).

Typical reasons include: 'Can't get any bombers', 'Target outside max attack range', and 'Available ac are x hours from being ready'. An example is shown below:

Own Air Strikes		Preferences	?	X
Promotable		Withheld	➤ Invalid	
Group	Target	Reason for invalidity		
LA SPEZIA				
>>>	Malta RF at 23/18	Can't get any bombers		
MESSINA				
>>>	Gibraltar CF3	Target outside max attack range		
>>>	Gibraltar Home Fleet Reserve	Target outside max attack range		
>>>	Gibraltar TF2	Target outside max attack range		
>>>	Gibraltar TF3	Target outside max attack range		
>>>	Malta RF at 23/18	Available ac are 3 hours from being ready		

You can get the same kind of information about invalid strikes as pending strikes, by clicking on any entry (on the chevrons to the left).

# ***Tactical Air Strike Orders Dialog***

This pop up dialog box allows you to abort or amend a proposed air strike against an enemy target from one of your airfields or carriers.

☐ stop calc      **Air Strike Orders**      ?

Strike from Alexandria on Benghazi. Cr. speed = 180 mph.  
(View Selected AC)      (View Target)

**Aircraft Available**

- 88 \* Beaufighter IIF
- XXX 7 \* Beaufort I
- XXX 8 \* Hurricane IIC
- XXX 18 \* Lysander II
- XXX 18 \* Mosquito Mk I
- XXX 15 \* Wellington III
- 11 \* Whitley Mk V

**Bombers in the Strike**

- 3 \* Whitley Mk V

Bomb Height: high ▼

**Fighters in the Strike**

- 12 \* Beaufighter IIF

**Abort**      **Clear**      **OK**

## Dragging the dialog and map

The dialog points to the location of your airfield or carrier as well as to the location of the target. If either of these is currently obscured on the map by the dialog itself, you can:

- move the dialog around - by clicking on the top brown bar, and dragging
- or you can also move the map around by clicking anywhere on the map and

dragging.

It is usually best to drag the dialog around, if needed, rather than the map.

## Controlling the strike

Your subordinates have calculated the best strike profile they can - the best mix of aircraft that can reach the target, deliver a sufficient attack given what is known of the target, and also defend against suspected enemy fighter strength.

Note: The fighter aircraft available for the strike will have been reduced by the number required for constant combat air patrol ('CAP'). The number of aircraft required for CAP depends on your strategy, and it is doubled by default for escort carriers and halved for airfields (which are 'unsinkable' and more easily repaired than are ships). See the help available on [very cautious](#), [cautious](#), [aggressive](#) and [very aggressive](#) strategies for more information.

Within the limits of the aircraft that are available, you are free to make any changes you want using this dialog box. You are, after all, the ***Supreme Naval Commander!***

The available aircraft are listed on the left. The currently assigned aircraft - bombers and fighters (if any) - are listed on the right.

A short description of the strike including cruising speed is given near the top of the dialog box.

**Strike from Alexandria on Benghazi. Cr. speed = 180 mph.**

Using the controls on the dialog box you can:

- [Abort](#) the strike entirely.
- [Change the aircraft](#) in the strike.
- [Change the bombloads](#) carried.
- [Change the bombing height](#).

You can also very easily:

- [View details of the target.](#)
- [View details of any selected aircraft.](#)

To close the dialog box and continue, either abort the strike, or click the "OK" button when you are happy with the settings for the strike.

## The "Stop Calc" feature

There is a 'Stop Calc' tick box at the top left of the dialog:



If you tick this, the turn calculation will stop as soon as it can after you close the dialog. This allows you to then step through the calculation progressively, hour-by-hour, following the course of any strikes you have just launched. To run the turn continuously again, simply click on the '>' button at the bottom of the screen. See [running the turn](#) for more information.

The tick box remains ticked on all future tac strike dialogs until you untick it.

## Aborting a strike

Just click on the "Abort" button. This will abort the strike and the dialog box will close.

Note that if you click the "OK" button just after the strike has been cleared, this has the same effect as an abort - a strike must have at least one bomber in it.

## Changing aircraft

You can freely assign to the strike any or all of the available aircraft that are suitable, and remove any that you don't want. Before changing any aircraft, you will probably want



to review details of the target. See [viewing target details](#).

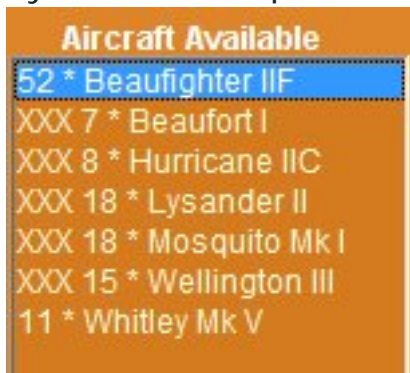
## Adding aircraft

To add more aircraft, select the type you want to add in the "Aircraft Available" list.

The list shows all available aircraft currently at the airfield or on the carrier. But not all aircraft are suitable for selection. An aircraft type may be unsuitable because it:


- Is too slow to cruise with the current strike
- Has insufficient endurance, even at light load
- Has insufficient endurance to carry any bombs or torpedoes to the target, and is also not suited to a fighter role.

All aircraft that are unsuitable are listed in the "Aircraft Available" list but are marked as unsuitable with three crosses ("XXX"). This gives you an immediate visual clue as to the currently unsuitable aircraft types. In the illustration below, the Beaufort, Hurricane, Lysander, Mosquito and Wellington are all marked as unsuited to to the current strike:



If you click on one of the unsuitable aircraft types, you will see a message explaining the particular problem, such as shown below:

**This a/c has insufficient endurance, even at light load**

If you click on one of the suitable aircraft instead you will see a button  and a combo box .

If the aircraft is suited to both a bomber and a fighter role there will be two buttons



shown, one alongside the list of bombers in the strike, and the other alongside the list of fighters. Such aircraft, when added as fighters, will carry no bombs, so will have their maximum capability as fighters to defend the bombers in the strike from enemy fighters. But those that are added as bombers will carry the maximum bombload they can. They will be less effective against enemy fighters because their maneuverability will be reduced.

Before adding any aircraft to the strike, you can review all the details of the aircraft type - its speed, bombload, maneuverability, ruggedness and so on. See [viewing aircraft details](#).

To add aircraft to the strike, just select the number to add in the combo box, then click the button alongside the bomber or the fighter list to move the aircraft into the strike as a bomber or a fighter. You will see the numbers in the lists change to reflect the decision just made.

Repeat this procedure as needed, for the same or other aircraft types.

## Deleting aircraft

To decrease the aircraft in the strike, follow a similar procedure: first, select from either the "Bombers in the Strike" or the "Fighters in the Strike" list the aircraft type whose numbers are to be reduced.

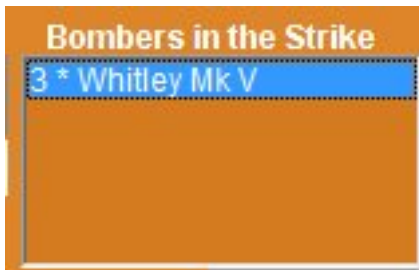
A combo box to select the number to remove, and a button to assign this number back



will appear.

Select the number and click the button. Repeat this procedure as needed, for the same or other aircraft types.

In the picture below the Whitley bomber has been selected, so that some or all of them can be removed from the strike.



## The "Clear" button

Sometimes, an aircraft is unsuitable because its cruise speed is less than the cruise speed for the strike. (A strike always flies at the speed of its slowest aircraft). To bring slower aircraft into the strike, you will need to first remove all assigned aircraft, then manually assign aircraft, type by type.

The current strike cruise speed is shown in the description at the top of the dialog box.

You can remove all currently assigned aircraft just by clicking the "clear" button.

You should then add aircraft starting with the slowest ones. You can check each aircraft's cruise speed by clicking on it in the "Available Aircraft" list and watching the description at the top of the dialog box. You can also review all the details of any selected aircraft type - see [view aircraft details](#).

## Removing all bombers

Note that if you have removed all bombers from the strike, this has the same effect as clicking the "Clear" button. A strike can not proceed without any bombers.

## Changing bombload

Your subordinates have planned the strike to assign the heaviest bombloads possible for each type, in order to maximise efficiency. But the heavier the load, the less maneuverable is an aircraft, making it more vulnerable to enemy fighters.

To change the bomb load for an aircraft type, select it in the "Bombers in the Strike" list. You will then see a combo box labelled "Load"



The currently assigned bombload for all aircraft of this type in the strike is shown as selected. Note that the computer shows you only those choices that are possible given the type of aircraft and endurance required.

To change the selection, select the new load in the combo box.

The new bombload will now be carried by all aircraft of that type in the current strike.

There are up to four possible bombload choices: "Heavy", "Medium", "Light", and "Torpedo". (Choice of torpedo is only possible for aircraft that historically were equipped for them.

Note that "Heavy", "Medium", and "Light" are relative terms for the aircraft concerned. A heavy load for one aircraft, say a small light bomber, may be less than a medium or even light load for a very large bomber. The computer works out in actual weight of bombs what these settings mean, given the aircraft type.

## Changing bomb height

Bombers in the strike attack in waves of related aircraft. All dive bombers will attack together. All low level bombers attack together. All torpedo bombers attack together. And the remaining bombers, which are neither dive bombers nor light bombers intended to attack only from low level, will also attack together.

This last group of bombers will drop their bombs from one of four altitudes: extremely high, very high, high or medium.

The higher the bombing height, the less accurate will be the bombing but the less susceptible to anti-aircraft fire and enemy fighters will be the bombers. So there is a trade-off.

The choice of altitude initially is set by your overriding strategy: a very cautious strategy - like the Italians had - favours extremely high altitude. As the strategy gets more aggressive, the default bombing height gets lower - making for more effective but also more risky attacks.

You can override the default setting here in this dialog box.

If any of the bombers assigned to the strike are designed for medium to very high level bombing you will see a combo box with the currently active bombing height selected. Open the combo box to see the options and change the selection if you want:



Note: the new selection will apply to ALL future strikes, until it is changed again.

## Viewing target details

You can view details of the target at any time by moving your mouse over the text labelled "View target" towards the top of the dialog.

When you do this, you will see information on the target.

## Enemy port information

If the target is an enemy port, you will see information on:

- the estimated number of resource points stored there
- the estimated levels of infrastructure - the dockyards, defences, industrial plant and airfields
- the estimated number of enemy aircraft currently based at the airfield.

An example is shown below:

### Target Details:

#### BENGHAZI

Est storages: 20 RPs

Est. Infrastructure levels (out of 10):

Docks: 2 (no repairs or construction)

Defences: 2

Industry: 0

Airfields: 3

Est. Aircraft: 180

## Enemy fleet information

If the port has ships in harbour, OR if the strike target is not a port but an enemy fleet at sea, you will also (or instead) see details of the enemy fleet.

The number and types of ship are listed. An example is shown below:

### Target Details:

#### Enemy ships:

1 ★ Aircraft carrier (Aquila) class

1 ★ Aircraft carrier (Escort Carrier) class

2 ★ fast medium Destroyer Escort class

1 ★ fast small light Cruiser (Di Giussano) class

1 ★ large heavy Cruiser (Zara) class

1 ★ small Battlecruiser (Conte di Cavour) class

6 ★ very fast large Destroyer class

2 ★ very fast medium Destroyer class

The target information automatically disappears, and is replaced by the normal dialog information, as soon as you move the mouse away.

## Viewing aircraft details

When an aircraft type has been selected in any of the lists (the 'Aircraft Available', 'Bombers in the Strike' or 'Fighters in the Strike' lists), you can view details of the aircraft type by passing the mouse over the text labelled "View selected AC".

You will now see information on the aircraft's:

- main and secondary roles
- maximum speed and best cruise speed
- endurance (in hours) at light/medium/heavy load
- bombload (in kgs.) carried, if any, at light/medium/heavy load
- values (out of 10) for firepower (against enemy fighters), ruggedness and maneuverability
- values (out of 10), if any, for ASW (anti-submarine warfare) weapons: the detection factor followed by the attack factor
- any special capabilities, such as carrier capable, dive bomb capable and night-equipped
- and a silhouette of the aircraft. (Note: silhouettes are not available for some aircraft).

An example is shown below:



### Aircraft Details:

#### HURRICANE IIc

Fighter / Light Bomber

Max Speed: 300 mph.

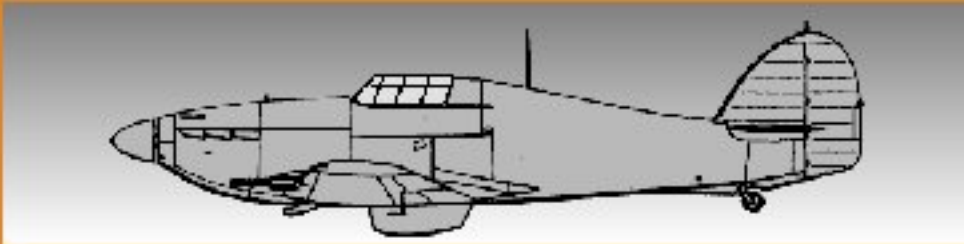
Cr. Speed: 170 mph.

Endurance: 3/3/2 hrs.

Bombload: -/200/400 kgs.

Firepower: 6      Ruggedness: 5      Manouever: 6

---



Note that the Hurricane IIc has no ASW or special capabilities, so this information is simply not listed.

The aircraft information automatically disappears, and is replaced by the normal dialog information, as soon as you move the mouse away.

# Event Messages

The following gives an overview of the nearly thirty types of messages you can enable (or disable) during turn calculation and also during turn replay.

## Ship launchings

This message shows a summary of all new ship launchings at the start of the turn:

Ship Launches From: Marc Barbey Commander, Home Base.			
Name	Class	Description	Tonnage (Full Load)
Albacore	Balao Class	fast large Submarine	1801
Blackfish	Balao Class	fast large Submarine	1801
Bluefish	Balao Class	fast large Submarine	1801
Bonfish	Balao Class	fast large Submarine	1801
Bostwick	Cannon Class	slow medium Destroyer Escort	1546
Bowers	Bowers Class	medium Destroyer Escort	1650
Breeman	Cannon Class	slow medium Destroyer Escort	1546
Brennan	Brennan Class	slow medium Destroyer Escort	1527
Brooklyn	Brooklyn Class	fast large light Cruiser	13035
Burrows	Cannon Class	slow medium Destroyer Escort	1546
Cannon	Cannon Class	slow medium Destroyer Escort	1546
Alger	Cannon Class	slow medium Destroyer Escort	1546
Cero	Balao Class	fast large Submarine	1801
Charles Lawrence	Bowers Class	medium Destroyer Escort	1650
Chevalier	Fletcher Class	fast large Destroyer	2934
Christopher	Cannon Class	slow medium Destroyer Escort	1546
Cleveland	Cleveland Class	fast large light Cruiser	12908
Cod	Balao Class	fast large Submarine	1801
Columbia	Cleveland Class	fast large light Cruiser	12908
Daniel T. Griffin	Bowers Class	medium Destroyer Escort	1650
De Haven	Fletcher Class	fast large Destroyer	2934
Donnell	Bowers Class	medium Destroyer Escort	1650
Behaviesk	Balao Class	fast large Submarine	1801

## Other events

The remaining messages all appear in smaller message boxes.

Because there can be multiple event messages on any hour, these message boxes show with a minimised profile, in a semi-transparent pane. This is to minimise map clutter.

An example of this is shown below:



## Viewing the messages

With the action paused, you can see the full text of any message by passing the mouse over it. It will then expand to show the text. The picture above shows the 'Enemy Sightings' message box in expanded mode.

As soon as you move the mouse away from the box, it will minimise again.

Note - to avoid unwanted expansion of message boxes, from ver 1.1 you explicitly enable or disable the expansion with the 'e' hot key. When the feature is enabled, you will see the words 'Mouse-over event messages enabled' added to the control bar for the run turn screen. (This prompt is *not* displayed on the replay screen control bar - there is not enough room for it.)

Note also that the key battle report messages *always* support expansion - you do not have to explicitly enable expansion for these.

## Moving the message boxes

By default, the boxes appear lined up from left to right and top to bottom on the screen, depending on how many are appearing simultaneously.

You can move any box by clicking on it and dragging it. You may want to do this sometimes to allow the map underneath to show more clearly, although usually it is easier and better to just click and drag the map itself.

If you move your mouse off it, it will snap back to its original position.

## Overview of other events

Listed below are the remaining events that can be reported on hour by hour.

## Enemy Fleet Sightings and signal intercepts

Messages appear when an enemy fleet is sighted - by coastwatch, aerial reconnaissance from your airfields, carriers or ship-based float planes, radar, as well as visual sighting from your surface ships.

Enemy fleets can also be located by signal intercept.

## Emergency fleet orders

You are told whenever one of your fleets is given an emergency order to avoid, shadow or intercept an enemy fleet based on latest intelligence of the enemy.

## Ship sinkings

Whenever one of your ships sinks, you are notified.

Note that this message can not be disabled - it is assumed that you will always be interested in knowing when and where any of your ships are sunk!

## Mine damage

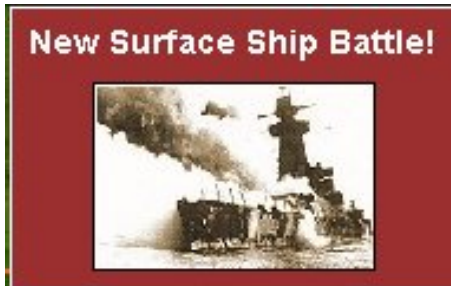
A message shows whenever any of your ships hits a mine.

As with the ship sinkings message, this one can not be disabled. You are always told of mine damage.

## Surface battle reports

You are told when:

- A surface battle has started



- And when it has finished:



Clicking on the relevant entry in the list of battles will bring up a summary of the battle, and from there you can also replay the battle in full detail! See [surface battle summary](#), and [surface battle replay](#) for more information.

## Air strike reports

When one of your own air strikes finds its target, the ensuing battle is notified.

Clicking on the box brings up a summary of the battle. See [air to surface battle summary](#) for more information.

A similar message appears whenever you come under attack from an enemy air strike.



# Air interception reports

When enemy aircraft intercept in the air, the ensuing air-to-air battle is notified.

The battle is reported on very similarly to air strikes, but the details relate only to aircraft losses as no ships or ground targets are involved in an air interception.

# Submarine engagements

Every engagement between a surface fleet and an opposing submarine group is reported.

Clicking on the box will bring up a summary of the battle. See [submarine battle summary](#) for more information.

# Bombardments

You are alerted when:

- Your own ports are under enemy bombardment
- Your own forces are bombarding the enemy

# Aircraft operations

Messages appear when each air strike:

- Is launched. The message box points to the target of the strike as well as the originating point (carrier or airfield)
- Can not find the target and is searching for it
- Needs to return to base due to fuel shortage
- Is safely recovered
- Or is lost - due usually to having no carrier to return to that is in range

# Emergency ship departures

You are told when any ship has to leave its fleet and make for your nearest suitable port because it is



low on fuel, or too damaged or out of ammunition. The message below shows a ship departure due to fuel shortage.

The computer also automatically sends a ship to the nearest suitable port when the fleet originally had at least some destroyers, destroyer escorts or corvettes and now has none, **AND**:

- It is part of a fleet carrying cargo or troops and the player's strategy is very cautious or cautious.
- It is a fleet carrier in a fleet with weak attack or cautious attack orders
- It is a battleship or battlecruiser in a fleet with weak attack or cautious attack orders that has other than hit and run orders
- It is an escort carrier that now has no other ships to escort (other than other escort carriers).

Note that if you have enabled the ability to 'control fleet returns to base' during turn calculation, and the ships are in a fleet you have selected for control, you will see instead a dialog for amending the return to base instead of just this simple message. See [changing return to base orders](#) for more information.

## Return to Base

You are told whenever the computer has decided that a fleet of yours needs to return to the nearest base. This happens when the fleet has been sailing for a period and has no further orders. Typically, this happens with Ready Reaction fleets that your 2IC has ordered out to intercept an enemy and which then have no further orders.

Note that if you have enabled the ability to 'control fleet returns to base' during turn calculation, and the fleet is one you have selected for control, you will see instead a dialog for amending the return to base instead of just this simple message. See [changing return to base orders](#) for more information.

## Cargo handling

Several messages relate to cargo handling:

- Loading of cargo, raw materials or troops
- Unloading of same

## Ship refuelling or rearming

Messages indicate when any ship is being:

- Refuelled
- Rearmed

## Ship repairing

Messages indicate when any ship is being repaired.

## Minelaying and sweeping

You are told when a ship:

- Has laid mines
- And also when it has encountered enemy mines and swept them

## Aerial ASW (Anti-Submarine Warfare)

You are told when

- Your aircraft are attacking enemy submarines. Approximate reports of any damage (or sinkings) are provided.
- And also when your own submarines are under aerial attack from enemy aircraft.(More detailed reports of damage or sinkings are provided).

# **Replay the Turn**

In the turn replay screen you can replay all events from the last turn, and bring up detailed reports of all battles, and even replay surface battles.

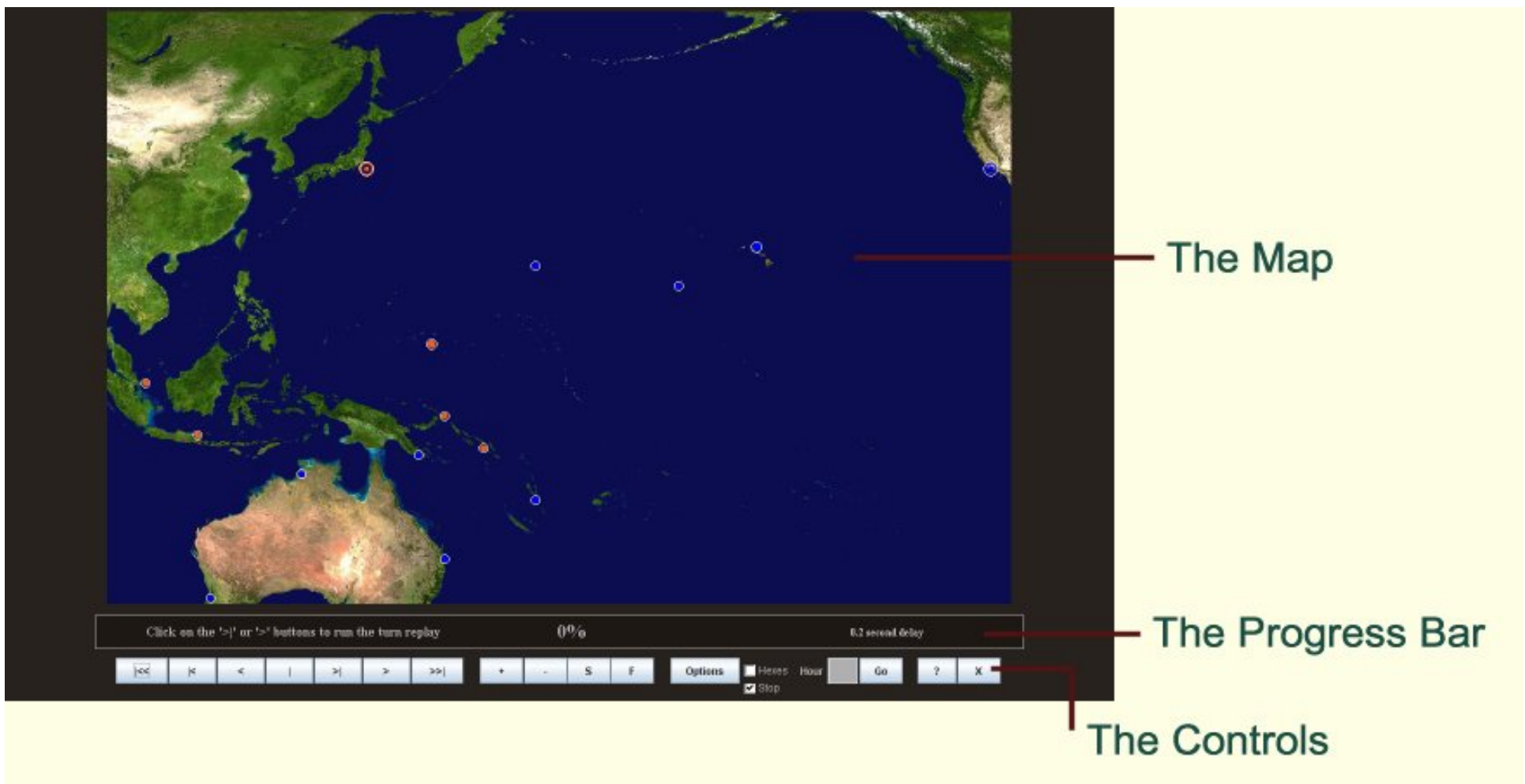
## Accessing the Turn Replay screen

The screen comes up automatically after the turn has been calculated, (see [run the turn](#)).

You can also bring up the turn replay screen at any time from your [Admiral's Office](#), by clicking on 'Briefings' on the [main blackboard menu](#) and then, clicking on the news reels at the right hand side of the screen.

## The Turn Replay screen

The replay is initially paused at hour zero, waiting for you to commence. The picture below is a sample sceen from replaying a demonstration Pacific scenario:



The screen shows the theatre map, controls for replaying the calculation, and a progress bar that gives status information on the calculation.

You will notice that this screen is identical to the run turn screen except that it:

- Has some additional controls that allow you to replay backwards or jump to the end or beginning or to a set hour.
- Does not have player options for making tactical responses - the replay screen simply faithfully replays the action that has already been calculated during the run turn phase.
- Unlike the run turn screen, the default behaviour is for the replay to stop whenever an event message occurs. But this can be disabled.

# The Controls

The series of buttons and the checkbox at the bottom of the screen are your controls. They let you run the replay at the speed you want, see just the information that is of interest, and zoom the map in or out at will.

You can also exit from the replay at any time. This returns you to your [Admiral's Office](#).

The following is an overview of the controls.

## Pause

To pause the replay at any time, click on the Pause button:



Note that the replay is always paused when the screen first appears.

The Progress Bar shows whenever the replay is paused:



## Run

To start (or re-start) the replay after a pause, click on the Run button:



The replay will now run forward hour-by-hour, stopping only when there is an event message of the type you want to see, unless you have disabled the stop by unticking the "Stop" tick box. (See [stopping on event messages](#) below.

The Progress

Bar:



shows you how much of the turn has been replayed - as a percentage and a graphic, and also shows you the exact time that is currently being replayed.

## Stopping on event messages

The default behaviour is for the replay to stop whenever an event message appears that is of the type you want to see. (See [Options](#) for more information on enabling event messages.)

However, if you untick the "Stop" tick box, the replay will keep running, just like it does in the turn calculation.

Every time you stop the replay for some reason, such as pausing it, the "Stop" tick box will be automatically re-ticked, and you will need to clear it again if you want the replay not to stop on events when you resume the replay.

## Run slower or faster

You can control the speed of the replay using the slower and faster buttons.

These two buttons are labelled "S" and "F" respectively: 

They slow down or speed up the replay. Each click will increase or reduce the amount of delay before a new hour is replayed.

The amount of delay is shown in the Progress Bar. It can vary from no delay through to many seconds.

The purpose of the delay is to allow you to follow the action. With no or minimal delay, the calculation will update the screen very rapidly.

The default delay is 0.2 seconds between each hour.

Nevertheless, players who just want to run the replay as fast as possible will want to have zero delay.

You will need to experiment yourself to find the speed that you are comfortable with. Every player is different.



## Run one hour at a time

As an alternative to slowing down the replay, you can elect to show one hour at a time using this




button: 

Each time you click the button, one hour's worth of action will be shown, and any event messages you have enabled that are triggered will appear on screen and stay there until you click again.

## Run to the End

This button:  jumps you to the end of the replay.

## Run backwards

You can run the replay backwards as well, with the same degree of control. You can run backwards at the current speed with this button: , or replay just the previous hour with this button: , or jump back to the start with this button: .

## Jump to a specified Hour

You can also jump to a specified hour. Enter the number of the hour in this text box:

, and then click on the "Go" button: .

The replay must first be paused before you can use the jump function.

## Zoom in and out, and drag the map

You can zoom the map in or out during replay using these controls:



Click on the "+" button to zoom in (enlarge the map); the "-" button zooms out (makes the map smaller).

Each click will increase (or reduce) the map size by a set amount. You can zoom in and out virtually indefinitely.

When the map is bigger than the screen you will need to drag the map around. Do this simply by clicking on the map and dragging, just as you can with the turn calculation screen.

## Show hexes

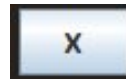
Note that in the picture above, you can also see the hexes marked.

Hexes are turned off by default, but you can turn them on at any time by ticking the Hexes tick box: ☐ Hexes

Note that the hex scale depends on the map. In the Pacific and Atlantic maps, each hex is 96 nautical miles across, whilst in the Mediterranean, each hex is half that size - only 48 nautical miles wide.

## Exit

To exit from the replay screen at any time, just click the Exit button:



When you exit, you will be returned to your [Admiral's Office](#).

## Event messages

When the turn is being replayed, not only will you see your fleets move on the map, you will also see enemy fleets highlighted when they are spotted, and will see many different kinds of event messages telling you what is happening hour-by-hour.

Some players will want to see all or most messages; others may want to keep the "noise" to a minimum, concentrating on a selected few messages, such as reports of battles. As always in **SAS**, the choice is yours.

## Moving the messages

The message boxes behave just as they do in the turn calculation screen. They are all moveable if needed if they are currently obscuring parts of the map that are of interest. (Or the map can also be dragged around).

The message boxes appear by default in the top left of the screen.

To move a box if you want to see beneath it (instead of just moving the map instead) just click on the box and drag it/

To return it to its default position, just click on it again and move it a fraction in any direction. The box will "snap" back to its default position.

## Message text

The message boxes have scrollable text, and also point to the map location of the event. Make sure you scroll down to get the full text.

## Message colour coding

The boxes are colour coded: red boxes are for critical events such as battle reports (aerial; surface; submarine; bombardment and amphibious assaults) as well as ship sinkings and mine damage. Black is for enemy signal intercepts, while pale red is for enemy sightings and emergency fleet orders. Other colours are for less critical events: brown boxes show air strikes as they move; yellow boxes show cargo handling, and green boxes are used for everyday events such as ship refuelling and repairing.

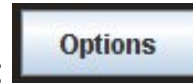
## Message types

There are over two dozen types of event messages.

For more information on message types, see [event message types](#).

## Options

The types of event messages you see are controlled via the Options button:



When you click the Options button an options screen will appear, allowing you to enable or disable many different kinds of event messages. See [Options when running and replaying a turn](#) for more information.

# **Play By Email**

SAS WW2 supports play by email ('PBEM').

PBEM requires each player to save their game file each turn (with a password), after making all their moves and before attempting to run the turn calculation. Each player then sends their file to the other.

To use the PBEM feature, follow these steps:

1. Complete all moves for your side for the current turn of the game you want to play by email.
2. Now, click on the 'Out' box on the desk of your Admiral's Office:



3. You will now be prompted to enter (or edit) a password for your file but only if you want this game to be played by email:



4. If you are not playing this game by email, then leave the field blank and click the 'OK' button.
5. Else, if you do want to play this game by email, ***make sure that you enter a password*** at least one character in length. If you leave the password field blank, the computer does not recognise the save file as suited to PBEM. (For more information on using passwords, see the [Using passwords](#) help file). Enter a password, and click the 'OK' button. (Do not click the 'X' button, as this has the effect of cancelling any current password and closing the dialog).
6. The computer will now save the game file with your latest moves, to a folder called 'PBEM'. This folder is located under the place where you installed to. For example, the default installation location is 'C:\NWS\SAS-WW2'. If this is where you installed **SAS WW2**, then the

'PBEM' folder can be found at: 'C:\NWS\SAS-WW2\GameData\PBEM'

7. If you are playing this game by email, you then email this file to your opponent, (or send by some other suitable means), He then saves the file to his PBEM folder.
8. Your opponent does the same by sending you his game file, and you save it to your PBEM folder.

NOTE: Both files must be in the PBEM folder. Saving the enemy's file to any other game folder will not work.

9. Now, when you load up the game and click on 'GO', the computer will load up both files and start calculating the turn.

Note that to help you keep track of things and visually validate that you both have the most recent files, each turn file is appended with a suffix that shows the turn. Files are named by the computer in a standard way: the campaign name + a hyphen + the player name + a hyphen + the turn number + a standard '.sas' extension used for all SAS files. For example, the British player's file for the Atlantic1 scenario, for turn 5 would be 'Atlantic1\_\_Harry Nelson\_t5.sas'

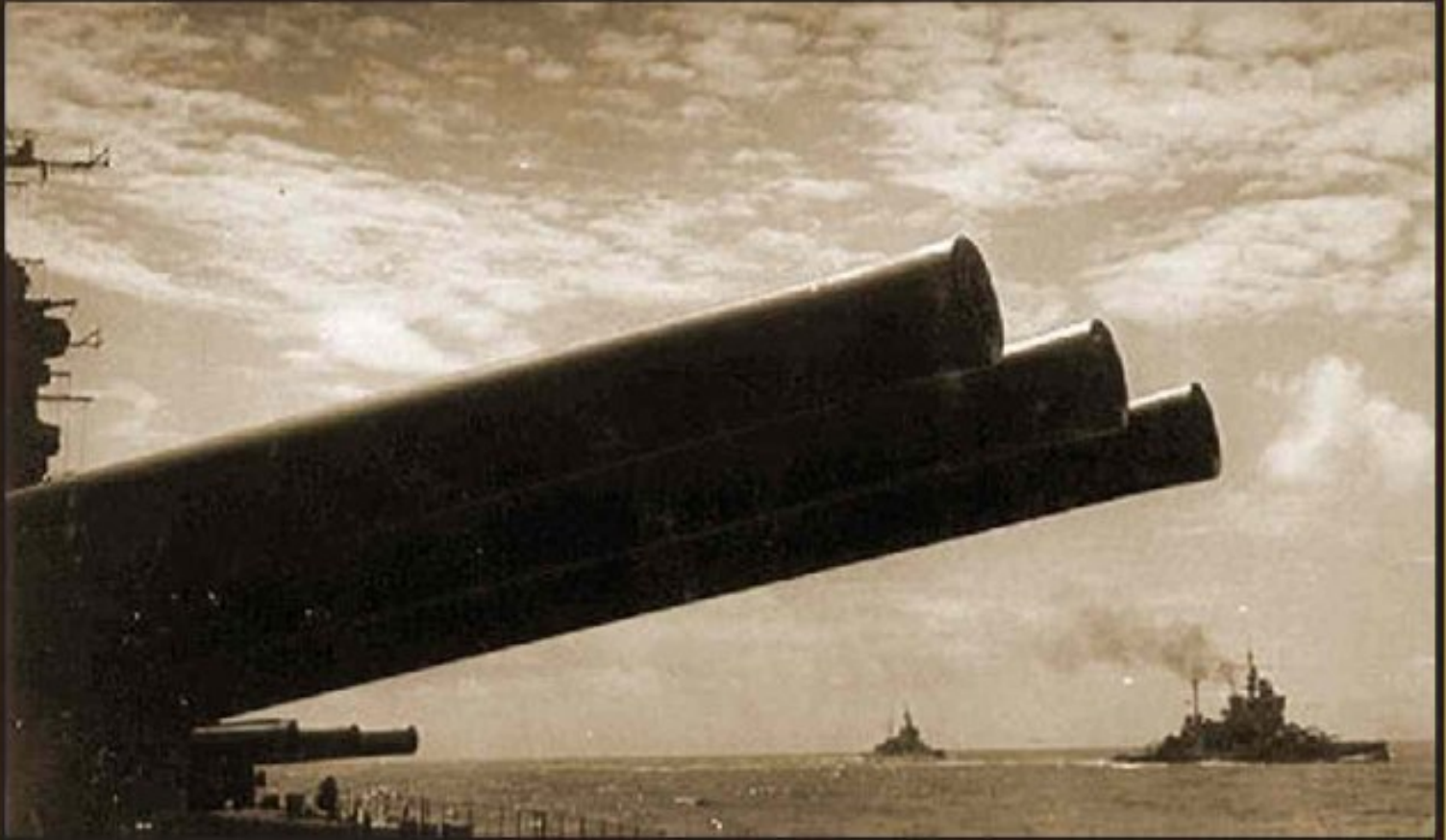
## When PBEM files are loaded

When you are playing a PBEM game - which by definition is **any** game where **either** side's file is password protected, the computer tries to find and load the PBEM files for both sides when you attempt to run the turn. (See [running a turn](#) for how to do this).

If your file is found but the enemy side's file is not, you will see this error message:



Your moves are complete but the enemy's are not. The game is by PBEM; you must wait to receive the enemy player's file. Click 'OK' to return to your Admiral's Office.



OK

Clicking the 'OK' button returns you to your **Admiral's Office**. The turn calculation cannot start until you have received the enemy's end-of-turn file and have saved it to your PBEM folder.

## Limitation on Tactical Play

A PBEM game is typically played on physically separate computers. Each player runs their turn calculation separately. Yet the calculation **MUST** guarantee that the results are the same for both, otherwise the game would quickly get 'out-of-synch'.

**SAS** includes many options during calculation for a player to make changes to the orders given in the planning stage. These options add much interest to game play, but they are designed for play-against-the computer mode and are automatically disabled in PBEM games.

Tactical decisions that are automatically disabled in PBEM games include the ability during hourly

calculation to:

- Change automated tactical responses ('avoid', 'shadow', 'intercept') for any of your fleets
- Change any fleet's explicit movement orders
- Change any fleet's Rules of Engagement
- Abort or amend auto-created air strikes from any carrier or airfield
- Change the automated departure of ships from fleets in emergencies - eg damage, or fuel or ammunition depletion.

# ***How to Get Help***

Apart from this manual, the game has a rich set of hyperlinked help files to instruct you on every aspect of the game.

## Context Help

Almost every screen has a '?' button. When you press it, context help for that screen will be shown. The context help is tailored to tell you all that you need to know about the screen - how to read any information and how to use any controls it presents.

The Context Help screen also has a '?' button. When pressed, the Context Help screen expands into the Full Help screen, allowing complete navigation of all help files.

## Full Help

A full help guide is available by clicking on the bookshelf in your *Admiral's Office*:



As explained under Context Help, you can also call up the Full Help guide by clicking on the '?' button on the Context Help screen.

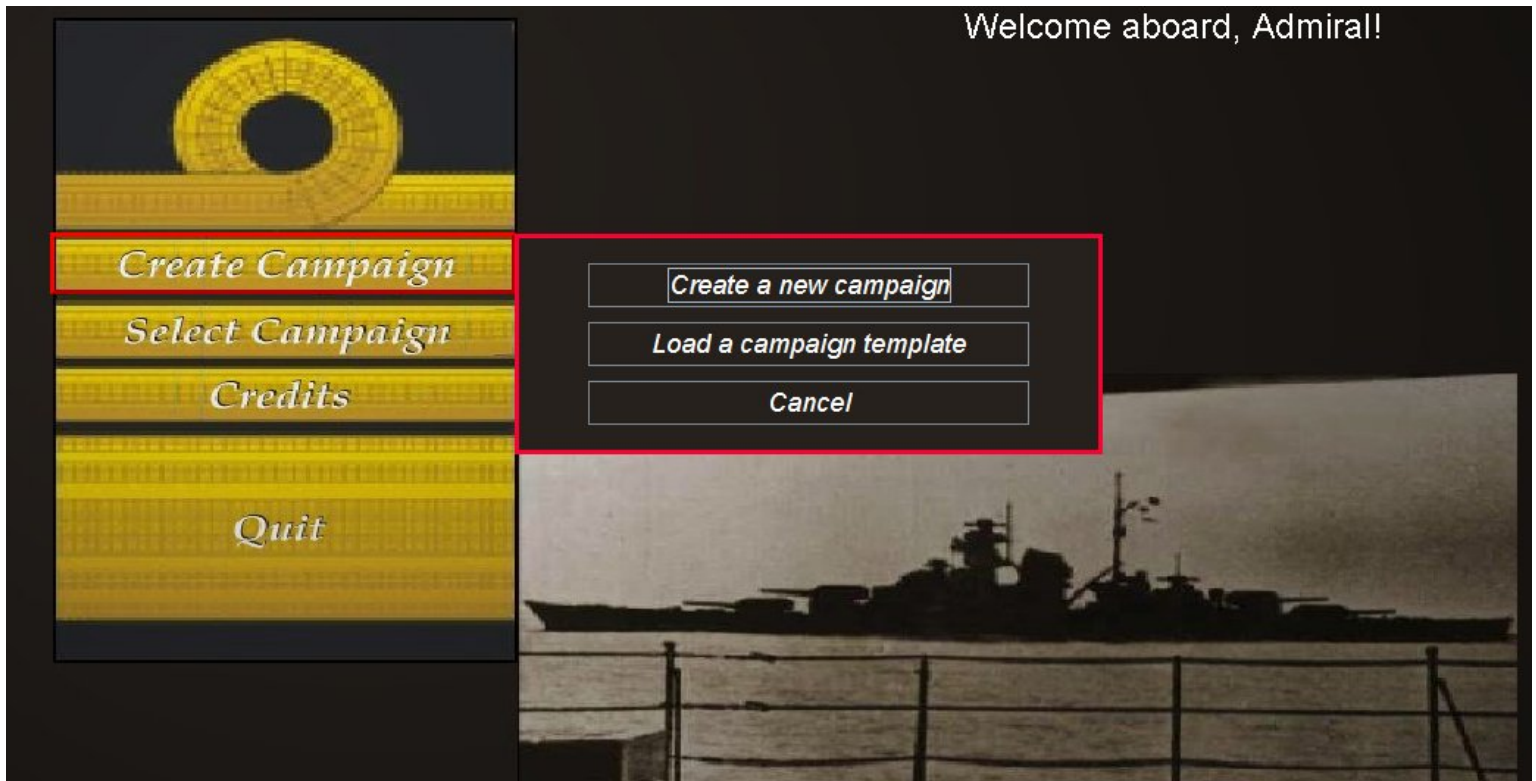
The Full Help guide has a left hand menu to help you navigate. Among other things, it has a 'How to Play' section that tells you all you need to know to harness the full power of **SAS WW2**.

We at **NWS** hope you enjoy playing **SAS WW2** for many hours. We hope you find it both challenging and very playable.

# Create a Campaign - starting the campaign builder

If you have just started *SAS WW2* and are at the Start screen, click the 'Create Campaign' menu option.

You will now see this sub menu:



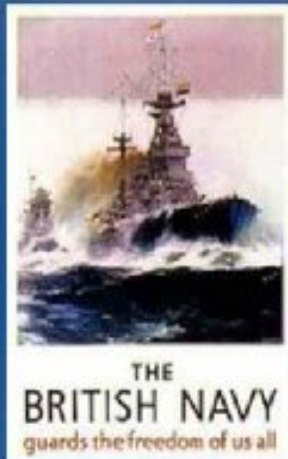
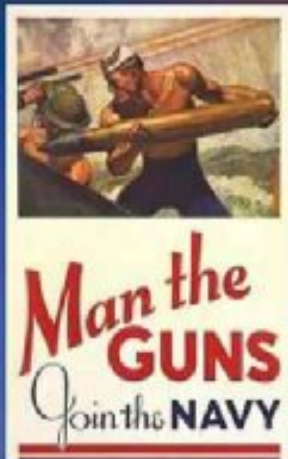
The 'load a campaign template' feature is separately covered in [loading campaign templates](#).

To start a new campaign from scratch, simply click the 'Create a new campaign' button.

You will now see this screen, which is the first screen of the Campaign Builder:



New Campaign Step 1:  
Choose allied Navy  
(Click to view before selecting)



Back to Main Menu

The screen shows recruiting posters for the navies of the six major naval powers of WW2: the United States, Japan, Great Britain, Germany, Italy and France.

This is the entry point to your first steps - which are to choose the two main countries represented in the game.

Click [choose the countries](#) to get help on this first task.



# Create a Campaign - Choosing the Countries

After accessing the Create Campaign screen (see [creating a campaign](#)), your first task is to choose the main countries involved.

**SAS WW2** is a contest between two sides, each side represented by a country. It is assumed that in most campaigns, there will be an allied navy fighting an axis navy. You can deviate from this if you like and select two axis navies or two allied navies as opponents.

There are 6 countries to choose from: the United States, Japan, Britain, Germany, France and Italy. They are each identified by a WW2 era recruiting poster.

## Adding other powers

At this time, **SAS WW2** does not support more than two sides in a game, and each side is associated with one of the six major powers.

You can, however, represent other countries in the game as allies for either side - by adding their ships to the list of those available. Using the ship design editor you can represent the design of almost every possible ship that ever floated (as well as a huge number of hypothetical designs). See [overview of ship design](#) for more information.

## Step 1: Choosing the first country

The name of each country's navy appears as you move the mouse over each poster.

The screen asks you to first select the "Allied" navy. **SAS WW2** assumes by default that historical campaigns, involving an allied and an axis navy will be chosen. When you intend to build an historically-based campaign, make sure you first choose the allied side, as this affects how the ownership of naval bases on the map - which has yet to be selected - gets allocated. If you are wanting instead to design an entirely hypothetical scenario, the order of country selection is of little importance.

To make a selection, click on a poster.

## Country Information

You will now see a popup screen with information about the navy's strengths and weaknesses, as shown below in the popup for the Royal British Navy:



## *From a Speech by Prime Minister Churchill*

### *"Many Vexatious Tasks Lie Ahead"*

*Many vexatious tasks lie before the Royal Navy, and before its Comrades in the Merchant Navy, and as I always warn you, rough and violent times lie ahead.*

*But everything that has happened since the beginning of this war should give the Nation confidence that in the end the difficulties will be surmounted, the problems solved, and duty done.*

Choose another Navy

Select the Royal British Navy

When the popup appears, a famous speech by the country's leader starts to play, and the words of the speech are shown. The speech will last for a few seconds only, but if you want to end it prematurely, click on



the speaker icon at the bottom left of the screen:

When the speech ends, some descriptive text about the selected country will appear, detailing some basic strengths and weaknesses that were historically true about the country.

Use this information as a guide only. You can play with history later by varying many parameters, making countries more or less advanced than they actually were. For example, Italy had more weaknesses than Britain as a naval power - in training, technology and so on. But by varying things, you can nevertheless create a campaign where Italy starts with an advantage and should have the easier road to victory. These parameters are explained later. For now, it is important to consider that choice of country should only be influenced by perceived strengths and weaknesses if you do not intend to alter historical starting conditions.

## Cancelling your choice

If, after reading through the country information, you decide to try another country, just click the 'Choose another Navy' button. This takes you back to the screen with posters, where you can select another.

## Confirming your choice

When you are happy with the choice of country, click the 'Select the ...Navy' button at the bottom right of the popup. The popup will now close and you will return to the screen with the posters to choose the opponent.

## Step 2: Choosing the opponent

Simply now repeat the steps described above to select the opposing country.

You will be prompted this time to select the 'Axis' country, on the assumption that the first country was one of the allies. But if you are not creating an historically-based game, you can select any country you want, even the same country as the first! In this case, **SAS WW2** simply assumes that there are rival factions and you are in command of one of them.

## Changing sides

Note that by default, the computer assumes that you intend to play against the computer, and that you will be in charge of the first country chosen, which would be an allied country in an historically-based campaign.

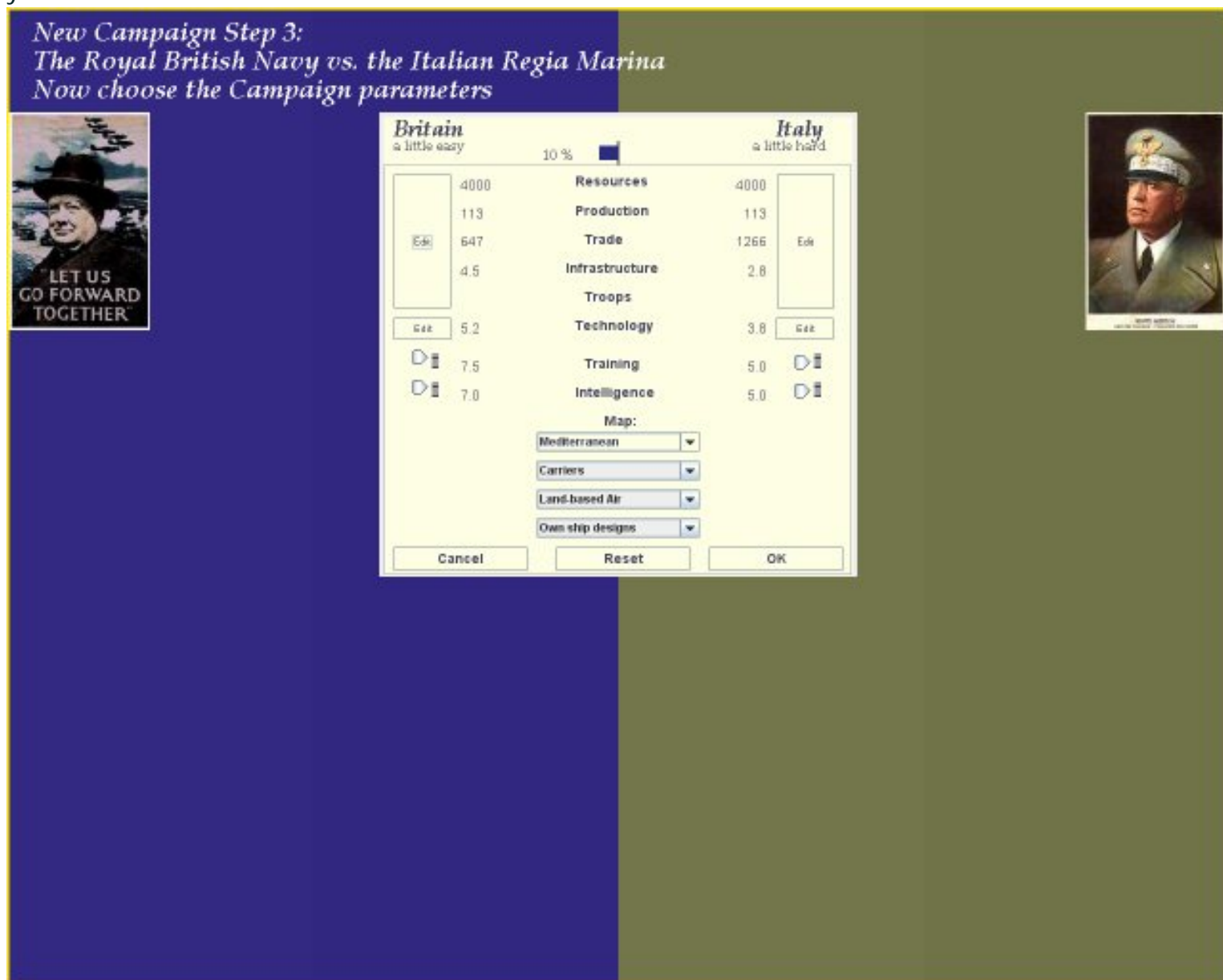
**However**, do not panic! You can swap sides or set both countries to be player-controlled during later stages of creating the campaign. And best of all, the choices can be changed **during game-play itself!** At any time during the playing of a game, you can elect to play the other side, or even both sides! In this way, you can play either or both sides of the 'out-of-the-box' campaigns that come with **SAS WW2**.

## The next step..

The next step in creating the campaign involves selecting the theatre map and configuring economic and other starting conditions. Click [here](#) to go to the help file for this next step. Or click [to return to the first help page](#) for creating campaigns.

# Create a Campaign - Set Parameters - Part 1

After choosing the countries in the previous steps (see [create a campaign - choosing the countries](#)), you will now see a screen like this:



The screen shows the chosen countries, and in the middle, a panel with controls for configuring important game parameters.

At the top of the panel, you will see the computer's evaluation of the current odds, both descriptively, and in terms of a bar that stretches right or left. For example, in the picture shown above, the computer is currently evaluating the game as "a little easy" for Britain, and conversely "a little hard" for Italy. The bar, which stretches to the left in Britain's favour, rates the advantage as 10%. This figure is important because it affects how the computer evaluates your performance

during the game - as the odds against you get easier, your failures are less forgiven and your successes less praised. Conversely, your opponent's failures will be less harshly judged. In an easy or very easy game, you can quickly find your performance fails to meet expectations and you can be peremptorily sacked! In **SAS WW2** you are playing not only to win the game, but to do so in a way that enhances your reputation.

As you use this screen to change various factors to the advantage of one side or the other you will notice the computer's evaluation changing.

This screen allows you to change a very large number of game parameters. They all have default values, so you only need to change the ones you want though.

## What you can change

Follow the links below to learn more about the parameters you can change from the current screen:

- [Selecting the theatre](#)
- [Enabling or disabling aircraft](#)
- [Enabling or disabling troops](#)
- [Setting ship design options](#)
- [Setting port parameters](#)
- [Setting technology levels](#)
- [Setting naval and airforce training levels](#)
- [Setting army training levels](#)
- [Setting intelligence levels](#)

## Resetting parameters

Sometimes, you may wish to return all parameters to their default values. You can do this by clicking the 'Reset' button.

## Cancelling out of the screen

If you click the 'Cancel' button, the screen will close and you will be returned to the previous screen.

# Continuing with campaign creation

When you have finished adjusting any parameters you want on this screen, click the 'OK' button. The current screen will close and you will be taken to the next (and second last screen) where you can set more parameters including the opening strategy for each side.

Click [here](#) to proceed to help for this next screen



# Create a Campaign - Select the Theatre

One of the most important choices to make when creating a campaign is the selection of the theatre.

**SAS WW2** is a theatre-level game: you get to play in a chosen theatre. There are three theatres to choose: the Pacific, the Mediterranean, and the Atlantic (including both North and South Atlantic).

## Default theatres

A default theatre will already have been chosen by the computer, based on your selection of countries:

- If either country is France, the default theatre is the Mediterranean (using the 'Mediterranean2' map).
- Else if either country is Italy, the default theatre is the Mediterranean (using the 'Mediterranean' map).
- Else, if either country is Japan, the default theatre is the Pacific.
- Else the default theatre is the Atlantic.

## Your selection

You can override the default selection if you want to and choose another theatre. To do this, simply choose it in the drop down list:

**Map:**

Mediterranean ▼

In this way, you can start to create non-historically-based campaigns (if you want to).

## New Mediterranean map

Note that starting with version 1.1 of **SAS**, there are two Mediterranean maps to choose from. The new 'Mediterranean2' map is the same as the other one except for the addition of four ports: Toulon, Marseilles, Sete and Ajaccio. Players wanting to create a campaign featuring French naval power will want to choose the 'Mediterranean2' map. See [available maps](#) for more information about this and the other maps.

## Effect on game odds

Note that as you select a different theatre, the calculation of the odds may change. This is for two reasons:

- The ships of some countries (like the United States) were designed for long range cruising in the Pacific whereas some others (eg Italian ships) were designed only for short ranges in the Mediterranean. Although you can design your own ships in **SAS WW2**, the 'out-of-the-box' ships that are selected for a country are historical designs. Consequently, as an example, the Italian player is faced with a disadvantage in theatres larger than the Mediterranean. Although the Italian player can overcome this disadvantage through designing his own ships, it takes additional experience with **SAS WW2** game functions, more thought and more time to do this.
- The arrangement of ports is different between different theatre maps. The computer calculates a country's economic strength based on factors that include the value of the convoys that can be run between ports. Convoy values reflect the value of available raw materials and industry as well as the length of the convoy routes. (All else being equal, a route is more valuable if the end points are closer).

## Next steps

Click [here](#) to return to the help page detailing the next steps.



# **Create a Campaign - Enabling or Disabling Aircraft**

Aircraft - both carrier-based and land-based - were vital war-winning elements in WW2.

The default setting for a campaign is for both carriers and land-based air to be enabled - for *both* sides.

All countries had sizeable land-based airforces. The position with aircraft carriers was somewhat less even. Italy, France and Germany never had a viable aircraft carrier in WW2. But this was due mainly to political or economic considerations, not technological. Italy had two fleet carriers on the slipways, Germany had one building with another planned, while France had one in commission, though rather outdated. The fact that some countries were more advanced in carrier development than others at the start of the war can be modelled in other ways - when the starting naval forces are created - as will be explained later.

## Disabling airpower

Nevertheless, despite the historical situation, you may wish to disable airpower from either carriers or land-based airfields for the duration of the campaign you are creating. The choice is yours. Some players may wish to do this, for example, because they are more interested in surface ship combat, and wish to focus on the possibilities of a surface ship war, without the complication of airpower.

The settings are independant. You can have no carriers but retain land-based air; or carriers and no-land-based aircraft; or you can disable ALL airpower as a factor in the game.

To disable carriers in the game, select 'No carriers' from the drop down list:



In the same way, you can disable land-based airpower by selecting 'No Land-based Air' in the drop down list:



## Next steps

Click [here](#) to return to the help page detailing the next steps.

# **Create a Campaign - Enabling or Disabling Troops**

**SAS WW2** is primarily a game of sea-power; but troops were vital to many naval operations. Operations in the Mediterranean were often driven by the need to convoy or supply troops in North Africa or, as the enemy, to attack those same convoys. In the Pacific, allied strategy, especially in the early war years, was largely founded on the need to conduct careful, step-by-step conquests of Japanese bases by amphibious assault. And in the Atlantic, long before D-Day, the convoying by the British of supplies to Russian armies set the stage for many grim battles in far northern waters as the Germans attempted to interdict them.

The default setting for a campaign is for troops to be enabled. But - the game engine prevents you enabling troops for any campaign using the Atlantic map. This is due to the scale of the map, which does not give sufficient interior continental space to model land warfare properly. Future versions of SAS may enhance the land warfare model and also the Atlantic maps, allowing for troops.

## Disabling troops

Nevertheless, despite the historical situation, you may wish to disable troops for the duration of the campaign you are creating. The choice is yours. Some players may wish to do this, for example, because they are more interested in ship combat and wish to focus on the possibilities of an exclusively naval war, without the complication of managing troop supply and amphibious assaults.

To disable troops in the game, select 'No troops' from the drop down list:





# Next steps

Click [here](#) to return to the help page detailing the next steps.

# Create a Campaign - Setting Ship Design Options

One of the interesting possibilities that **SAS WW2** allows is for campaigns to feature not only historical ships but also those that were planned but never completed - like Germany's massive **H Class** battleships, as well as some 'might-have-beens' - like a French **Richlieu** class battleship armed with the 16 inch guns actually designed by the French. And, most interesting of all, you can also design and build your own ships from the keel up, using the ship design editor, which gives you over two million possible designs!

Yet some players may not wish for all this flexibility, preferring a campaign that is more historically-based.

You can choose any of four possible options regarding ship design, just by selecting the option from the drop-down list:



The options are explained below, in the order from most to least historically faithful:

## Historical ships only

With this option, the ship design editor is disabled. Only ships actually launched in time for WW2 will be available for selection. Ships planned but never completed, or those that 'might-have-been' are also excluded.

## Planned ships

Under this option, the list of available ships is expanded to include those that were planned in WW2, even if they were never completed. The US *Montana* class, the British *Lion* class, the German *H class* battleships are just some of those that are now available. Also available are some interwar designs - mostly battlecruisers - that were cancelled due to Treaty limitations. Examples here include the US *Lexington* class.

## Hypothetical ships

With this selection, the list of available ships is further expanded to include some 'might-have-beens', such as a 16 inch gunned *Richlieu* and an enlarged *Littorio* class battleship with twelve instead of nine 15 inch guns. These might-have-beens are included to add further interest, as well as to help balance the options available to different countries.

## Player-designed or modified ships

Finally, by selecting 'Own ship designs' you enable the ship design editor as well. This gives you, in addition to all the other possibilities, the option of creating your own unique designs, or of making modifications to historical ships. The simple-to-use editor allows you to create over two million possible designs, all with just a few mouse clicks. See [building ships - an overview](#) for more information.

## Next steps

Once you have made your selection, you are ready to perform the next step in building a campaign.

Click [here](#) to return to the help page detailing the next steps.

# Create a Campaign - Setting Port Parameters

In *SAS WW2*, which is predominantly a naval game, ports are your key centres for ship construction, repair, refuelling and rearming; are the points for loading or unloading of raw materials, supplies and troops; are the centres for your industries that produce war material; and are also serviced by airfields for defensive and offensive aerial operations. They have varying levels of industry and other infrastructure and can be attacked by enemy surface and aerial bombardment as well as by amphibious or land troops and, in the worst case, be captured by the enemy, in which case all the infrastructure and war material at the port, and all the ships in the port are also captured. If it is your home port that is captured, you have lost the game!

It is vital that you understand how to configure ports when creating campaigns. Much of the balance in game play in a campaign comes down to how economic and other values at ports are configured at the start/ ***Do not assume that the default values are suitable for the campaign you are creating.*** For example, to take just one obvious example: if you are creating a Mediterranean campaign with France as one of the main countries, using the 'Mediterranean2' map, you will need to make sure that Toulon and/or French ports are configured properly. The Mediterranean2 map - purely for arbitrary reasons - has Gibraltar and Alexandria - ie British ports - as the default home port and advanced port for the 'allied' side.

## Default Ports

Each theatre map comes with a default set of ports for each side, including two special ports - a 'Home Port', and an 'Advanced Port'. By default, these are the two largest and most important ports that a player starts with.

### Home Port

The Home Port is where all new ship construction starts and it gets the lion's share of available resources when the computer initially allocates resources. It will usually have the highest infrastructure and industry levels also. The Home Port is also where all new troops enter the game (if troops are enabled); and capture of your Home Port by the enemy signals victory by your opponent and an immediate end to the war. You can have only one home port.

## Advanced Port

The Advanced Port is the second most important port and it will get most of the remaining resources, and have the second highest level of infrastructure. You can only have one Advanced Port.

The location of these ports on the theatre map is based on actual locations, but simplified where necessary. For example, in the Pacific theatre, the home port and advanced ports for the US are San Francisco and Pearl Harbor, whilst for the Japanese they are Tokyo bay and Truk. In the Mediterranean theatre, the Italians have La Spezia and Taranto respectively while the British have Gibraltar and Alexandria.

## Other ports

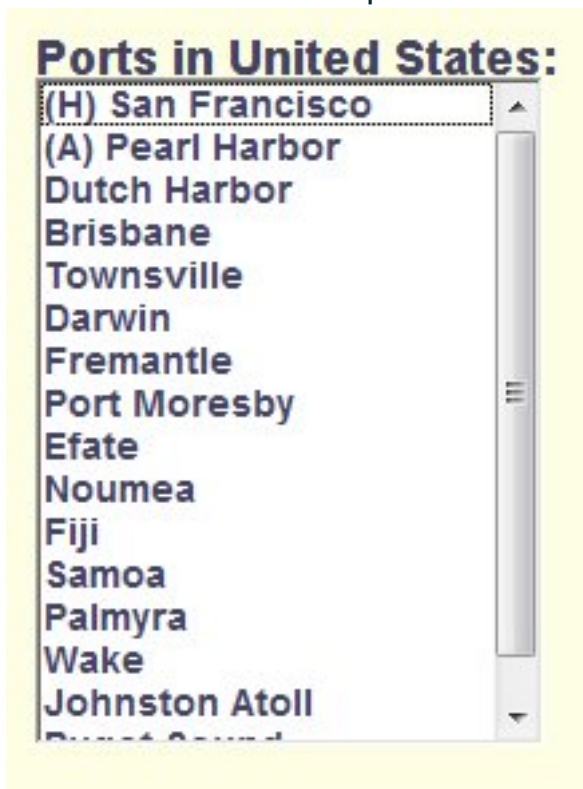
In addition, the theatre map also includes the locations of many less important ports, each of which will be under the initial control of one side or the other.

## List of ports

To view the ports currently allotted to either side in the campaign, click on the large 'Edit' button at the left or right sides, depending on which country you are wanting to view details of:

<div><div></div><div>Edit</div></div>	4000	<b>Resources</b>	4000	<div><div></div><div>Edit</div></div>
	113	<b>Production</b>	113	
	647	<b>Trade</b>	1266	
	4.5	<b>Infrastructure</b>	2.8	
		<b>Troops</b>		
<div><div></div><div>Edit buttons</div></div>				

You will now see the ports listed like this:



The port with the '(H)' prefix is the current home port, while the one with the '(A)' prefix is the advanced port.

## Selecting a port for view or edit



To view or edit the details of a port, just click on it in the list. Shown here for example are the details for the British Home Port (yet to be given a proper name) in a pending Mediterranean scenario:

**Britain**  
a little easy

8 %

**Italy**  
a little hard

**Set Parameters for Ports**

**Home Port**

☒ is in play?

**Ports in Britain:**

- (H) Home Port
- (A) Advanced Port
- Malta
- Tobruk
- Mers el Kebir
- Tunis
- Algiers

**Starting RPs**  
3600

**Export Materials Index**  
4

**Dom Materials Index**  
0

**Exp. Industry Index**  
7

**Dom Industry Index**  
0

**Number of Troops**  
0

**Dockyards Level**  
9.0

**Defences**  
9.0

**Airfields Level**  
9.0

**Edit**  
**Clear**

**Swap sides**

**Set objectives**

**OK**

## What port parameters you can change

The screen you are looking at lets you customise any of the details that are shown *for the currently selected port*.

Before you set these values, you may want to read the help file on [about ports and trade routes](#) that gives an overview on why ports are so important to the economic model used in **SAS**.

Follow these links to learn more about how you can:

- [Rename the port](#)
- [Set the port to be your home port or advanced port](#)
- [Remove the port from play](#)
- [Swap sides for the port](#)
- [Set the starting RPs](#)
- [Set the export materials index](#)
- [Set the domestic materials index](#)
- [Set the export industry index](#)
- [Set the domestic industry index](#)
- [Specify any army units that start at the port](#)
- [Specify port infrastructure](#)

## Next steps

Once you have finished with port parameters, click [here](#) to return to the help page detailing the next steps in building a campaign.

# **Create Campaign - Rename a Port**

Each port has a default name from the theatre map, which is shown when you first select the port:

A screenshot of a web form element. It consists of a light yellow rectangular background. In the top right corner of this background, the word "Name" is written in a small, dark font. Below "Name" is a white rectangular input box with a thin black border. Inside this input box, the text "Dutch Harbor" is displayed in a dark font.

To change the name, just type in a new name.

## Other Port Parameters

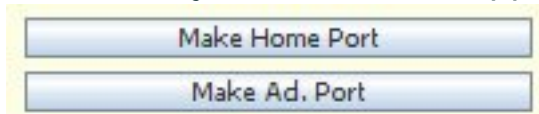
Click [here](#) to return to the help page detailing what other port parameters you can change.

# **Create a campaign - set the selected port as the home port or advanced port**

A player must have one home port and one advanced port. These are initially chosen by the computer.

You can change the selection and make the currently selected port the home port or advanced port.

To do this, just click on the appropriate button:



You will see the change in the list. The currently selected port will now have the prefix '(H)' or '(A)'.

When you change the home port or advanced port, the computer re-allocates the default RP and other values so that the new home or advanced port gets its expected share of resources. The port that **was** the home or advanced port gets re-classified as a ordinary anchorage and gets low levels of infrastructure accordingly.

But you can then change these levels again at any of these port if you wish.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# **Create a Campaign - remove a port from play**

The theatre map includes a default set of ports on either side.

Sometimes, you may want to remove some or all of these ports from play. Fewer ports makes for a less complex game generally.

Any currently selected port that is not a home port or advanced port can be removed from play.

To remove a port, just untick the 'Is in Play?' tickbox at the top of the screen:

☒ is in play?

Removing ports can have a noticeable effect on starting odds, not only because a player is losing possible RPs and infrastructure, but also because he is losing the potential trade value between that port and his other ports.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# **Create a Campaign - swap sides for a port**

The theatre map includes a default set of ports on either side.

Sometimes, you may want to swap the ownership of a port for the start of play. You may need to do this if, for the time period you are choosing, the port was in the hands of the other player.

To swap the currently selected port to the opposing side, just click the 'Swap Sides' button:



The port will disappear from the list of ports you can see. If you close the current screen and click the 'Edit' button for the other side, you will see the port now in the list for that side.

Swapping ports can have a noticeable effect on starting odds - even more so than removing ports, because not only does one side lose the value of the port, the other side gains it.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.



# Create Campaign - Set Starting RPs

Each port has a default level of resource points (RPs) at the start of the game. The home port will be allotted 3600 RPs; the advanced port will be allotted 400 RPs. The remaining ports start with zero RPs as their default level.

One RP can be used to construct 100 tonnes of shipping, 500 tonnes of oil fuel or 1000 tonnes of war material that can be used directly by troops in the field. See 'RPs' in the glossary for more information.

The default level of RPs gives you enough to build a smallish navy of a few hundred thousand tonnes - say the size of the German Navy - after allowing for expenditure also on aircraft and infrastructure.

The good news is that you can increase - or reduce - the starting levels *on either or both sides* as you wish.

This means not only that the **scale** of the campaign can be varied, but also the odds between the two sides can be varied. The easiest way to balance or unbalance the odds between countries is by setting differential starting levels of RPs.

As RP levels are changed you should notice the odds change also (unless the change is small).

You can allot up to 35000 RPs to any port! Realistically, you would only ever want to allocate this number, or anything approaching it, to your home port, because it is from your home port that RPs are taken for the building of new ships, aircraft and troop units.

The maximum amount of 35000, if used all for shipping, can buy a whopping 3.5 million tonnes. This allows for a very large navy indeed. And remember -this is the **starting value**. Growth during the game can multiply this several fold!

You may never want to have this amount of resources, for yourself or the enemy,

because your command and control becomes more onerous as your navy gets bigger (unless you use your 2-I-C's assistance very heavily). But the option is there.

You can see the current amount of RPs for the port in the combo box:



To change the level of RPs for the currently selected port, just select a new value in the combo box.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# **Create Campaign - Set the export materials index**

Every port has an export materials index (emi) value of between zero and 10.

The EMI is a measure of the volume and value of materials available at the port for export. The export materials are also used by local export industry (if any) that is servicing the port to create RPs that are then stored at the port. The export materials can also be exported in merchant ship convoys to other ports for conversion into RPs by the industry there.

The EMI values at your ports, together with the industry levels (see [setting industry levels](#) for more information), are used by the computer when it calculates the total value of your economy. The value of every possible convoy route between your ports is calculated, and a weighting is also applied based on how short the route is: shorter routes are worth more because more goods can be carried in a given amount of time.

Changing the EMI levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

As EMI values are changed you should notice the odds change also (unless the change is small).

Note that it is most productive to have a high RMI (and high industry level) at your home port, because this is where new aircraft and troop unit production and most new ship production is likely to take place. But this does not always accord with reality. In a simulation of a US vs Japanese contest in the Pacific, it would be more realistic to give higher RMI values to outlying ports in Malaysia and the Dutch East Indies. Raw materials from there can be convoyed home but this takes time and involves risk of course.

To change the EMI level for the currently selected port, just select a new value in the combo box.

Raw Materials Index

0



## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# **Create Campaign - Set the domestic materials index**

Every port has a domestic materials index ('DMI') value of between zero and 10.

The DMI is a measure of the volume and value of materials available at the port that are used domestically by the port's industry.

Unlike raw materials, domestic materials are not available for export.

By varying the levels of DMI and RMI and also the level of industrialisation you can set the effective production value of the port as well as the degree of its dependence on raw materials convoyed in. For example, a port with a very high industrialisation factor but very low DMI and RMI has a good potential to produce but will only fulfill that potential if you can convoy in raw materials in quantity.

Otherwise, they contribute to production at a port in the same way as do raw materials.

Changing the DMI levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

As DMI values are changed you should notice the odds change also (unless the change is small).

Note that it is most productive to have a high DMI (and high industry level) at your home port, because this is where new aircraft and troop unit production and most new ship construction is likely to occur.

To change the DMI level for the currently selected port, just select a new value in the combo box.

A screenshot of a user interface element labeled "Dom Materials Index". It features a text box containing the number "0" and a dropdown arrow on the right side, indicating it is a combo box for selecting values.

# Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.



# Create a Campaign - Specifying Troops

If troops have been enabled for the campaign (see [create a campaign - enabling or disabling troops](#)) you will see some controls for specifying troop units that start the game at the currently selected port:

Edit

Clear

Number of Troops


0

Initially, each port starts with zero troops.

You can add any number of army units to start there.

To add a troop unit, click on the 'Edit' button. You will now see this screen:

xx



1.2 / 0.8

Create an Army Unit:

Number of Troops

Commander's Rank

Commander's Name

Unit Name

Mechanisation

Equipment

Morale

Training

Experience

Amphibious Ops Training

Amphibious Ops Experience

Mechanized Infantry Division

10000

▼

Major General

▼

US

▼

William Pye

50%

▼

Sufficient

▼

Above Average

▼

Good

▼

Experienced

▼

Below Average

▼

Raw

▼

supply - 90 days (normal)

12833 tons / 12.833 RPs

supply - 1 day (combat)

825 tons / 0.825 RPs

Cancel

OK

## Setting unit characteristics

The screen allows you to specify the unit characteristics in some details, as explained below.

## Number of troops

Use the drop-down list to set the number of men in the unit. A unit can have between an enormously large 500,000 men down to only 100 men. A single 'unit' in **SAS WW2** can represent anything from a small company through to the very largest army groups.

## Commander's Rank

From the number of men, and the nationality of the unit, the computer determines the appropriate army rank.

The nationality is shown in the drop-down list to the right hand side of the rank. You can change the nationality using the drop-down list. You might want to do this if one side has mixed nationality army units - eg an Italian player may also have German Afrika Korps units to handle.

For example, in the Italian army, the commander of a 12000 strong division would normally be 'Generale di Divisione', whereas his German counterpart would be 'Generalmajor'. Changing the nationality changes the list of selectable rank names which you can then manually select.

Rank name is purely for display purposes and has no impact on combat or any any other tangible factor in the game.

## Commander's Name

This is also purely for 'show'. The computer will randomly select a name, but you can change it here by typing another name into the text box. You might want to do this to add historical colour.

## Unit name

You can optionally name the unit by entering a name here. The name is purely for display purposes.

## Mechanisation

This is an important factor to set. You can choose a value between zero and 100%, in 10% increments.

As mechanisation increases, the mobility and combat effectiveness of the unit increases, as does also the cost of the unit and the supply requirements.

The mechanisation level also determines the unit classification: levels between zero and 30% are classified as Infantry; those with levels between 40 and 60% are classed as Mechanized Infantry, whilst those with levels of 70% or more are classified as armoured units.

Within this classification, the level determines the amount of mechanization for a unit of that type. The table below explains this more clearly:

Level of Mechanization

Type of unit

0%

Most basic infantry unit with no mechanization

10%	Infantry unit with very poor mechanization (few trucks)
30%	Infantry unit with average mobility (reasonable number of trucks)
30%	Infantry unit with above average mobility (some halftracks also)
40%	Mechanized infantry unit with minimum mechanization (basic number of trucks and halftracks)
50%	Mechanized infantry unit with average mechanization
60%	Mechanized infantry unit with above average mechanization
70%	Basic armoured unit with a minimum number of AFV and SPG (self propelled guns)
80%	Armoured unit with reasonable number of AFV and SPG. Infantry well supplied with halftracks.
90%	Armoured unit with very good number of AFV, SPG and halftrack equipped infantry
100%	Armoured unit with a lavish supply of AFV, SPG and halftracks

## Unit icon

At the top left of the screen, an icon for the unit is displayed:



The icon uses standard military symbols to represent the unit by both type and size:

## Type of unit

An infantry unit is a crossed rectangle, an armoured unit is depicted with an oval, and a mechanised unit is a combination of the two.

## Size of unit

Above the rectangle, symbols indicated the unit's size. 'X's are used for units brigade size and above. For example, one 'X' means brigade, two 'XX's means a division and so on. Below brigade size, the '|' symbol is used: one '|' means company, two '||'s means a battalion and three '|||'s is a regiment.

## Equipment

You can set the quality of general equipment for the unit. The choices are: very poor, poor, sufficient, very good, extremely good.

Whereas the mechanization factor measures the *quantity* of equipment that affects mobility and fighting power, the equipment factor measures the *quality* of that equipment, plus the overall quality and availability of weaponry generally available to the unit, such as SMGs, mortars, infantry, towed anti-tank weapons and so on, depending on the type of unit it is.

Better equipment means a higher combat rating for the unit.

For example, a German armoured unit with an equipment rating of 'sufficient' might have PzIVDs and a few Panther tanks. If it had a rating of 'extremely good' it would have King Tigers and Tigers in its heavy tank regiments and Panthers in its medium tank regiments. In 1939, its rating might be 'poor', which would represent the fact that most of a Panzer division's tanks at that time were, relative to those that came later, small, undergunned and under armoured, such as the PzIIs.

A better equipment rating also affects the unit's supply requirements.

## Morale

You can set the unit's morale level as any of 10 levels: lowest, very poor, poor, below average, average, above average, good, very good, elite and extreme.

Units with higher morale fight better and for longer. Morale is reduced (or increased) during combat depending on the course of the battle. When a unit's morale gets below a threshold level, it becomes combat ineffective.

## Training

You can set the unit's training level as one of 6 levels: minimal, below average, average, good, very good or elite.

Higher training levels obviously increase a unit's general combat effectiveness.

## Experience

The unit can have one of 5 experience levels: raw, green, experienced, veteran or elite veteran.

Units gain experience through battle also.

Higher experience increases combat effectiveness.

## Amphibious training

This acts exactly like the normal training level. It is a supplement to the normal training and comes into effect when the unit is offensively assaulting from the sea.

## Amphibious experience

This acts just like normal experience, and comes into effect when the unit is offensively assaulting from the sea.

Units gain additional amphibious experience through participating in amphibious assaults.

## Combat Values and Supply requirements

Many of these factors affect the unit's combat power; and some of them (size, mechanization and equipment) also affect the unit's supply needs.

As you change the factors, you may notice the combat ratings and supply needs changing.

## Combat rating

The combat rating is a number that reflects the relative combat power of the unit *per man*. A value of 1.0 is the *average*. Units that are highly mechanised, equipped and trained and with high morale will have a combat rating that is multiples of that figure. Conversely, a unit with lower than average levels of these will have a lower rating.

The rating is an easy way to see the real combat effectiveness of the unit.

A unit has two ratings - one for normal combat, and one for when it is assaulting from the sea. (Defenders use their normal rating always).

The ratings are given in the order: normal rating/amphibious assault rating.

You can see the rating at the top left of the screen, beneath the image for the unit:



## Supply requirements

Troop units require supply. The amount of supply is measured normally in tons. IN **SAS WW2** this is then converted to an RP cost.

There are two levels of supply: 'normal' supply, for when the unit is not in combat, and combat supply. A unit uses much more when it is in combat, particularly for mechanised units. The higher the mechanisation, the more supply that is needed in combat, eg for fuel for the fighting and transport vehicles.

The supply needs of the unit - in tons and RPs - is shown at the bottom of the screen:

supply - 90 days (normal)	12833 tons / 12.833 RPs
supply - 1 day (combat)	825 tons / 0.825 RPs

The supply needs are important to keep in mind because any unit that is stationed away from your home port will need this supply level to be met. (For simplicity's sake, **SAS WW2** assumes that units that units at your home port have their supply needs met by your general economy. The RP cost is not a drain on your resources.)

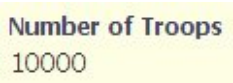
This supply is drawn each turn from the RP stocks at the ports where the units are. During the game, you will need pay careful attention to the supply situation of your troops!

## Adding the Unit

When you are satisfied with the unit's characteristics, click the 'OK' button to add the unit:

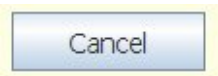


This closes the screen and adds the unit to the garrison at the port. You will now see that the number of troops in the unit has been added to the total number shown as at the port:



## Cancelling

Otherwise, click the 'Cancel' button:



This just closes the screen.

## Adding more units

You can add as many units as you like at the selected port. Just repeat the steps described above to add each unit.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.



# Create Campaign - Set port infrastructure

There are four kinds of infrastructure at a port:

- Industrial plant
- Dockyard facilities
- Airfields
- Port defensive works

See [port infrastructure](#) for more information.

Each can have a value between zero and 10.0.

There are default values for these, based on the type of port:

Type of port	Industry level	Docks level	Airfields level	Defence level
Home Port	7	9.0	9.0	9.0
Advanced Port	3	5.0	6.0	5.0
All other ports	0	2.0	3.0	2.0

## Changing infrastructure levels

You can change any of these values for the currently selected port.

Just select the value you want from the appropriate drop-down:

Industrialization Index  
0 ▼

Dockyards Level  
2.0 ▼

Defences  
2.0 ▼

Airfields Level  
3.0 ▼

## Special notes regarding industry levels

The industrialization index is a measure of the level of industrialisation that is able to service the port. The industry uses domestic materials, as well as raw materials (available locally or convoyed in), to create RPs that are then stored at the port. A higher industry value means not only more but more complex industry. The higher the level, the more the value that can be extracted from a given amount of domestic and raw materials.

The formula works like this - every month a port produces  $10 \times$  its DMI plus ten times its RMI in RPs. In addition, raw materials convoyed in are converted to RPs at the rate of 5 RPs for every 10000 tonnes of cargo times the average RMI value of the cargo times the port's industry factor.

The industry levels at your ports, together with the raw materials and domestic materials indices (see [setting the raw materials index](#) and [setting the domestic materials index](#) for more information), are used by the computer when it calculates the total value of your economy. The value of every possible convoy route between your ports is calculated, and a weighting is also applied based on how short the route is: shorter routes are worth more because more goods can be carried in a given amount of time.

Changing the industry levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

As industry values are changed you should notice the odds change also (unless the

change is small).

Note that although you can improve industry levels at selected ports during a game, this gets increasingly expensive as industry levels increase. It is relatively easy to establish small scale industry, but to create a fully sophisticated industrial base is very expensive (and time consuming) indeed. Giving a country an advantage with its industry at the start of the war represents a significant advantage (all else being equal).

Note also that it is most productive for industry levels to be highest at your home port, because this is where new aircraft and troop unit production as well as most ship construction is likely to take place. Surplus RPs can be convoyed in to home port but this takes time and involves risk of course.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# Create a Campaign - Setting technology levels

There are twelve key technologies - such as radar, ASW, machinery propulsion, ballistics, armour quality and so on - which have a significant impact on the performance of each country's naval and airforces. See [technologies](#) for more information.

The levels of technology that apply at the start of a campaign are factored into the starting odds.

Each country has default starting levels for these technologies as at the time of their entry into WW2.

Technology levels can be improved during the game - with targeted investment (see [how to build infrastructure](#) for more information).

But they can also be edited here, so that the starting levels can be any you want - either to more accurately reflect historical conditions as at the date you have chosen for the start of the campaign, or, conversely, to deliberately introduce a 'what if' element in to your campaigns, perhaps for interest or to change the starting odds.

## Viewing and editing technology levels

Each technology has a level between zero and 10 (maximum). The **average** of these for each country across all the eleven technologies can be seen on the screen:

<input type="button" value="Edit"/>	5.1	<b>Technology</b>	4.6	<input type="button" value="Edit"/>
-------------------------------------	-----	-------------------	-----	-------------------------------------

Aircraft technology is different to the others in that it can not be edited for the start of the campaign. But the other eleven technologies can be edited.

To view or edit the individual levels for each of the eleven other technologies, click the

appropriate 'Edit' button for the country concerned. You will now see this screen:

## United States

Average Technology value: 5.1

Optical Fire Control	7		Surface Propulsion	8	
Ballistics	7		Construction Techniques	8	
Radar	3		Anti-Sub Warfare (AS...)	4	
Armour	6		Sub Warfare Tactics	2	
Torpedoes	5		Sub Propulsion	4	
Amphib Ops	3				

OK (Continue)

The current value for each technology is shown, as well as the average of all of these values.

To change a level, just drag its associated slider up or down. You will see the average value change as you do this.

Changes in technology starting levels can affect starting odds if they are big enough. You will see the new odds when you exit this screen.

# Exiting

When you are satisfied with the levels, click the 'OK (Continue)' button. The screen will close and you will be returned to the previous screen, where you can continue to set more campaign parameters.

## Other Campaign Parameters

Click [here](#) to return to the help page detailing the next steps.



# **Create a Campaign - Setting naval and airforce training levels**

The level of naval and air training for a country can be between 1 and 10 (maximum). The default value is based on historical levels applicable when the country entered WW2. Training levels can have a significant effect on the performance of ships and aircraft. Ships and aircraft also gain experience from combat, which helps their effectiveness. But better training to begin with gives them a better chance of surviving!

Training can be increased during a game (see [how to build infrastructure](#)).

But the starting levels can also be changed here if you want. As the level for one side or the other is changed you will probably see the starting odds changing also.

The current level for each side is shown on the screen:



To change the level for one side or the other simply drag the associated slider up or down.

## Other Campaign Parameters

Click [here](#) to return to the help page detailing the next steps.

# Create a Campaign - Setting army training levels

The level of army training for a country can be between 1 and 10 (maximum). The default value is based on historical levels applicable when the country entered WW2. Training levels can have a significant effect on the performance of your army units. Army units also gain experience from combat, which helps their effectiveness. But better training to begin with gives them a better chance of surviving!

Army training can be increased during a game (see [how to build troops - controls for adjusting the plan](#)).

But the starting levels can also be changed here if you want. As the level for one side or the other is changed you will probably see the starting odds changing also.

The current level for each side is shown on the screen:



To change the level for one side or the other simply drag the associated slider up or down.

## Other Campaign Parameters

Click [here](#) to return to the help page detailing the next steps.

# Create a Campaign - Setting intelligence levels

The level of naval intelligence for a country can be between 1 and 10 (maximum). The default value is based on historical levels applicable when the country entered WW2. Intelligence levels significantly affect the quantity and accuracy of the information a player obtains about the enemy - such as the location and composition of his fleets, the characteristics of his ships, and the resources, troops and aircraft he has at his various bases.

Higher intelligence levels not only improve the quantity and accuracy of a player's information (eg through better code breaking) they also have a negative effect on the enemy's intelligence gathering. (Intelligence includes counter-intelligence efforts).

Intelligence can be increased during a game (see [how to build infrastructure](#)).

But the starting levels can also be changed here if you want. As the level for one side or the other is changed you will probably see the starting odds changing also.

The current level for each side is shown on the screen:





To change the level for one side or the other simply drag the associated slider up or down.

## Other Campaign Parameters

Click [here](#) to return to the help page detailing the next steps.

# Create a Campaign - Setting parameters - Part 2

The screen pictured below lets you set additional game parameters, including the opening strategy for each side:

<i>United States</i>	<i>Japan</i>
<input type="button" value="Is player controlled"/> ▼	<input type="button" value="Is computer controlled"/> ▼
Your 2-I-C is:	The C-I-C is:
<input type="button" value="Raymond A. Spruance"/> ▼	<input type="button" value="Takeo Kurita"/> ▼
	
Very cautious strategist	Very cautious strategist
Strategic Turn Length	
<input type="button" value="One month"/> ▼	
Operational Turn Length	
<input type="button" value="One month"/> ▼	
<input type="button" value="Cancel (Go Back)"/>	<input type="button" value="OK (Continue)"/>

Setting initial player control

By default, the first country you selected for the campaign is player-controlled, and the second is computer-controlled.

You can change this around, or make both sides player-controlled using the drop down lists:

<i>United States</i>	<i>Japan</i>
<input type="text" value="Is player controlled"/> ▼	<input type="text" value="Is computer controlled"/> ▼

Note that to swap sides, you must first make the computer-controlled side player-controlled, then change the other to computer-controlled. The computer will reject any attempt to make both sides computer-controlled.

It is also important to note that these are initial choices only. You are free during the game to take control of the other side and let the computer control what was your side.

When both sides are set as player-controlled, you have the option of using hot seat play, using the same computer, or of playing by email. See [playing by email](#) for help on this.

## Setting the initial strategy for each side

**SAS WW2** is primarily a strategic and high-level operational game. To help you make decisions your 2-I-C will develop plans for more ships, aircraft, troops and port infrastructure, and will plan missions. These plans will broadly aim to fulfill one of four general strategies: very cautious, cautious, aggressive or very aggressive. Your computer opponent also plans in this way.

The choice of strategy has a big effect on these plans, as well having more subtle effects, such as on the default fleet orders given to certain fleets. For more information, see the [strategies](#) help page.

You can change your strategy at any time during game play. The choices here simply set the strategy that applies from the opening of game play and until they are changed

by a player.

When you select the strategy, you actually select the name of a famous Admiral, whose actions in war-time indicated the kind of strategy he preferred.

<b>Your 2-I-C is:</b>	<b>Your C-I-C is:</b>
<div>Ernest J. King ▼</div>	<div>Isoroku Yamamoto ▼</div>
	
<b>Cautious strategist</b>	<b>Very aggressive strategist</b>

For example, Isoroku Yamamoto, the mastermind of the Pearl Harbor attack, is rated as 'very aggressive'. Dudley Pound, the British First Sea Lord most famous for his catastrophic decision to save his naval ships and leave convoy PQ17 to a merciless fate, is rated as 'very cautious'.

To make things more interesting, if one side is to be computer-controlled, you can select the strategy as '??'. This means the computer will randomly select one of the four strategies, so you will have to deduce the enemy's strategy from his actions.

## Strategic and operational turn lengths

**SAS WW2** allows you to play a very quick or a very slow game according to your taste. You do this by varying the length of the strategic turn and the operational turn.

For more information on what these turn lengths mean, see [Overview - timescales](#).

You can change these during game play. But you can also set the turn lengths here in the campaign creator. These settings apply from the opening of the game until they are changed by a player.

## Cancelling out

If you want to return to reset parameters on a previous screen, click the 'Cancel (Go Back)' button'. The current screen closes and you will see the previous screen.

## Continuing with campaign creation

When you are satisfied with the choices made on this screen, click the 'OK (Continue)' button. The screen will close and you will be taken to the *final* screen where you complete and save your campaign.

Click [here](#) for help on this last screen.



# ***Saving a campaign template for later editing***

At most points while you are creating a campaign, you can save it as a 'template'. The template can then be later re-loaded and edited. (See [loading campaign templates](#)).

You might want to save a campaign template for any of two reasons:

- You do not have the time in the current session of **SAS** to finish the task of creating your campaign, and you want to quit, and come back later.
- You want to be able to later create another campaign that uses the current one as a foundation - perhaps changing dates, or some port parameters, or indeed any other aspect.

## How to save a template

The two main screens for creating a campaign have a 'Save' button, as shown below:

The screen for setting most campaign parameters:

Britain a little easy		8 %		Italy a little hard	
<div>Edit</div>	4250	<b>Resources</b>	4650	<div>Edit</div>	
	340	<b>Production</b>	340		
	677	<b>Trade</b>	939		
	3.4	<b>Infrastructure</b>	2.6		
	0	<b>Troops</b>	0		
<div>Edit</div>	5.0	<b>Technology</b>	3.5	<div>Edit</div>	
<div>▶</div>	7.5	<b>Naval &amp; Air Training</b>	5.0	<div>▶</div>	
<div>▶</div>	6.5	<b>Army Training</b>	4.5	<div>▶</div>	
<div>▶</div>	6.5	<b>Amphibious Training</b>	4.5	<div>▶</div>	
<div>▶</div>	7.0	<b>Intelligence</b>	5.0	<div>▶</div>	
<b>Map:</b>		<div>Mediterranean</div>			
		<div>Carriers</div>			
		<div>Land-based Air</div>			
		<div>Own ship designs</div>			
		<div>Troops enabled</div>			
<div>Cancel</div>		<div>Reset</div>		<div>Save</div>	
				<div>OK</div>	

The screen for setting strategies and turn lengths:

## Britain

Is player controlled ▼

Your 2-I-C is:

Dudley Pound ▼



Very cautious strategist

## Italy

Is computer controlled ▼

The C-I-C is:

Inigo Campioni ▼



Very cautious strategist

Strategic Turn Length

One month ▼

Operational Turn Length

One month ▼

Cancel (Go Back)

Save

OK (Continue)

At *any time* when you are on either of these screens, you can save the current state of the campaign by clicking the 'Save' button.

You will now see a dialog like this:



## Choosing a template name

Just type in a name that you want to use to identify the template. If the name is the same as one already saved, the old template will be overwritten - so be careful about choosing names. If you have already saved at least once in the current session, or else loaded a template to work on it (see [loading campaign templates](#)) the dialog will already have the current template name. Keeping the same name simply overwrites the old template; but you can ***change the name*** at any time also. Changing the name means a new template will be created with that name.

There are only two restrictions on the name of a template:

- The name must not be blank.
- The name must NOT be the same as one used for an already finished campaign (ie one that is ready for play). (This purpose of this rule is to stop players inadvertently confusing themselves. Campaign files and templates files are physically separate but logically related.) You will be prevented from giving a template the same name as a finished campaign.

## Saving

When you have entered a valid name (or are happy with the name already showing), just click the 'OK' button to save the template. The dialog will now close and you will be returned to the screen you were on.

From there, you can continue editing the campaign parameters - and re-saving the template any time you want - or just exit out of the campaign creator. The template you have saved is ready to be re-loaded any time you want - see [loading campaign templates](#).

## About template names and campaign names

When you are on the final campaign creation screen, you name the campaign and save it, ready for play:

<h2 style="text-align: center;"><i>Britain</i></h2> <p><b>The C-I-C is:</b></p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p><b>Title:</b></p> <div style="border: 1px solid black; padding: 2px;">First Sea Lord</div>	<h2 style="text-align: center;"><i>Germany</i></h2> <p><b>The C-I-C is:</b></p> <p><b>Erich Raeder</b></p> <p><b>Title:</b></p> <div style="border: 1px solid black; padding: 2px;">Grossadmiral</div>
<h3><i>Campaign Name:</i></h3> <div style="border: 1px solid black; padding: 2px; display: inline-block;">Med2</div>	
<p><b>Campaign starts in:</b></p> <div style="border: 1px solid black; padding: 2px; display: inline-block;">1939 ▼</div> <div style="border: 1px solid black; padding: 2px; display: inline-block;">September ▼</div>	
<div style="display: flex; justify-content: space-around; align-items: center;"><div style="border: 1px solid black; padding: 5px 20px;">Cancel (Go Back)</div><div><input checked="" type="checkbox"/> <b>Keep Template</b></div><div style="border: 1px solid black; padding: 5px 20px;">OK (Create)</div></div>	

If you have already saved a template, the campaign's name field will be prepopulated with the name chosen for the template. This is because normally you would want the template and the campaign name to be the same. BUT you can freely choose a different name for the campaign - campaign files and template files remain separate and can have different names. The only time you see the listing of saved template names is when you want to load one.

## The Auto-save feature



As well as being able to manually save a template at any time, **SAS** has an auto save feature.

On the final campaign creation screen, you will see a 'Keep template' option at the bottom:

The screenshot shows a campaign creation interface with a light yellow background. At the top, there are two columns: **Britain** on the left and **Germany** on the right. Under **Britain**, the text "The C-I-C is:" is followed by an empty text box. Below that, "Title:" is followed by a text box containing "First Sea Lord". Under **Germany**, the text "The C-I-C is:" is followed by the text "Erich Raeder". Below that, "Title:" is followed by a text box containing "Grossadmiral". In the center, the text "Campaign Name:" is above a text box containing "Med2". Below this, the text "Campaign starts in:" is above two dropdown menus. The first dropdown menu shows "1939" and the second shows "September". At the bottom, there are three buttons: "Cancel (Go Back)", a checkbox labeled "Keep Template" which is checked, and "OK (Create)".

By default, this option is ticked. When it is ticked, the 'OK (Create)' button is used not only for saving the finished campaign ready for play but also for saving the template from which the campaign was created. The template name and the campaign name in this case will be the same.



To stop a template being saved at this point, just un-tick the 'Keep template' tick box.

# Create a Campaign - final steps

The final screen for creating a campaign has controls to name the campaign and the players and set the start date:

<i>United States</i>	<i>Japan</i>
<b>The C-I-C is:</b> <input type="text"/>	<b>The C-I-C is:</b> <b>Isoroku Yamamoto</b>
<b>Title:</b> <input type="text" value="Admiral of the Navy"/>	<b>Title:</b> <input type="text" value="Imperial Japanese Combined Fleet"/>
<b>Campaign Name:</b> <input type="text" value="USvJAP"/>	
<b>Campaign starts in:</b> <input type="text" value="1941"/> ▼ <input type="text" value="December"/> ▼	
<input type="button" value="Cancel (Go Back)"/>	<input type="button" value="OK (Create Campaign)"/>

## Naming the player(s)

Each side that is player-controlled must have a name set here to represent the player.

Just type the name in the text box.

Any side that is computer-controlled will have the name of the Admiral selected on the previous screen as the C-I-C.

You can optionally also change the players' titles. Those shown are the defaults selected by the computer.

## Naming the campaign

In the middle text box, enter a name for the campaign. By default, the name shows the opposing countries, such as 'USvJap'.

Make sure you give the campaign a unique name, not shared by any other **SAS WW2** campaigns.

## Set the start date

Using the selectors, choose the starting year and month.

The start year can be any between 1939 and 1949. It cannot be later than 1949 because does not allow play to continue beyond 1950. A forced end to the game occurs when the date reaches 1950.

## Cancelling out

To cancel out from this screen and return to the previous screen, click the 'Cancel (Go Back)' button.

## Finishing and saving

To indicate that you have finished creating the campaign and wish to save it, click the 'OK (Create Campaign)' button.

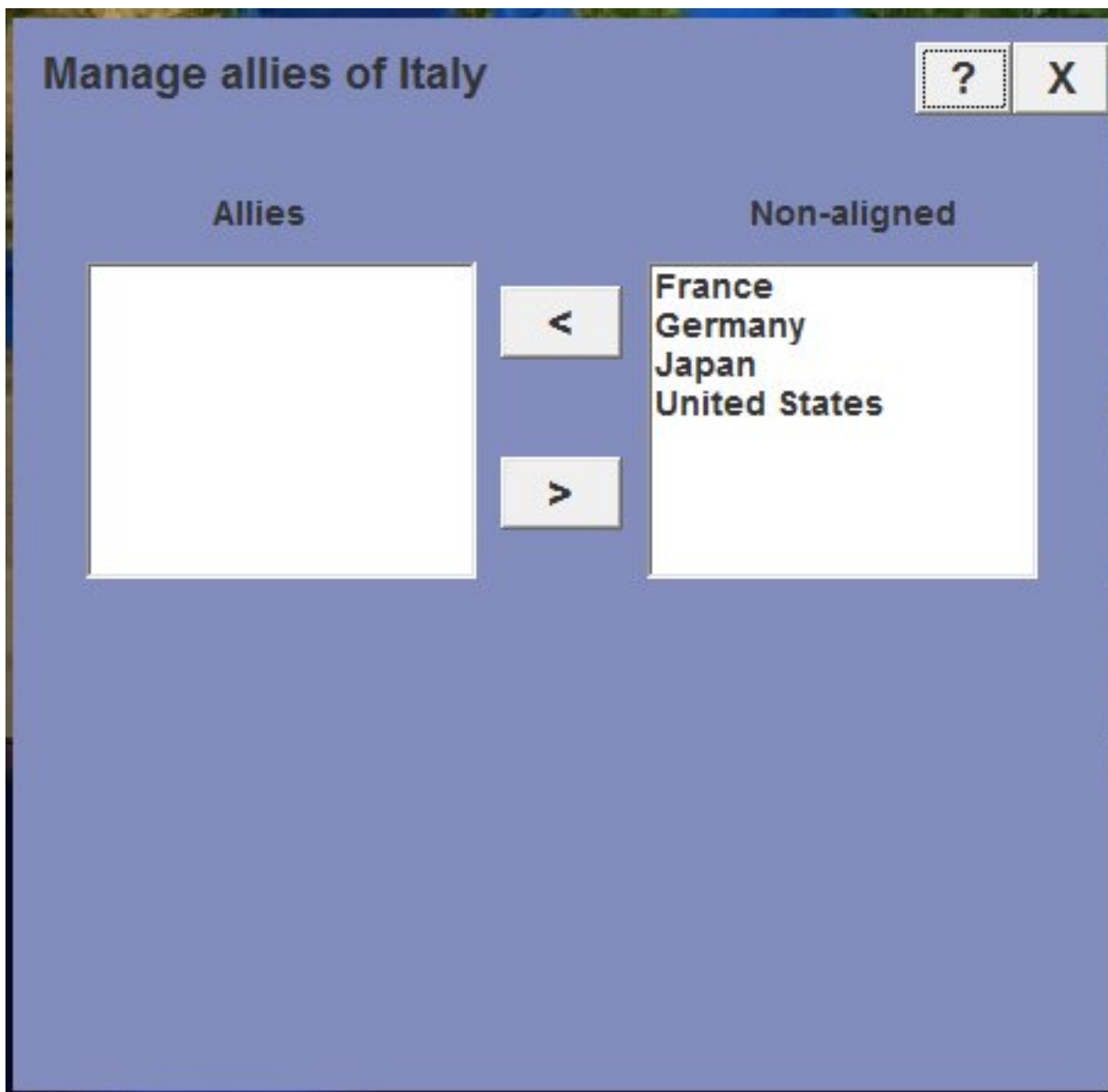
If you have not entered names for the player(s) or for the campaign itself, or the campaign name is not unique, you will get an error message.

Otherwise, the game will be saved.

## Adding allies

Just before the campaign is saved, you will have the chance to nominate 'allies' for either or both sides. An ally is a country that can contribute aircraft and ships. (See [making alliances](#).)

A dialog will automatically appear, looking like this:



By selecting a country or countries in the 'Non-aligned' countries list, and clicking the '<' button, you add them as an ally. Reverse the process to remove them.

Close the dialog using the 'X' button.

The dialog will then appear a second time - to allow you to nominate allies for the second main country in the campaign.

Once you close it a second time, the campaign file will be saved. Note that allies can be added (or removed) during game play also - see [game options - allies](#).

It may take a few seconds to save the campaign. When the save is finished you will see a confirmation screen:

**The game is now created. When you click OK,  
you will exit from SAS WW2.**

OK

Click the 'OK' button to exit the campaign creator and **SAS WW2**.

When you next re-start **SAS WW2** and click 'Select Campaign' on the start screen, you will then see the campaign you have just created listed as available for selection.

# ***Creating notes for a campaign***

Once you have created a campaign, you may wish to create some notes on it, for players to review.

The out-of-the-box campaigns in **SAS** all have notes that provide an overview of the campaign to help players understand the challenges they will be facing.

The notes appear whenever a campaign is loaded and the 'See Scenario Description' tick box is ticked:



Here is an example of the notes for the 'Med1' campaign:



## Scenario "Med 1"

This is a full-scale historically-based campaign between Britain and Italy in the Mediterranean, commencing in July 1941.

As with all SAS WW2 scenarios, you can play for either side against the computer, or another player, and you can swap sides at any time during game play. For the British, you play as Richard Howe, a descendant of one of Britain's most successful Admirals; for the Italians, you carry the name of your distant famous relative Francesco Carraciola, successful Admiral and Prince!

The odds are rated as "about even" for both sides.

The campaign starts with the moves for both sides already done, and unless players modify the moves for either or both sides before the turn is run, there will be a LOT of action in the first turn!

**Note:** By default, SAS WW2 campaigns have 'emergency tactical responses' enabled for players. If you are inexperienced in SAS WW2, or just want a quicker game, you will need to disable some or all of the emergency tactical response options. See [tactical responses](#) for help on this topic.

Axis forces have captured Greece and Crete. Rommel's Afrika Korps has recently chased the British Western Desert Force all the way back to the Egyptian border. Only the small town of Tobruk holds out, garrisoned by tough Australian troops. All of Egypt - including the major port of Alexandria - now is like a ripe plum to be picked in the next Axis offensive. Malta lies battered under tons of Axis bombs.

The stage is set for a classic contest: the allies must strive to maintain the lifeline of convoys between Gibraltar, Malta and Alexandria; the Axis is determined to support and strengthen their forces in Libya, ready for the next offensive.

On paper, the Italians have the more powerful navy, a much larger airforce, and a strategically superior position. But they are prone to cautious moves. The better trained, more aggressive British navy is ready to accept the fight.

The starting naval forces, including ships under construction, are historically accurate except for the inclusion of three aircraft carriers for the Italians: the *Aquila* and an escort carrier, the *Spaviero*, have been completed ahead of time; while a sister to the *Aquila*, the *Giuseppe Miraglia*, is still under construction. Yet these carriers will do little to improve the fighting power of the Italian fleet - the Italian doctrine remains defensive, and the carriers are equipped with aircraft suited mainly to fighter defence.

Each side has a navy in the theatre of just under 1 million tonnes, and a merchant navy of over 200,000 tonnes. The British have a slight advantage in capital ships; the Italians, a substantial superiority in numbers of destroyers and especially submarines.

Players can of course add to the specified construction programs as resources allow, so this campaign can result in large navies by war's end.

The Italians start with nearly 1500 aircraft deployed, including over 200 German combat aircraft of Fliegerkorps X and Fliegerfuhrer Afrika, based in Sicily and Libya. The Sicilian-based aircraft in particular are especially suited to anti-shipping attacks and give the Italians a powerful punch. But they will not be replaced as they are lost - Hitler has the Russian Campaign on his mind and is diverting all important resources to that theatre.

Against that, the British can muster less than half that number, but they are well trained and the carrier-based aircraft are mobile and will remain a

To create your own notes, you need to create a web page and store it in the correct folder.

The web page should be in basic html and avoid cascading style sheet positioning commands, because the page is displayed in a special window that has some but not all of the features of a normal web browser.

The easiest way to create a web page is to **clone** one of the existing pages for an out-of-the-box scenario. To do this, go to the 'Help\New' folder that is under the folder on your computer where **SAS** was installed to. This will probably be on your c: drive, at the location 'c:\NWS\SAS-WW2'. Now, find one of the files that has a name starting with 'Scenario\_'. Then, open it in a text editor - Windows notepad is perfect, make your changes and perform a 'Save As' operation, renaming it with the new name. The new name must be in this format: 'Scenario\_XXXX.htm' where 'XXXX' is the name of the campaign you created. For example, if you have created a campaign called 'FRvIT 1941', then the name of the notes file would be 'Scenario\_FRvIT 1941.htm'.

That's it! The notes page should now appear for your scenario whenever you load it and have the 'See Scenario Notes' tickbox ticked.

# ***Creating new campaigns from existing ones***

The campaign builder allows you to create entirely new campaigns from the ground up. (See [creating campaigns - an overview](#))

But you can also create a campaign from one that you are playing.

The new campaign becomes an exact clone of the existing one you are playing, at the point in time when you create it.

You can use this feature to, among other things, timestamp your campaigns at critical points - to go back to whenever you want. If you create several new campaigns, all at the same point in time, you can play out different strategies, operations and tactics with each of them, thereby playing out multiple alternate histories.

## An example

The following example takes you through creating a new campaign from an existing one.

### Starting the 'Med1' campaign

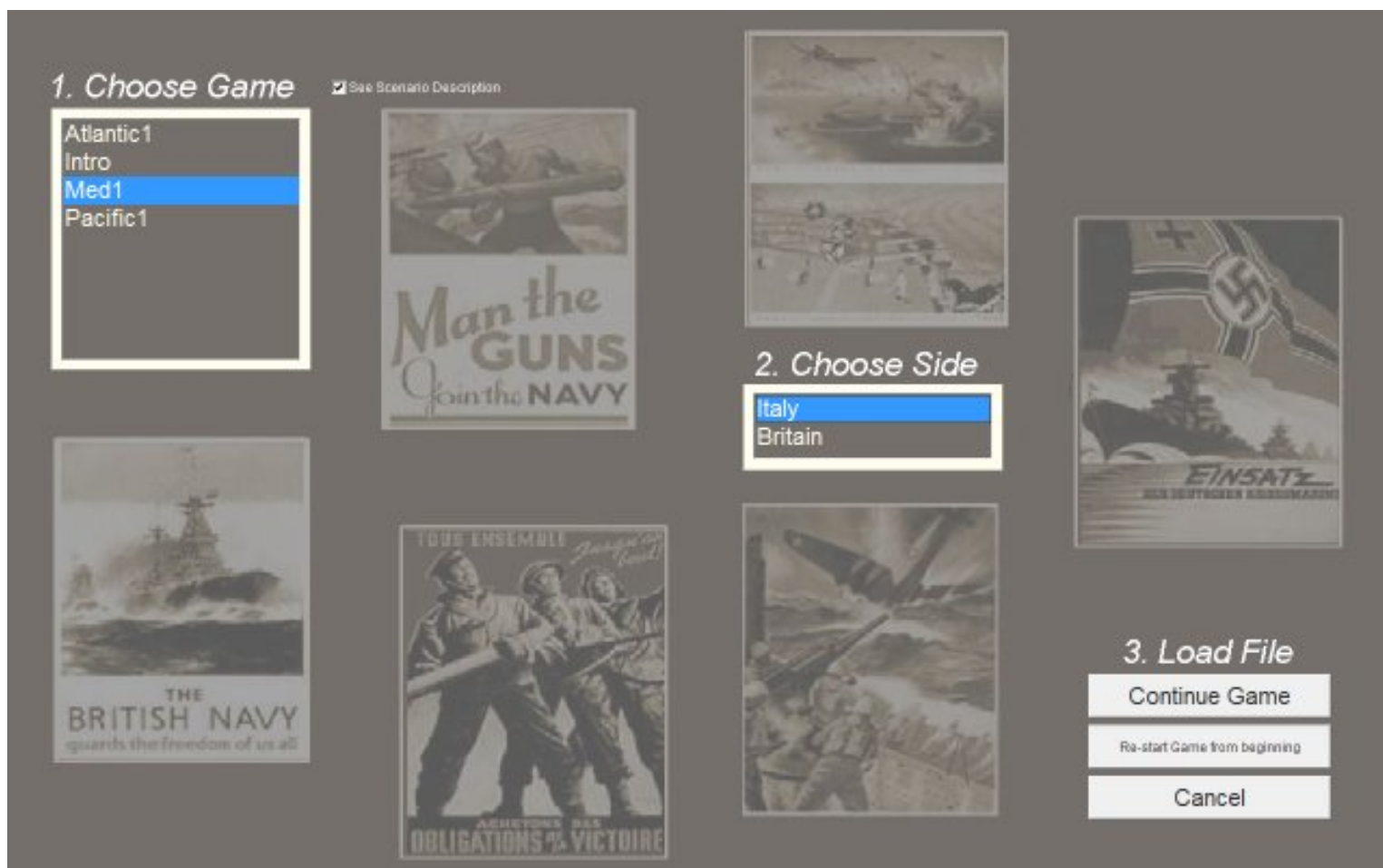
From the **SAS** start screen:

Welcome aboard, Admiral!



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NMS: SAS is a trademark for Naval Warfare Simulations' naval series of wargames.

Click on 'Select Campaign', and in the list of available campaigns, select 'Med1', and Italy as your country:



Click the 'Continue Game' button to continue the game from its current point. In this example, the current point is turn 2, or August 1941. The first turn has already been played.

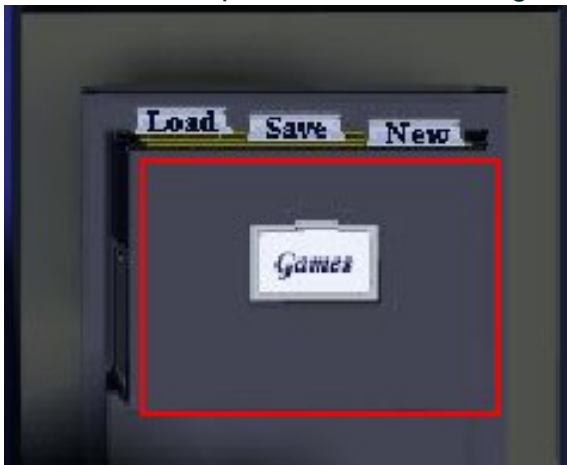
The screen below shows this game ready to play, as at turn 2. (A new feature in version 1.1 is the addition of information at the bottom left of the screen that tells you the name of the campaign you currently are playing, and the current turn number and date.)





For this example, we are going to create a new campaigns as at this date, using the existing game to clone from.

Click on the top drawer of the filing cabinet to open it:



Pass your mouse over the 'New' tab:



Click on the 'New' tab.

You will now see a dialog for giving a name to the new campaign you are creating:

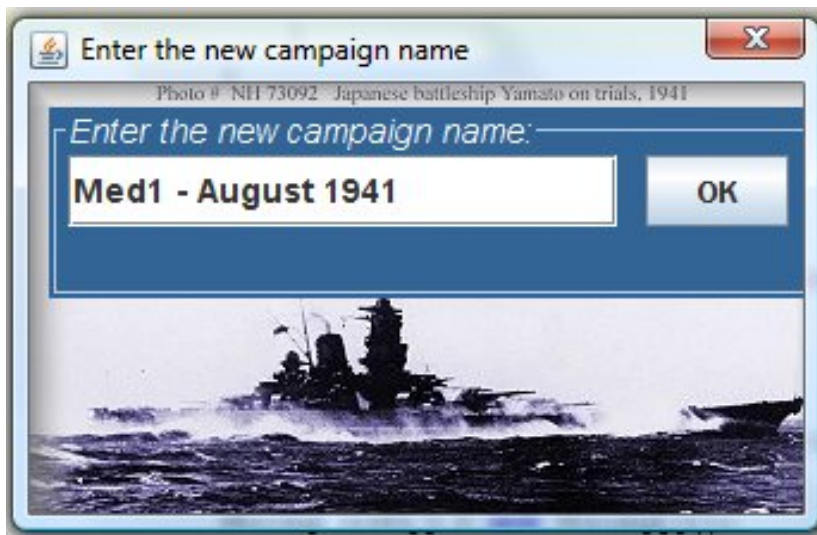


## Restrictions on names

Note that the can be any non-empty string but it must be unique, ie different to the name of any existing campaign on your computer. You will be prevented from creating a new campaign with the same name as an existing one.

Enter the name 'Med1 - August 1941'





Click the 'OK' button. The dialog will close, and you will be exited from **SAS**.

When you next restart **SAS**, and come to select a campaign, you will see the new campaign listed separately:



This new Campaign is now an entirely separate campaign from 'Med1'. It can be played separately. It can be restarted at any time. If you had created a second cloned campaign at the same time, you could have named them differently, and then played both out separately to test out alternative histories.

# **Editing a campaign**

Ver 1.1 of **SAS** has introduced the ability to edit certain campaign parameters during play.

This feature is to be used sparingly and is very much 'player beware' because it can unbalance campaigns unless the changes are thoughtfully made.

The main use of this feature should be to 'tweak' campaigns as a result of play testing. The 'tweaked' campaign can then be cloned (see [creating new campaigns from existing ones](#)) to create a new campaign that starts at the point after you have tweaked it.

The number of things you can edit may be added to in subsequent SAS versions, but as of ver 1.1, there are two things you can change:

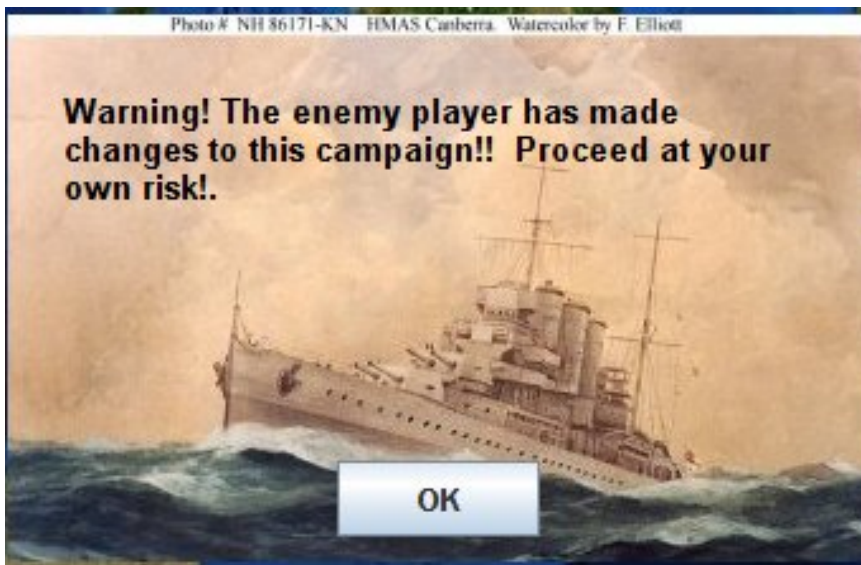
- The starting odds - which affect how player performance is rated by the computer.
- All the key port parameters: domestic and export materials indices, domestic and export industry levels, and docks, airfield and defence infrastructure levels.

## Protection against changes in PBEM games

Naturally, when playing PBEM games, there needs to be control over the campaign edit feature.

There are two controls built-in:

- Once you have put a password on your game to make it suitable for PBEM, the campaign edit feature can no longer be accessed.
- In addition, any changes you have made before you put a password on are recorded. When the enemy player comes to run the turn calculation, he will see this message:

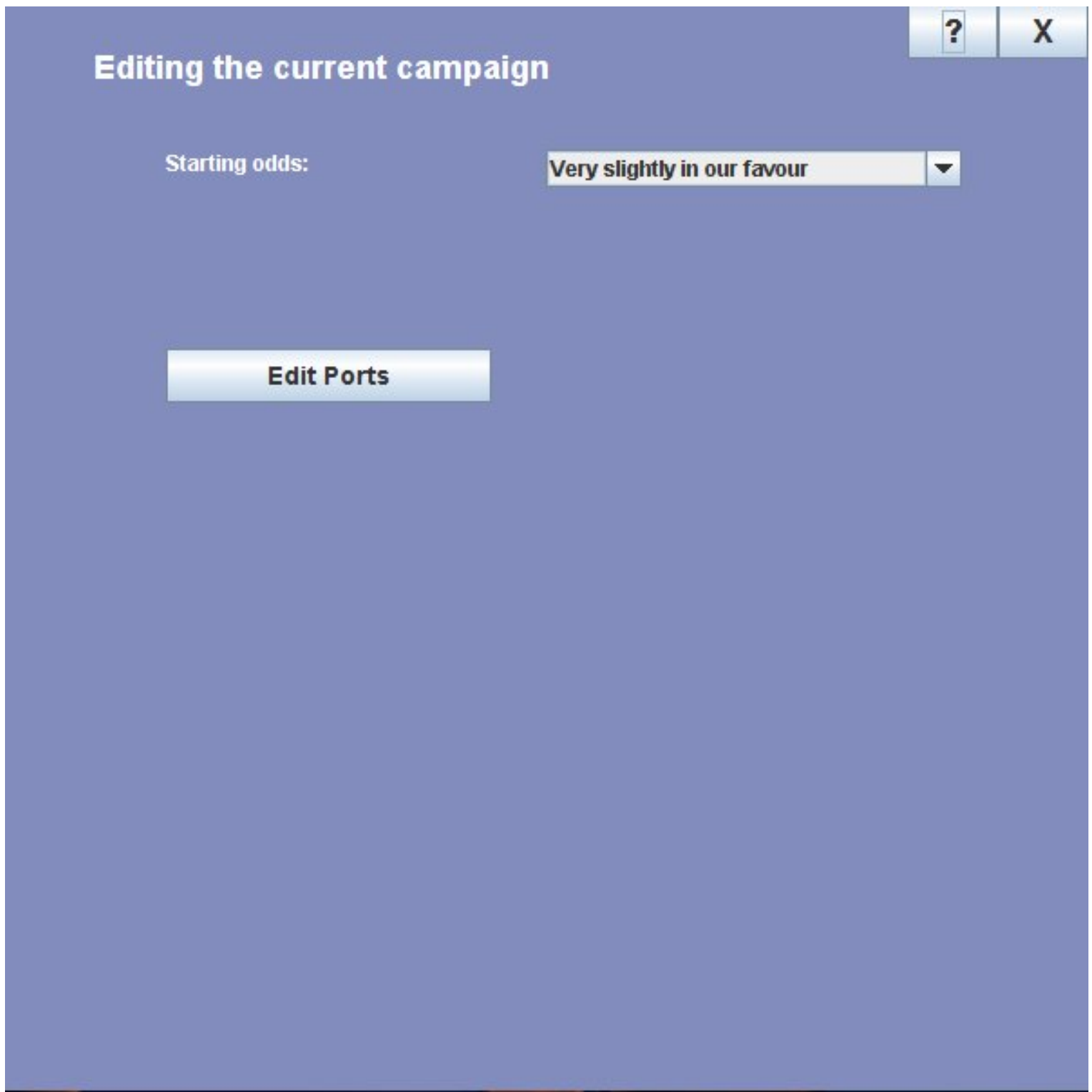


The warning does not prevent the enemy player running the calculation, because the changes made may have been by agreement. But it should prevent any unauthorised changes occurring.

## Accessing the Edit Campaign dialog

From your [Admirals Office](#), click on the picture of your leader at the top right of the screen.

You will now see this dialog:

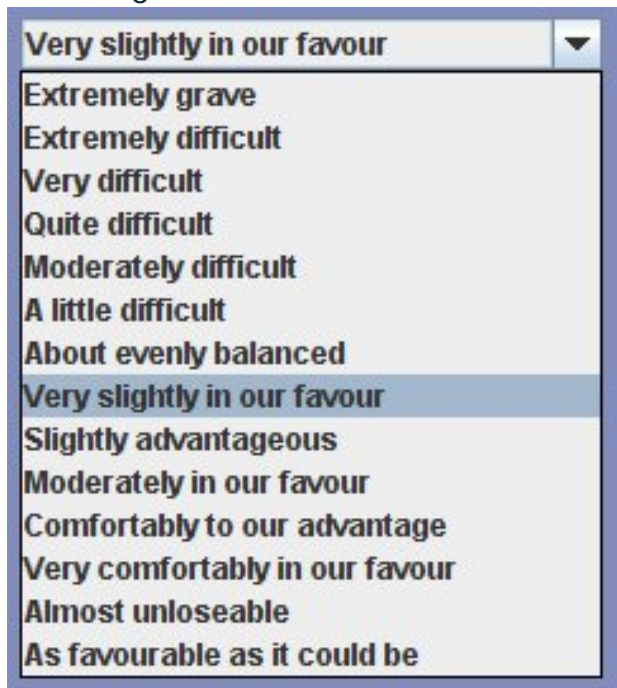


## Editing starting odds

When you first create a campaign, the computer assesses each sides odds based on a total look at the strengths and weaknesses of each side. The odds are balanced in the sense that if one side is rated as having very hard odds, the other will have the converse - very easy odds.

Sometimes, from playtesting, you may feel that the computer's assessment has been wrong.

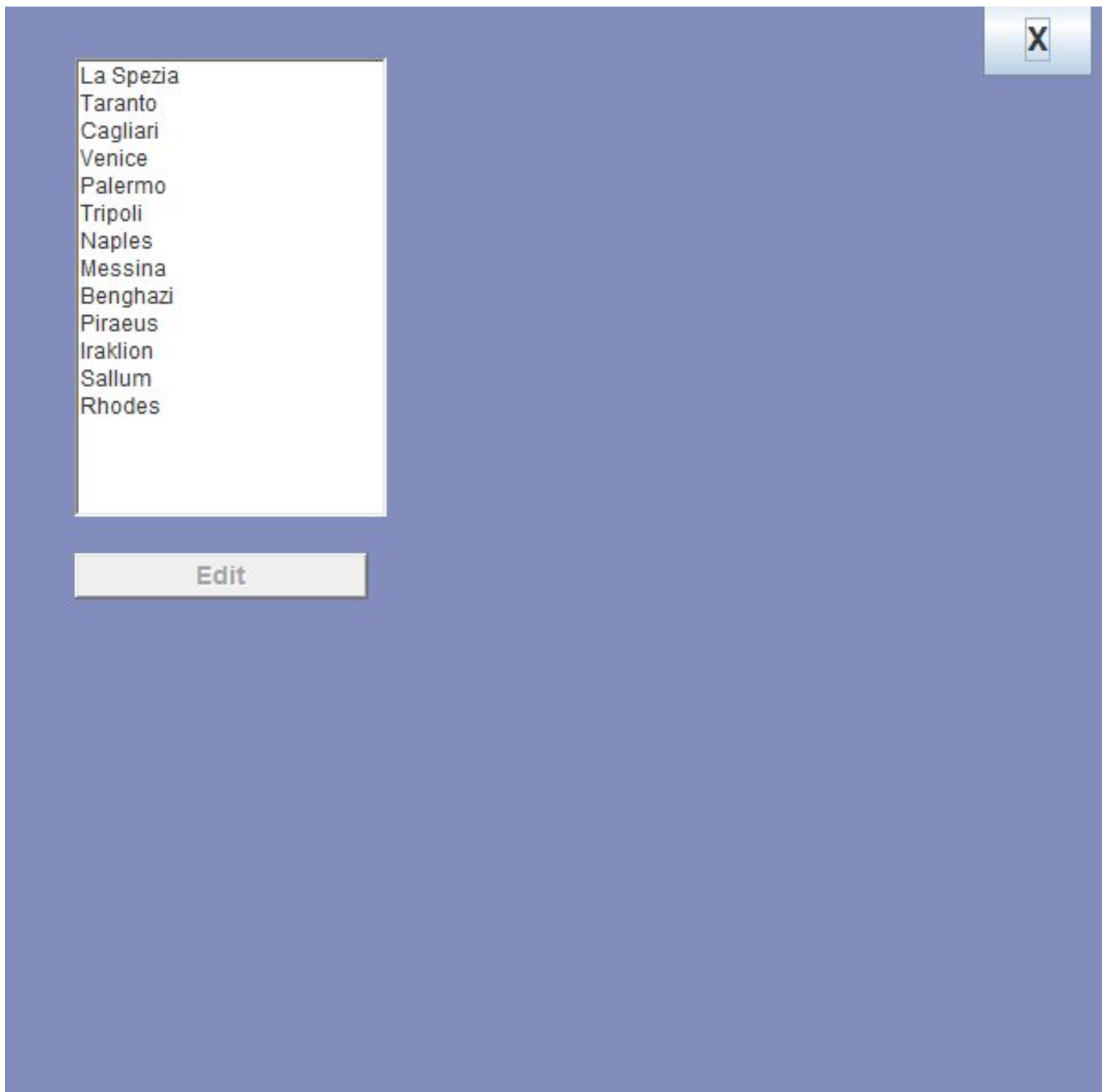
If so, you can change the assessment of odds for the side you are currently playing by selecting a different odds value from the selector:



Warning!: If you make a change you really need to make the converse change to the enemy side also. To do this, close the dialog, save the game, load up the enemy side, make the appropriate change and then save that game also.

## Editing port parameters

Click the 'Edit Ports' button. You will now see this dialog:



Select a port you want to edit, and then click the 'Edit' button.

You will now see this dialog:



## Piraeus

Current RPs:

Domestic Materials Index:  ▼

Export Materials Index:  ▼

Domestic Industry Level:

Export Industry Level:

Current docks level:

Current airfield level:

Current defence level:

**Cancel**

**Make Changes**

Make any change(s) you want. Changing RP levels can have a significant and immediate 'once-off' effect. Changing materials indices and industry and infrastructure levels also can have significant effects, and these are of an on-going nature.

If you change your mind and do not wish to record the changes, click the 'Cancel' button.

Otherwise, click the 'Make Changes' button. The changes will now take immediate effect,

although you will still need to perform a normal game save operation for the changes to actually be recorded permanently.

# **Troubleshooting**

Follow these links to help troubleshoot problems with running **SAS WW2**:

- [Memory problems](#)
- [Performance problems](#)

# ***Fixing computer memory issues***

**SAS WW2** requires a minimum of 512 MB of dedicated memory (i.e. memory not used by your computer's operating system or any other applications running at the same time). A greater amount of memory is likely to improve performance on most computers.

**SAS WW2** tries to acquire a minimum of 512 MB and up to 1024 MB of memory when you run it.

If you have more available - such as a GB or more - you can easily set up **SAS WW2** to take advantage of this greater amount of memory.

An easy way to gauge if you have enough memory is to look closely at the progress bar at the bottom of the screen during turn calculation:



The figure on the right shows the currently available free memory. If your free memory at any time falls below about 150MB, performance problems are much more likely. If it falls much below this, **SAS WW2** can stop working or experience intermittent issues.

If your computer has more than a MB of memort to spare and you want to optimise performance further, you can tell **SAS WW2** to use as much as you want.

You can do this by modifying the properties of the desktop icon for SAS WW2 (assuming you launch the application that way).

To do this, right-click on the **SAS WW2** icon on your desktop. It looks like this:



This brings up the windows properties dialog for the shortcut.

The "Target" command line string includes "-Xms512m" and "-Xmx1024m". The first means that a minimum of 512 megabytes of memory is required for the program to run. The second means that the program will try to get up to 1024 megabytes if it is available.

These values are on the low side in terms of guaranteeing optimum performance on your computer, but they have been set at these levels so that most computers can run **SAS WW2**.

If you have more memory, it is highly recommended that you change the target string to higher amounts. For example, you could replace the default values with "-Xms1024m" and "-Xmx2048m", if your computer had up to 2GB or more of memory.

Note that the "Xmx" value must be equal to or greater than the "Xms" value.

The new values you enter should also be multiples of 64.

Don't forget to retain the string exactly as it is with only the two numbers changed.

Once you have made the change, click the "Apply" button, and close the dialog. Then close **SAS** **WW2** if it is running, and re-start it.

# **Fixing computer performance issues**

SAS WW2 has recommended hardware specifications to prevent performance issues arising.

If for some reason you are experiencing slower than expected performance, first consult the [fixing computer memory issues](#).

You can also improve the speed of the calculations by up to 20%, especially on single processor computers, by disabling music. See [player options](#) for help on this.

# **SAS WW2 Game Design and Development Credits**

Tony Glazebrook: concept, design, AI, programming

NWS Project Directors: Christopher Dean, William Miller

Production and extended concepts: Christopher Dean

Projects assistance and aircraft data and aerial combat mechanics: William Miller

Historical research: William Miller, Kyle Holgate, Ed Rotondaro

Beta testing: the NWS Beta Team, especially Scott Chisholm, Kurt Schofield, Robert Schoneman, Kristian Fischer

Theme music: Jeff Edwards

Map base graphics: Richard Beaudin

DVD cover art: Tony Glazebrook, Christopher Dean, William Miller

Help files and .pdf manuals: Tony Glazebrook

Thanks are also due to:

- Enthusiastic support, testing and ideas from public users via the NWS forums
- The ***NogginSoft*** team for initial (v1.0) development support
- Deborah Yffer and Clare and Garry Glazebrook for special project support throughout

## Dedication



The game is dedicated to the memory of Robert James Glazebrook (1925-2006), who served with the RAAF during WW2 and was an expert aircraft modeller. His model of the Boston was commissioned by the RAAF, and his Airacobra now is on display at the Australian War Memorial.

# **Available maps**

**SAS** has five maps to choose when creating a campaign: a Pacific Map, and, since version 1.1, two Mediterranean and two Atlantic maps.

## The 'Pacific' map

The map size is huge - over 28 million square nautical miles, stretching from the US West Coast to Singapore, and from Brisbane in the south to the Aleutians in the far north.

The hex size is 96 nautical miles.

36 bases are available for selection:

Notionally allied (the allegiance can be changed), there are :San Francisco, Pearl Harbor, Puget Sound, Brisbane, Darwin, Fremantle, Townsville, Port Moresby, Efate, Noumea, Fiji, Samoa, Palmyra, Wake Is., Johnston Atoll, Dutch Harbor, Bora Bora and Kanton.

Notionally on the Japanese side (the allegiance can be changed) there are: Tokyo Bay (actually several ports with combined ability), Truk, Singapore, Rabaul, Jakarta, Manila, Surabaya, Lae, Guadalcanal, Tarawa, Palaus, Guam, Iwo Jima, Maus Is., Okinawa, Brunei, Hollandia and Biak.

Note that not all of these bases have been selected for the out-of-the-box Pacific1 scenario - eg Puget Sound has been omitted.

The Intro campaign also uses the Pacific map, but has many bases omitted to simplify gameplay.

## The 'Atlantic' map

The map size is huge - over 33 million square nautical miles, stretching from the US East Coast to Archangelsk in Russia's far north west, and as far south as Montevideo in Uruguay.

The hex size is 96 nautical miles.

29 bases are available for selection:

Notionally allied (the allegiance can be changed), there are :Scapa Flow, Liverpool, Gibraltar, New York, Murmansk, Archangelsk, Halifax, Montevideo, Bermuda, Freetown, Reykjavik, Cape Town, Londonderry, Boston, Pernambuco and Norfolk.

Notionally on the German side (the allegiance can be changed) there are: Kiel, Wilhelmshaven, Hamburg, Narvik, Danzig, Lubeck, Trondheim, Stavanger, Bergen, St Nazaire, Brest, La Rochelle and Bordeaux.

All of these bases have been selected for the out-of-the-box [Atlantic1](#) scenario.

## The 'Atlantic2' map

This map, added in ver 1.1, is identical to the 'Atlantic' map but with these additions and changes:

- These new ports have been added: Southampton, Calais, Cherbourg, Rotterdam, Dakar and Casablanca.
- The Mediterranean sea has been opened up and Toulon, Alexandria and Tunis have also been added.

Players can use this map in preference to the 'Atlantic' map if they wish when creating new campaigns that are centred exclusively or mainly in the Atlantic.

## The 'Mediterranean' map

The map covers over 2.6 million square nautical miles - which at around one tenth the

size of the Pacific and Atlantic maps represents a relatively small-scale theatre.

The hex scale is 48 nautical miles

22 bases are available for selection:

Notionally allied (the allegiance can be changed), there are :Gibraltar, Alexandria, Malta, Tobruk, Mers el Kebir, Tunis and Algiers.

Notionally on the Italian side (the allegiance can be changed) there are: La Spezia, Taranto, Venice, Naples, Cagliari, Palermo, Messina, Piraeus, Iraklion, Rhodes, Tripoli, Benghazi, Bari, Trieste and Sallum.

Most of these bases have been selected for the out-of-the-box Med1 scenario, but the French ports, and Bari and Trieste are not included.

## The 'Mediterranean2' map

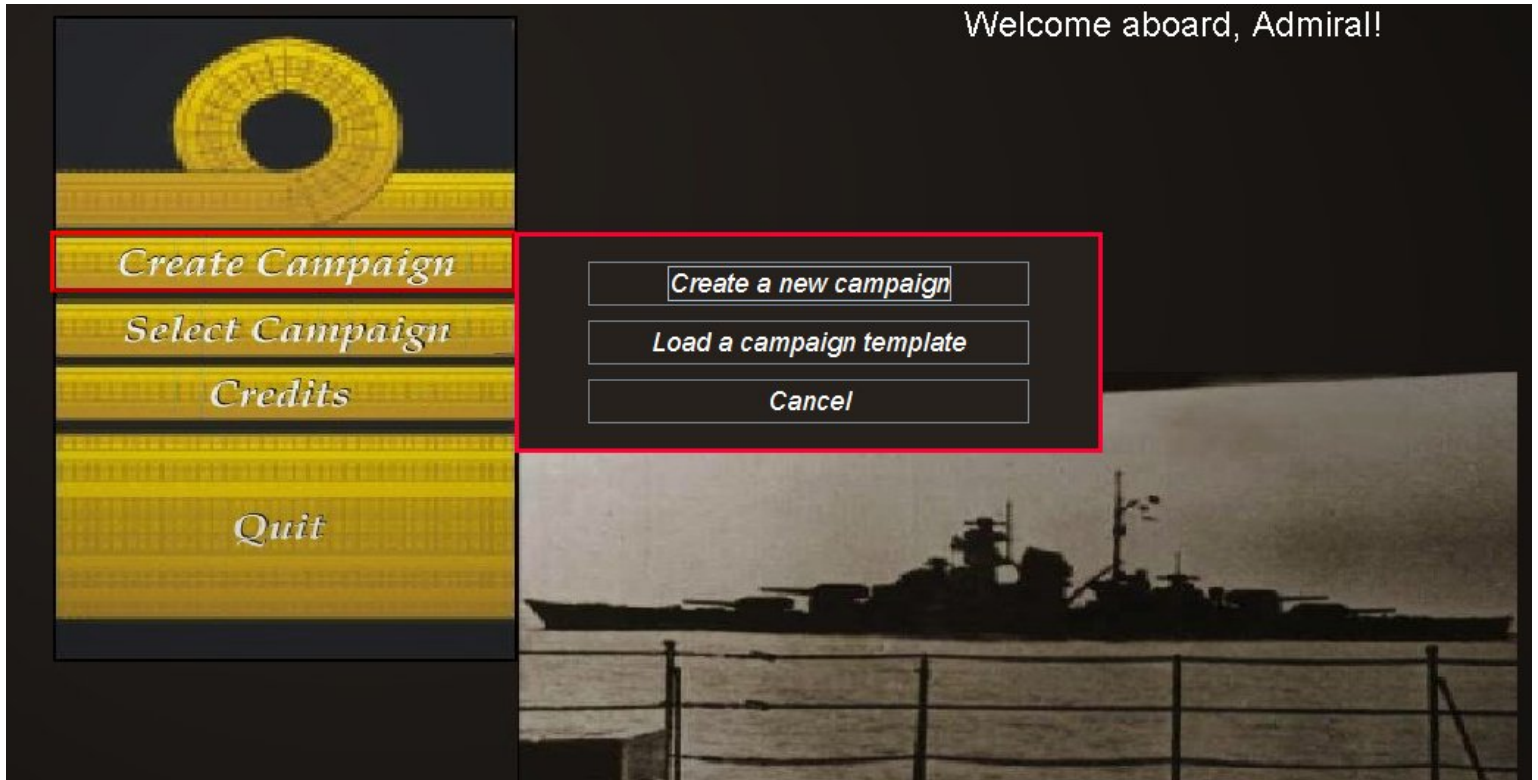
This map is identical to the 'Mediterranean' map but includes four new bases: Toulon, Marseilles and Sete for the French player, and Ajaccio for the Italians. This map was added in ver 1.1.

Players wishing to re-create a Mediterranean campaign with serious French forces will want to use this map.

# Loading campaign templates

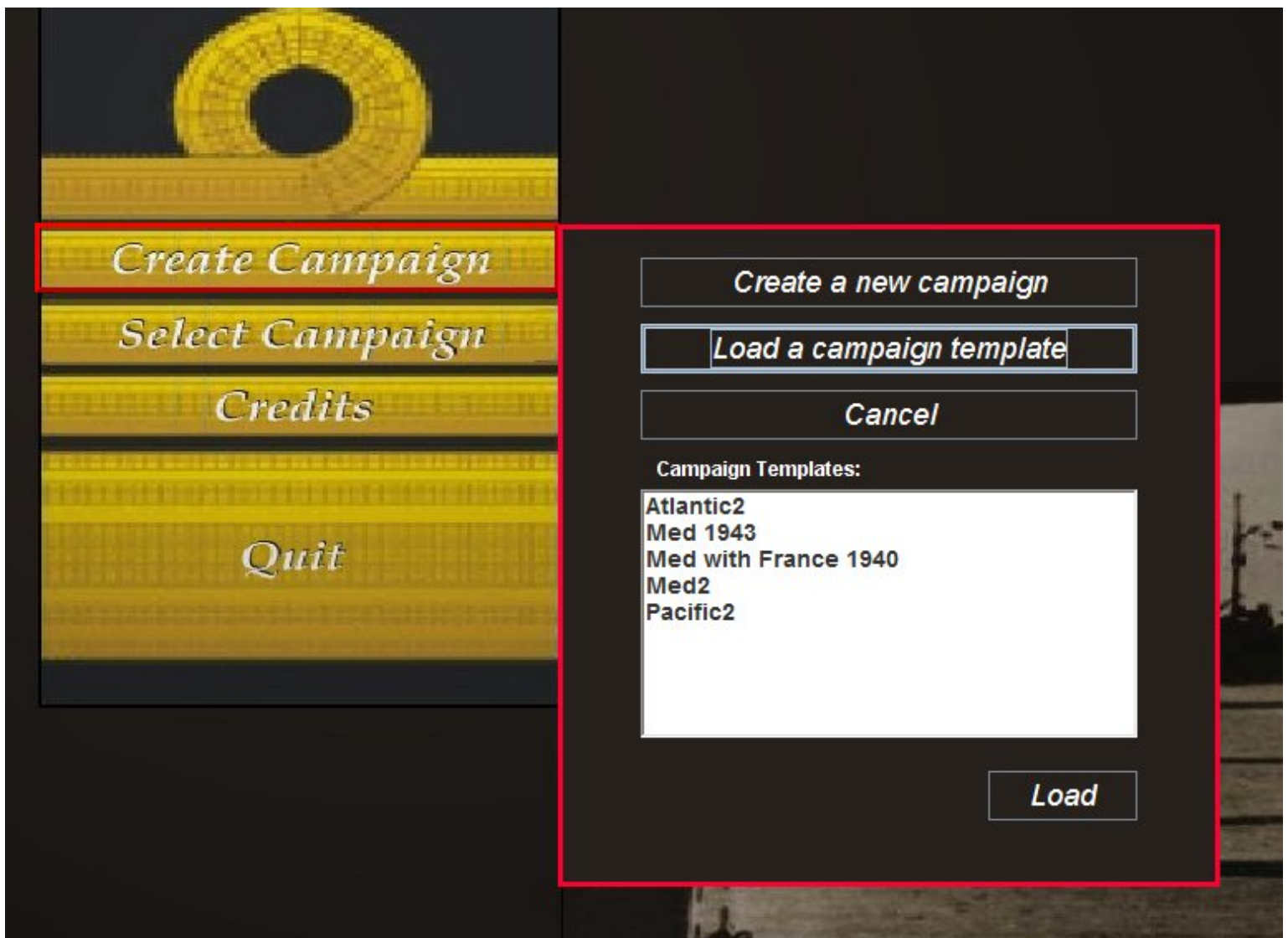
Once a campaign has been saved during creation as a template it can be re-loaded for further editing.

The **SAS** start screen has a 'Create Campaign' menu option. Clicking on it will bring up a sub menu:



To load a template, click on the 'Load a campaign template' button.

The sub menu will now expand to show a listing of all saved templates:



Select a template by clicking on it in the list. Then, click the 'Load' button.

You will now be taken to the campaign creator, with data from the template loaded in.

You can now continue to edit the campaign.

# **Very cautious strategy**

A very cautious strategy will favour a plan to build slowly and carefully, looking for a long-term victory:

- Investing 40% of available resources in infrastructure, with priority on technology R&D and on port defences.
- Using the remainder to build a large merchant fleet (close to 30% of total ship tonnage), supported by a navy with ships designed for defensive operations. There will be a relatively high ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (16: 3.5 : 1) and each ship type will be of moderate size only, as long range and high speed are not critical.
- Deploying naval forces close to home -to protect convoy routes and ports -in an essentially defensive posture.
- If land-based air or carriers are, building aircraft mainly suited to defence: 30% interceptors, 30% escort fighters, 30%bomb ers and the remainder (10%) for reconnaissance.
- If troops are enabled, planning on maintaining a ratio of 80% garrison troops to 20% amphibious troops. Also, in army assaults, the minimum acceptable odds are 5:1, and the optimum odds are 8:1.

Fleets also make cautious emergency responses - any fleet that at some point had some escort ships and then through attrition or fuel shortages now has none will tend to abort its current mission and head to the nearest suitable port if the fleet is of special value. It is of special value if it is carrying cargo or troops, or has any fleet carriers, or has some battleships that have rules of engagement that are more aggressive than 'hit and run'.

A very cautious strategy also affects the proportion of fighters that are automatically held back for combat air patrol over your carriers and airfields. These aircraft are not available for offensive strikes. Under a very cautious strategy, 50% of the full establishment of fighters for each fleet carrier will be on CAP. On escort carriers, this proportion is increased by 50% (to 75%) because of their primary defensive role.



In addition, a very cautious strategy has a default set of approved missions that your 2-I-C uses when building your fleets.

The following missions come by default with the strategy. They are listed in priority order, from top to bottom:

- Convoy
- Troop Transport
- Sub Defensive Patrol
- Ready Reaction
- Defensive Minelaying
- Defensive Patrol
- Reconnaissance
- Sub Offensive Patrol
- Combined Ops

Note that you can manually change the approved missions or change their priority, without changing your overall strategy. The strategy also has default values for certain other mission parameters, such as the minimum and optimum number of escorts for different kinds of mission. See [how to edit the strategy for missions](#) for more information.

# **Cautious strategy**

A cautious strategy will favour a plan for a win over the medium to long-term:

- Investing 30% of available resources in infrastructure, with a balanced priority on things that help both offensive operations (fleet training) and defensive capability (port defences).
- Using the remainder to build a fairly big merchant fleet (about 24% of total ship tonnage), plus a moderate-sized navy with ships designed for both defence and moderate offensive operations. All ship types will be of moderate size for their type and have balanced characteristics, and there will be a balanced ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (12: 3 : 1).
- Deploying naval forces in forward defensive positions -as advanced cover for friendly convoys but positioned to intercept and attack enemy convoys and naval forces also.
- If land-based air or carriers are enabled, building aircraft mainly suited to defence: 30% fighters, 25% interceptors, 35% bombers and the remainder (10%) reconnaissance.
- If troops are enabled, planning on maintaining a ratio of 60% garrison troops to 40% amphibious troops. Also, in army assaults, the minimum acceptable odds are 4:1 (and the optimum odds are 6:1)

Fleets also make cautious emergency responses - any fleet that at some point had some escort ships and then through attrition or fuel shortages now has none will tend to abort its current mission and head to the nearest suitable port if the fleet is of special value. It is of special value if it is carrying cargo or troops, or has any fleet carriers, or has some battleships that have rules of engagement that are more aggressive than 'hit and run'.

A cautious strategy also affects the proportion of fighters that are automatically held back for combat air patrol over your carriers and airfields. These aircraft are not available for offensive strikes. Under a cautious strategy, 40% of the full establishment of fighters for each fleet carrier will be on CAP. On escort carriers, this proportion is

increased by 50% (to 60%) because of their primary defensive role.

In addition, a cautious strategy has a default set of approved missions that your 2-I-C uses when building your fleets.

The following missions come by default with the strategy. They are listed in priority order, from top to bottom:

- Convoy
- Troop Transport
- Sub Defensive Patrol
- Defensive Patrol
- Defensive Minelaying
- Reconnaissance
- Sub Offensive Patrol
- Ready Reaction
- Offensive Minelaying
- Offensive Patrol
- Aerial Bombardment
- Combined Ops

Note that you can manually change the approved missions or change their priority, without changing your overall strategy. The strategy also has default values for certain other mission parameters, such as the minimum and optimum number of escorts for different kinds of mission. See [how to edit the strategy for missions](#) for more information.

# **Aggressive strategy**

An aggressive strategy will favour a plan for a medium term win:

- Investing 20% of available resources in infrastructure, with priority on things that maximise offensive capability: fleet training, ship building and repair facilities and also defence of the advanced port as the front line of battle.
- Using the remainder to build a moderate-sized merchant fleet (about 20% of total ship tonnage), plus a big navy with ships designed for offensive operations in enemy territory, including occasional port bombardments. A good proportion of tonnage will go to Battleships and carriers, and this plus the need for all types to have good speed and range -and therefore be of large size for their type -will mean that there will be a relatively low ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (9: 2.5 : 1).
- Deploying naval forces in fairly forward positions -as advanced cover for friendly convoys but also well located to intercept and attack enemy convoys and naval forces and sometimes bombard his ports.
- If land-based air or carriers are enabled, building aircraft suited to defence as well as attack: 30% escort fighters, 20% interceptors, 40% bombers, and the remainder (10%) for reconnaissance.
- If troops are enabled, planning on maintaining a ratio of 40% garrison troops to 60% amphibious troops. Also, in army assaults, the minimum acceptable odds are 3:1, and the optimum odds are 5:1.

An aggressive strategy also affects the proportion of fighters that are automatically held back for combat air patrol over your carriers and airfields. These aircraft are not available for offensive strikes. Under an aggressive strategy, 30% of the full establishment of fighters for each fleet carrier will be on CAP. On escort carriers, this proportion is increased by 50% (to 45%) because of their primary defensive role.

In addition, an aggressive strategy has a default set of approved missions that your 2-I-C uses when building your fleets.

The following missions come by default with the strategy. They are listed in priority order, from top to bottom:

- Combined Ops
- Troop Transport
- Convoy
- Sub Offensive Patrol
- Offensive Patrol
- Offensive Minelaying
- Aerial Bombardment
- Bombardment
- Defensive Minelaying
- Sub Defensive Patrol

Note that you can manually change the approved missions or change their priority, without changing your overall strategy. The strategy also has default values for certain other mission parameters, such as the minimum and optimum number of escorts for different kinds of mission. See [how to edit the strategy for missions](#) for more information.

# ***Very aggressive strategy***

A very aggressive strategy will favour a plan to go for the “knock-out-blow”:

- Investing only 10% of available resources in infrastructure, with priority on things that maximise immediate offensive capability: fleet training, ship building and repair facilities and naval intelligence.
- Using the remainder to build a small merchant fleet (about 16% of total ship tonnage), and a very big navy with ships designed for offensive operations deep into enemy territory, including port bombardments. As much tonnage as possible will go to Battleships and carriers, and this plus the need for all types to have very good speed and range -and therefore be of very large size for their type -will mean that there will be a low ratio of escorts to cruisers/escort carriers to battleships/fleet carriers (7.5: 2 : 1).
- Deploying naval forces deep into enemy controlled sealanes -to attack his convoys and naval forces and ports.
- If land-based air or carriers are enabled, building aircraft suited to attack as well as defence: 15% interceptors, 30% escort fighters, 45% bombers and the remainder (10%) for reconnaissance.
- If troops are enabled, planning on maintaining a ratio of 20% garrison troops to 80% amphibious troops. Also, in army assaults, the minimum acceptable odds are 2:1 and the optimum odds are 3:1

A very aggressive strategy also affects the proportion of fighters that are automatically held back for combat air patrol over your carriers and airfields. These aircraft are not available for offensive strikes. Under a very aggressive strategy, 20% of the full establishment of fighters for each fleet carrier will be on CAP. On escort carriers, this proportion is increased by 50% (to 30%) because of their primary defensive role.

In addition, a very aggressive strategy has a default set of approved missions that your 2-I-C uses when building your fleets.

The following missions come by default with the strategy. They are listed in priority

order, from top to bottom:

- Combined Ops
- Troop Transport
- Convoy
- Close Blockade
- Aerial Bombardment
- Bombardment
- Sub Offensive Patrol
- Offensive Patrol
- Offensive Minelaying
- Sub Defensive Patrol
- Defensive Minelaying

Note that you can manually change the approved missions or change their priority, without changing your overall strategy. The strategy also has default values for certain other mission parameters, such as the minimum and optimum number of escorts for different kinds of mission. See [how to edit the strategy for missions](#) for more information.



# **Missions - an overview**

Your 2IC gives orders to your ships and fleets by creating missions of different kinds.

A mission involves these elements:

- A fleet of one or more ships
- A movement order, specifying where the fleet is to sail and at what speeds
- A description indicating the overall purpose of the mission - such as "Convoy" or "Offensive Patrol". See mission types
- Rules of engagement, telling the fleet, and the ships in it, when enemy forces should be engaged and when they should not.

# Main Menu

The *Main Menu* on the blackboard at the left of your Admiral's Office gives you access to all the main functions you will need to play a campaign turn in **SAS**.



## Briefings

You can bring up a briefing report at any time by clicking on "Briefings".

The report is a hyperlinked overview of the situation you face at the start of the turn, and will be useful background information for making decisions.

## Build

Click on "Build" when you are ready to start building key resources - ships, troops, infrastructure and aircraft (if aircraft are enabled for the current campaign). The **Build Menu** will appear, giving you access to each of these build functions.

## Deploy

Click on "Deploy" when you are ready to start deploying these resources. You obviously need to build them first!. The **Deploy Menu** will appear, giving you access to each of these deploy functions.

## Go!

Click on "GO!" when (and only when!) you have finished all your build and deploy tasks and are ready to finish the turn and run the turn calculation.

# Map View

The large scale theatre map - which occupies a full screen - gives you quick access to important information, as well as to controls for manually setting up fleets and missions.

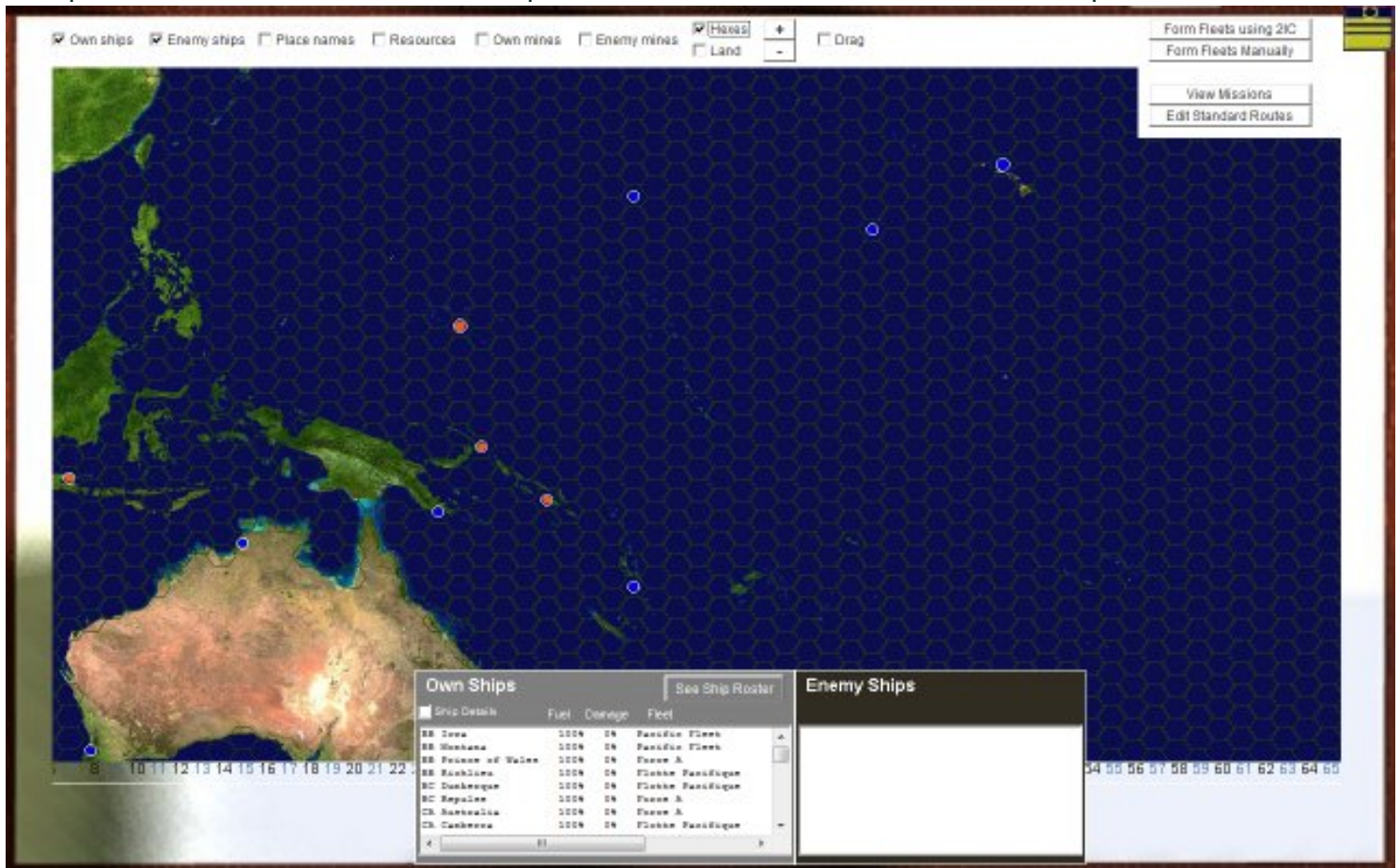
The controls for setting up fleets and missions are all on the right hand side of the screen. Their use is fully explained in [how to edit or create missions](#).

Here, use of the map view for informational purposes is explained.

## Accessing the Theatre Map

You access the theatre map by clicking on the wall map in the [Admiral's Office](#).

The picture below is of the theatre map for the Pacific, and is taken from a sample scenario:



The actual map you see will of course be a map of the geographic theatre for the campaign you are playing, and the details will reflect the current state of game play.

# Overview

The theatre map is the place where you can quickly review the physical location and status of key resources:

- your fleets and ships
- known enemy fleets and ships
- the troops, aircraft and resource points at your ports
- ditto for the enemy
- the location (and number) of your mines or the enemy's (as estimated from intelligence sources).
- and, in a feature new to ver 1.1, you can see mappings of your own and the enemy's air power.

There are some other miscellaneous features also, which will be explained.

## Air power maps

At the top of the screen are two tick boxes: 'Own air power' and 'Enemy air power'. One of these (or none) may be ticked:

- ☐ Own air power
- ☐ Enemy air power

When ticked, the map displays coloured representations of air power across all hexes of the map. The enemy air power maps can be especially useful when plotting fleet courses to avoid enemy air attack as much as possible. See [enabling air power mappings](#) for full information.

## Location and status of your ships

At the top of the screen is a toggle for enabling the 'Own Ships' list:

- ☒ Own ships

When this is ticked, you will see a list of all your ships at the bottom of the screen:

Own Ships				See Ship Roster	
<input type="checkbox"/> Ship Details	Fuel	Damage	Fleet		
BC Lexington	100%	0%	Home Fleet Reserve		
CL Brooklyn	100%	0%	RF at 66/5		
CL Oakland	100%	0%	RF at 44/21		
CL Reno	100%	0%	Home Fleet Reserve		
CV Wasp	100%	0%	Home Fleet Reserve		
CVE Casablanca	100%	0%	RF at 66/5		
CVE Corregidor	100%	0%	RF at 44/21		
DD Cummings	100%	0%	RF at 26/42		

The list shows the current fuel and damage status of each ship and the fleet it is attached to. If you click on any ship, a line pointing to its current location will appear on the map:

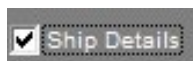


Clicking on the same ship again will de-select the ship, and the line will disappear.

The list is scrollable. Note that the ships are grouped by category - BBs, then CAs, then CLs, then CVs and CVLs, and so on. This is an alphabetical sorting by type but it has the effect that the larger ships appear first, so you can find them more easily.

## Detailed ship status

To see more detailed ship status information, tick the tick box on the upper left corner of the list:



When this is ticked, details of the currently selected ship are shown in a panel:





**Efficiency:**  


<b>Name:</b>	<i>Farragut</i>
<b>Type:</b>	<i>very fast medium Destroyer</i>
<b>Class:</b>	<i>Farragut</i>
<b>Tonnage:</b>	<i>2190 tonnes (full load)</i>
<b>Guns:</b>	<i>5 * 5.0 in.</i>
<b>Speed:</b>	<i>30 knots</i>
<b>Armour:</b>	<i>0.0 in. splinter armour</i>
<b>Strength:</b>	<i>61 points</i>
<b>Design Range:</b>	<i>8072/7210/3204 nms @ 12/16/24 kts</i>
<b>Current Fuel:</b>	100%
<b>Current Ammo:</b>	100%

The information presented is self-explanatory, but the coloured bar at the top right labelled 'Efficiency:' needs some explanation. The bar shows the current efficiency of the ship's crew, on a 0 (left-most) to 10 (right-most) scale. The blue portion of the bar shows the efficiency that is attributable to training. If a ship has been in battle, it will have acquired a degree of battle experience as well, which will further increase its efficiency. The amount of battle-experience is shown in red. For example, a ship may have a total efficiency of 7 out of 10 - 5 attributable to training and the remaining two points to battle experience.

The training level of the crew on any ship is a function of the overall level of your fleet training, but with some random variance. See [infrastructure - an overview](#) for more information about training and how you can improve it by expenditure of resource points.

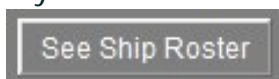
If the ship is damaged, a summary of the damage will be shown.

You can drag the panel around if you want to, eg if it is obscuring parts of the map you want to see.

Un-ticking the 'Ship details' tick box closes the panel.

## Complete ship roster

If you click on the 'See Ship Roster' button on the ship list:



you will see the complete list of all of your ships in more detail:



Ship Roster				
<input checked="" type="checkbox"/> see Undamaged <input checked="" type="checkbox"/> see Damaged <input checked="" type="checkbox"/> see Lost <input checked="" type="checkbox"/> see Building <span>Up</span> <span>Down</span> <span>X</span>				
<b>AIRCRAFT CARRIERS</b>				
Aquila		Aquila class	28358	
Giuseppe Miraglia		Aquila class	28358	Building (7 turns to launch)
Sparviero		Escort Carrier class	15300	Largely wrecked
<b>BATTLESHIPS</b>				
Roma		Vittorio Veneto class	47328	Building (15 turns to launch)
Impero		Vittorio Veneto class	47328	Building (11 turns to launch)
Littorio		Vittorio Veneto class	47328	Repaired
Vittorio Veneto		Vittorio Veneto class	47328	Moderate damage
Andrea Doria		Conte di Cavour class	30355	Largely wrecked
Cao Duilio		Conte di Cavour class	30355	Light damage
Giulia Cesare		Conte di Cavour class	30355	Repaired
Conte di Cavour		Conte di Cavour class	30355	Repaired
<b>CRUISERS</b>				
Trieste		Bolzano class	12881	Largely wrecked
Trento		Bolzano class	12881	Repaired
Bolzano		Bolzano class	12881	Largely wrecked
Giuseppe Garibaldi		Duca d'Abuzzi class	10758	SUNK
Duca d'Abuzzi		Duca d'Abuzzi class	10758	Moderate damage
Eugenio di Savoia		Duca d'Aosta class	9208	Rearming shells
Duca d'Aosta		Duca d'Aosta class	9208	Repaired
Muzio Attendola		Montecuccoli class	8474	Rearming shells
R. Montecuccoli		Montecuccoli class	8474	Rearming shells
Luigi Cadorna		Luigi Cadorna class	7494	SUNK
G. delle Bande Nere		Di Giussano class	5945	SUNK
Alberico da Barbiano		Di Giussano class	5945	
Alberto Di Giussano		Di Giussano class	5945	Moderate damage
...scroll down for more				

This is the same ship roster you can see as a link from you Briefing Report. (See [briefing report - own ship roster](#) for more information). Return to the map view by clicking on the 'X' button at the top-right of the ship roster; this closes the ship roster.

## Location and status of your fleets

The locations of your own fleets are shown on the map - the name of each fleet is in white. (Enemy fleets are shown in red, orange or yellow - as explained below)



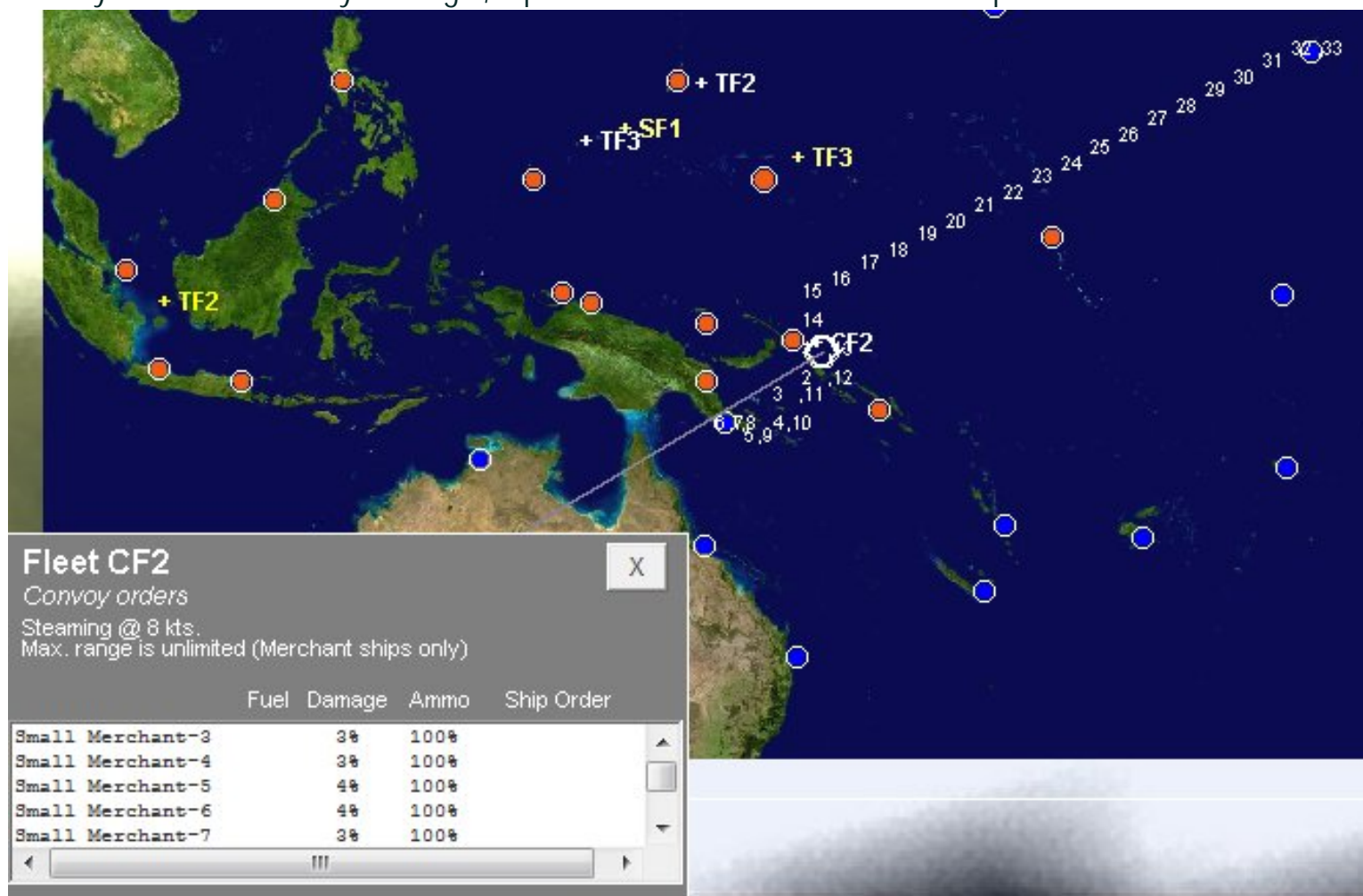
## Detailed fleet status

All your current active fleets are listed on the right hand side of the map:

Select a fleet:

SF1  
TF3  
TF4

When you select a fleet by clicking it, a pointer shows its location on the map:



A list appears at the bottom left of the screen with summary information on the fleet: a list of all ships and information about the fleet orders. The map also shows the current movement path for the fleet as a series of hexes numbered in the order through which the fleet intends to travel.

If the 'Ship Details' box on the 'Own Ships' list is ticked, selecting a ship in the list will show details of the ship, in the same way as if you had selected the ship from the 'Own Ships' list.

De-select the fleet by clicking on it again in the fleet list at the right of the screen.

## Location and status of enemy ships

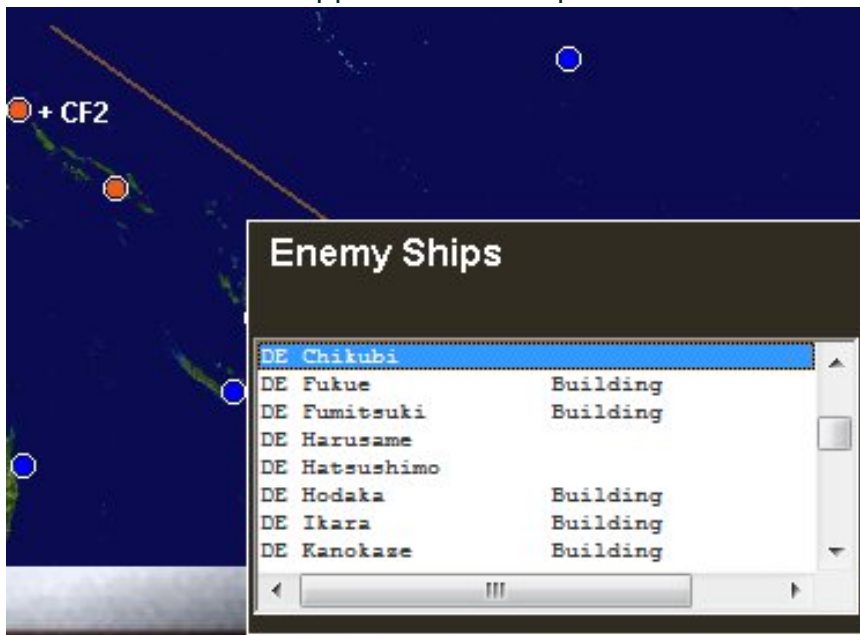
At the top of the screen is a toggle for enabling the 'Enemy Ships' list:

☒ Enemy ships

When this is ticked, you will see a list of all known enemy ships at the bottom of the screen:



The list shows the current damage status of each ship. If you click on any ship, a line pointing to its current location will appear on the map:

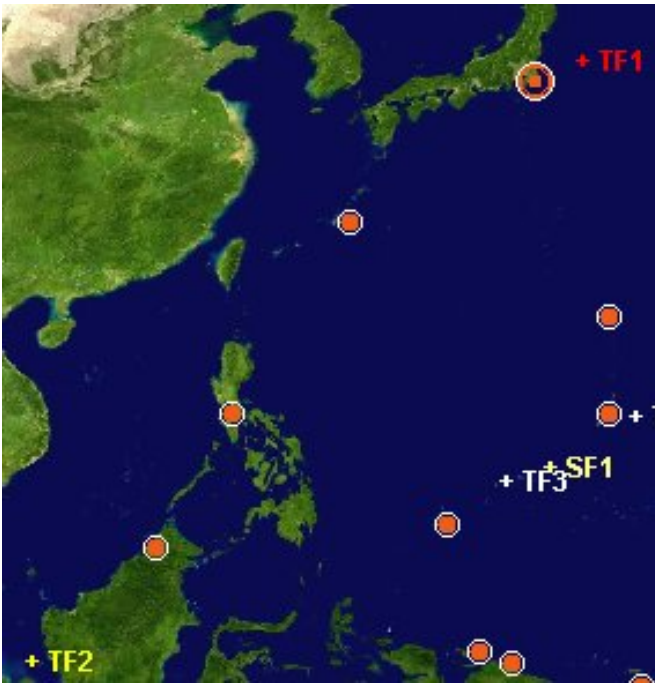


Clicking on the same ship again will de-select the ship, and the line will disappear.

The list is scrollable. Note that the ships are grouped by category - BBs, then CAs, then CLs, then CVs and CVLs, and so on. This is an alphabetical sorting by type but it has the effect that the larger ships appear first, so you can find them more easily.

## Location of enemy fleets

The map shows the location of every known enemy fleet:



The fleets are colour-coded to show the age of the latest report:

- red means the latest report for the fleet is less than 6 hours old:
- orange means it is between 6 and 12 hours old:
- yellow means it is between 12 and 24 hours old:
- pale yellow means it is older than 24 hours:

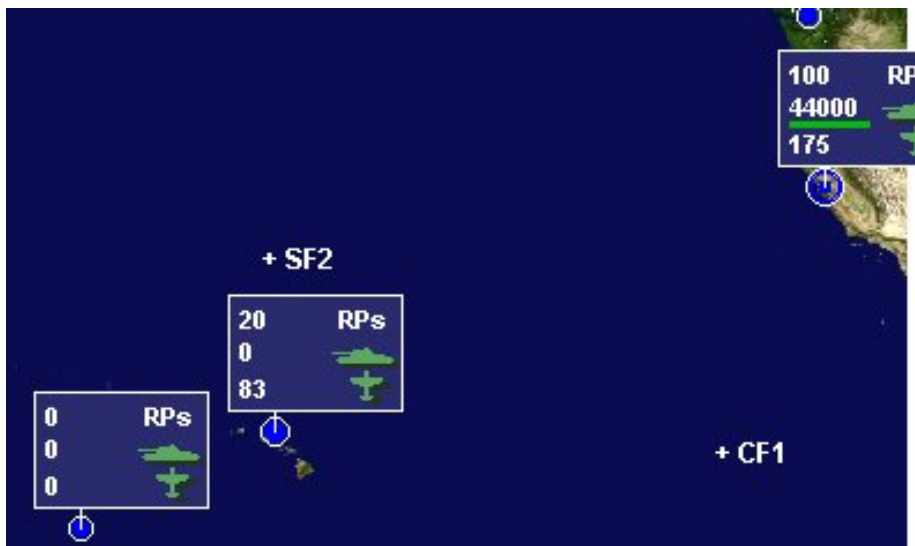
In the picture above, enemy fleet 'TF1' is red, fleet 'TF2' is yellow and fleet 'SF1' is pale yellow.

## Own resources

A tick box at the top of the screen allows you to view the number of resource points, troops and aircraft at each of your bases:



When it is ticked, the information is displayed like this:



The tank symbol does not denote armour as such; it simply denotes the presence of troops.

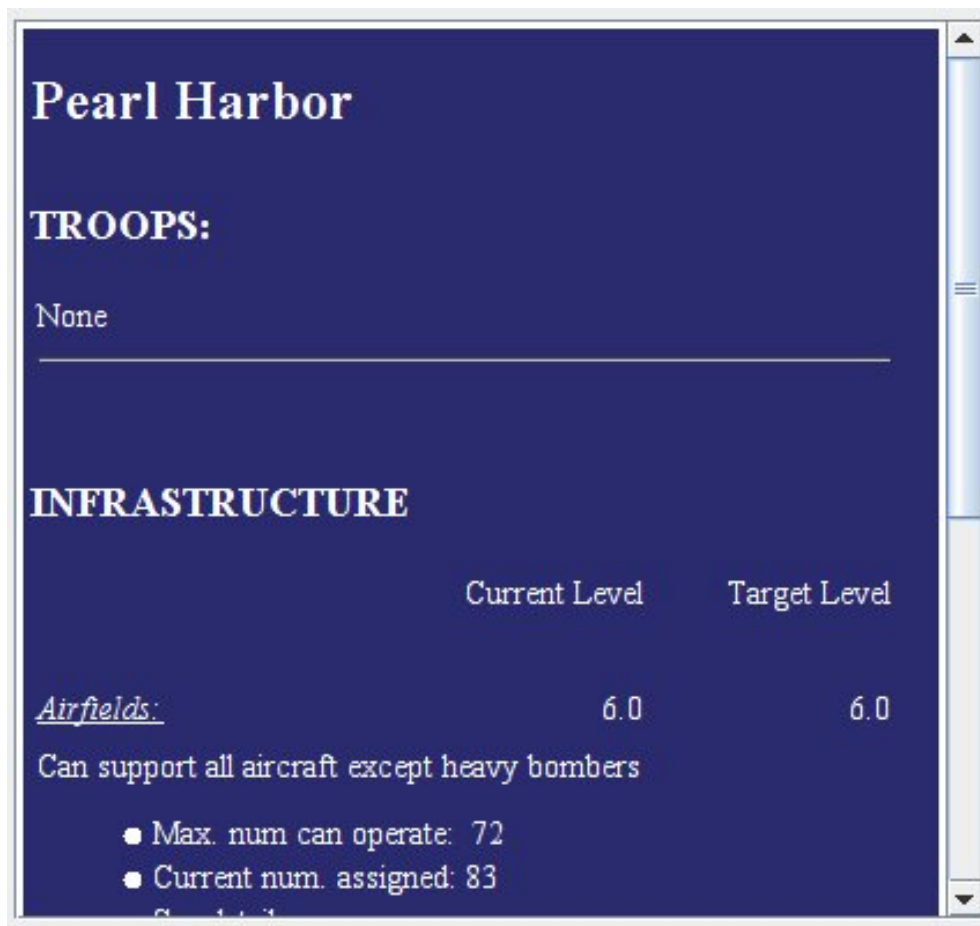
The green line under the number alongside the tank symbol indicates the current supply situation of the troops. If it is all green, then the troops should be fully supplied for the current turn (barring any unforeseen events). If it is all red, then the troops are completely unsupplied, and will suffer seriously from sickness and loss of morale. The amount of red indicates the degree of forecast under-supply. Use this information when planning supply missions.

## Own resource details

More detailed information is also available. There is a tickbox at the top of the screen labelled 'Popup details?':

☐ Popup details?

When this is ticked, you will see a pop up panel whenever you pass your mouse over one of your ports:



The panel displays scrollable information on the troop units and infrastructure at the port. The information is very similar to what you can see in the Briefing Report - in the Troop List and the Infrastructure List. (See [briefing report - own troop list](#) and [briefing report - infrastructure list](#) for help on reading the information.

The popup panel disappears as soon as you move your mouse away.

Note that whenever the 'Popup details?' tick box is ticked, the 'Drag' tickbox is also ticked. This allows you to drag the map around freely. (Use of the drag feature is explained below). But it also prevents any data entry if you want to use the map controls to set up fleets and missions. You will need to clear both the 'Drag' and the 'Popup details?' tickboxes before setting up fleets or missions from the map.

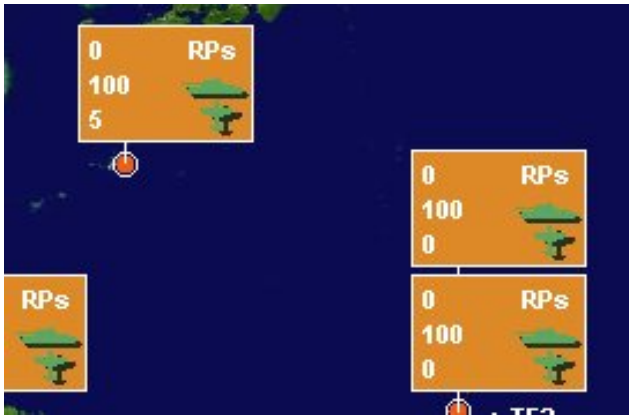
## Enemy Resources

Similar summary (bit not detailed) information on enemy resources is available by ticking the 'Enemy Resources' tick box at the top of the screen:

☒ **Enemy resources**

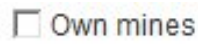
Enemy resources are shown like this:





# Own mines

There is an 'Own mines' tickbox at the top of the screen:

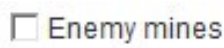


When it is ticked, the map shows all your own minefields. The green numbers refer to the number of mines:



# Enemy mines

There is also an 'Enemy mines' tickbox at the top of the screen:




When it is ticked, the map shows known (or suspected) enemy minefields. The green numbers refer to the estimated number of mines:





# Zooming in and out and dragging

Sometimes you will want to see a section of the map in more detail. Each time you press the  button at the top of the screen, the map enlarges. Repeated pressing enlarges the view very greatly. The following picture shows a much enlarged view of part of the enemy mine fields previously shown:



Zooming out again is just as simple - click the  button at the top of the screen as many times as you want to zoom back out.

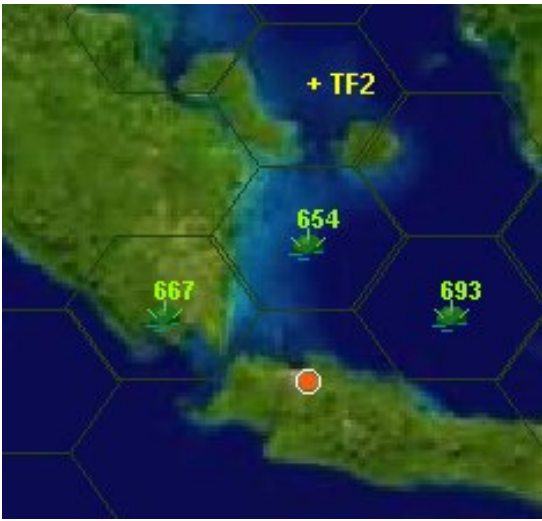
When you click the zoom in or out buttons, the 'Drag' tickbox is automatically ticked. The mouse changes to a hand. You can now click and drag the map around to see the areas you want.

# Hexes

To see the hex grid on the map, tick the 'Hexes' tick box at the top of the screen:



A hex grid is now displayed on the map:



# Land

Sometimes, you may want to see more clearly where the divisions are between land and sea hexes. To do this, tick the 'Land' tick box at the top of the screen:

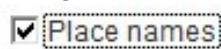


The following picture shows the result:

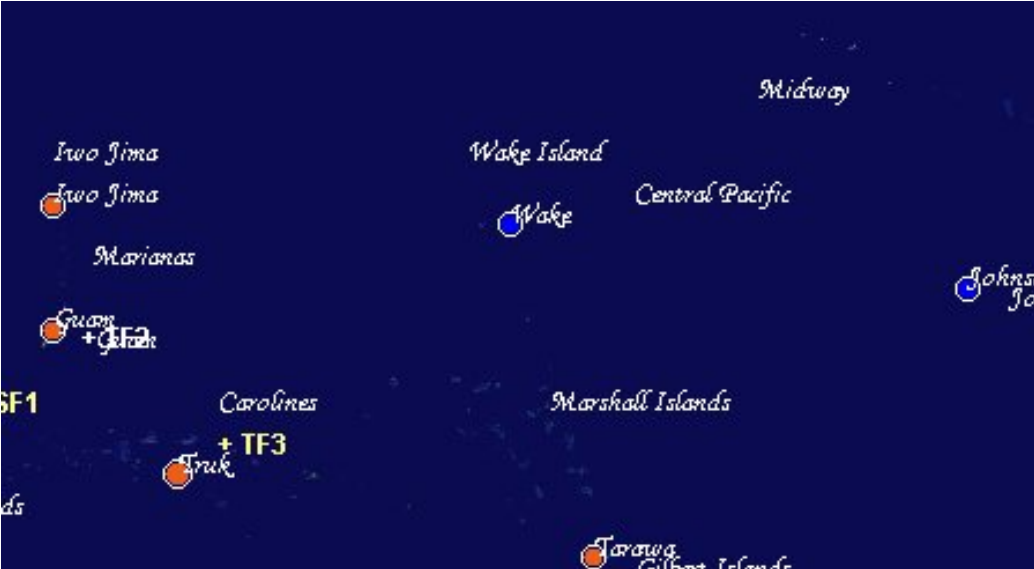


# Place Names

The map also has many place names on it - which are used when reports on battles and other events are generated. To see these place names, tick the 'Place names' tick box at the top of the screen



You will see place names appear:

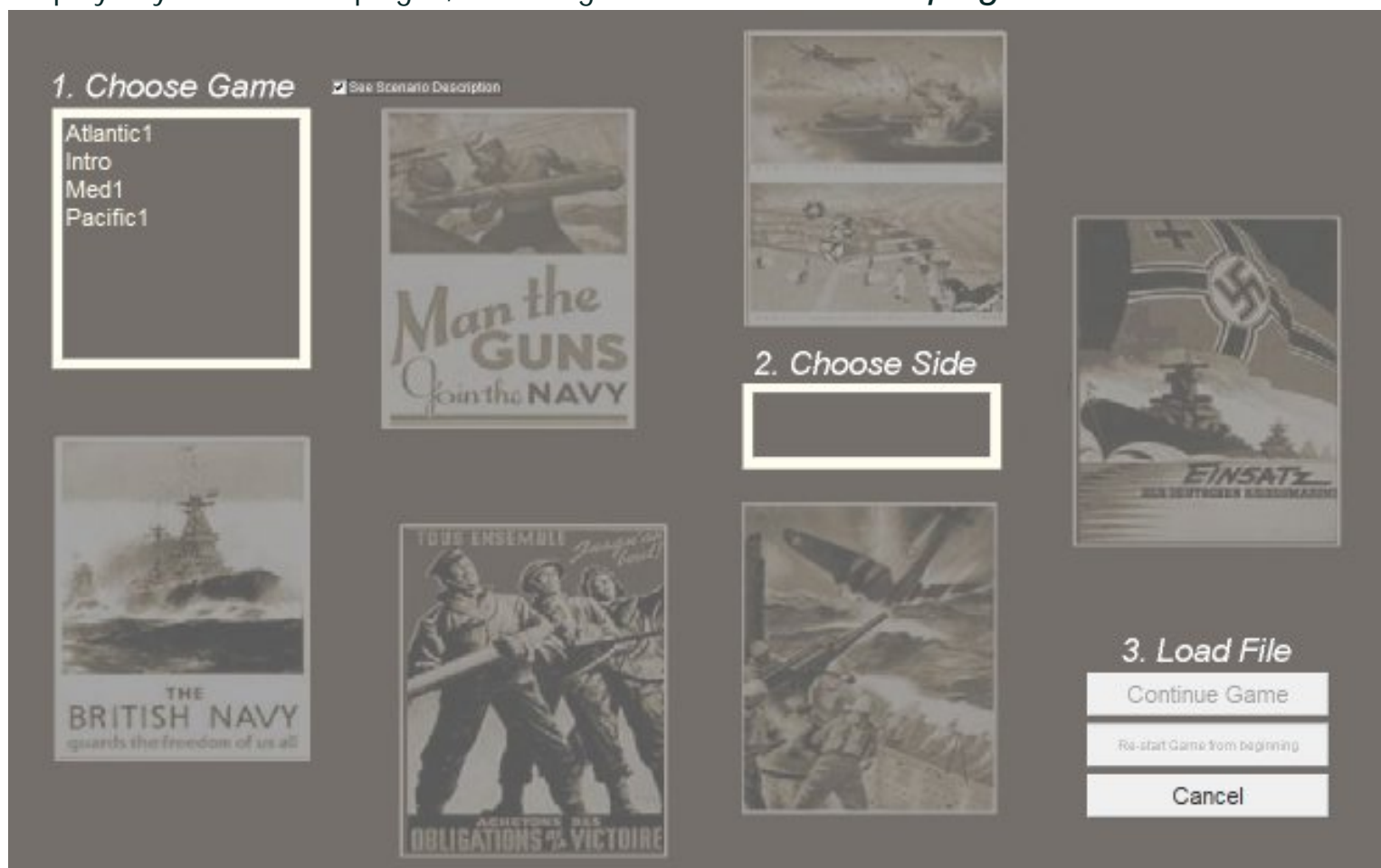


# Select a Campaign

SAS has several pre-created campaigns for you to play - covering action in the Pacific, Atlantic and Mediterranean theatres.

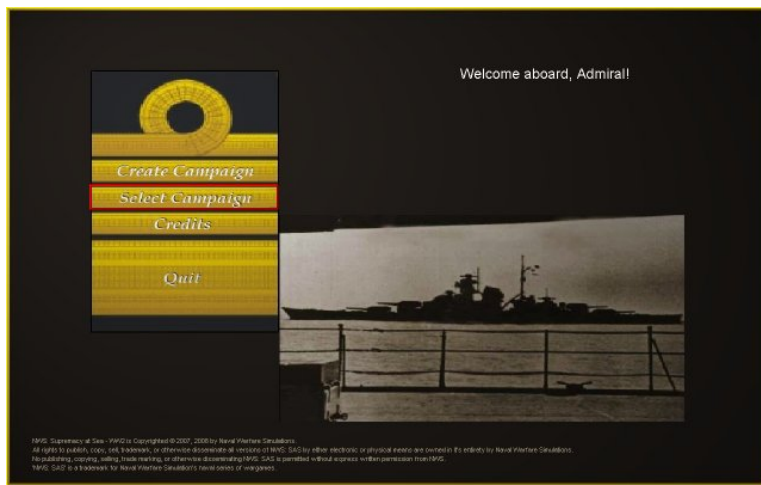
You can also create your own campaigns whenever you like, selecting countries, maps and other parameters to create an endless number of historical or hypothetical campaigns.

To play any of these campaigns, first navigate to the *Select Campaign Screen*:



You get to this screen in either of two ways:

- From the *Start Screen*, by clicking on "Create Campaign".



- From the *Admiral's Office*, by clicking on the "Load" tab in the filing cabinet "Games" drawer. (See [loading and saving files](#) for more information.)

## How to load a campaign

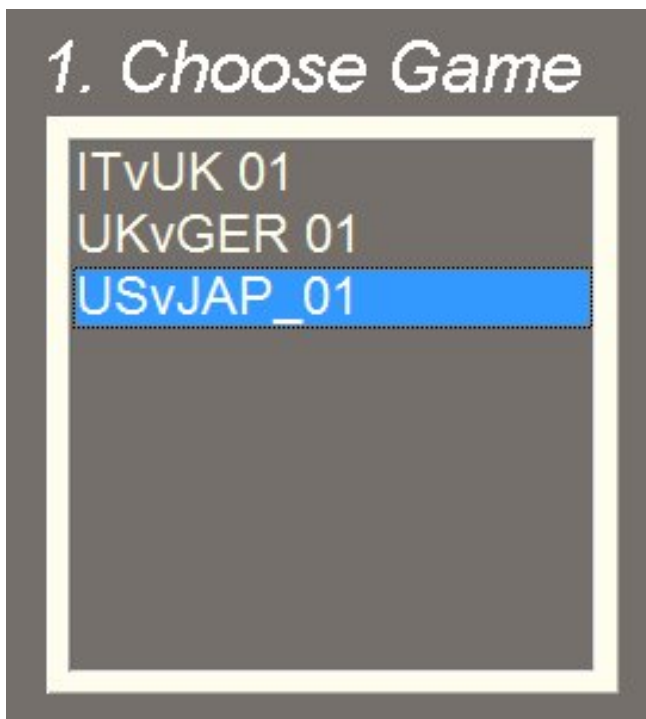
There are three simple steps to follow:

- Select the campaign from the list at the top left of the screen:
- Select the side you want to play from the list in the middle:
- Click the "Load File" button.

Alternatively, clicking on the "Cancel" button at any time will exit out of the *Select a Campaign* screen. Play will then return to where you were immediately beforehand.

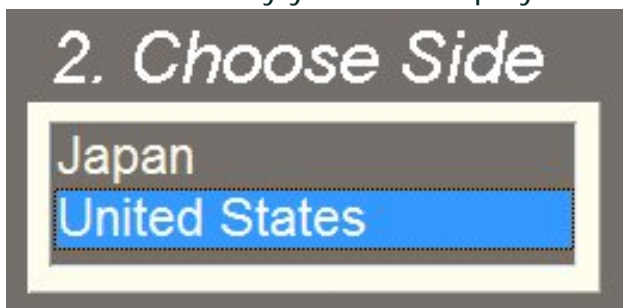
## Select the campaign

Click to select the campaign you want to play from the list at the top left of the screen:



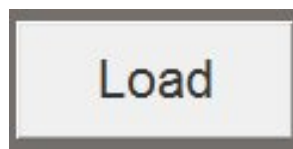
Select the country

Select the country you want to play from the list in the middle of the screen:



Note: Normally, you would play one side of a campaign all the way through. But you can swap sides at any time if you want .

Load the file



Finally, click the "Load File" button

The campaign file for the selected country will now load, and you will return to the office, ready to play from where the game was last saved.



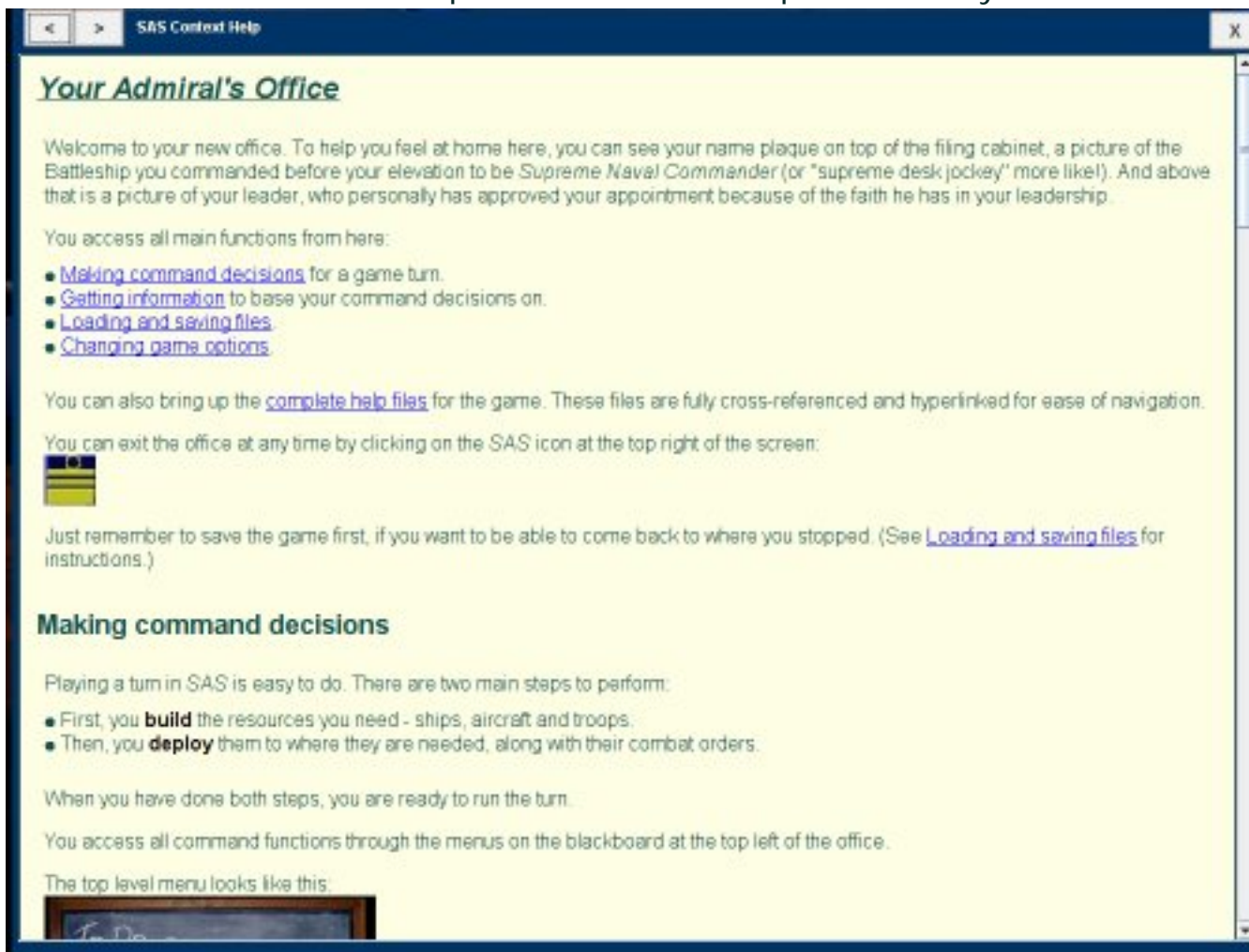


# Context help

On almost all screens in **SAS** you can bring up immediate context help, i.e. help text that is tailored to the screen you are on.

To bring up context help, click on the button marked with a "?" symbol. The button will be to next to the button to close the screen, which is usually (but not always) located at the top right of the screen.

Illustrated below is an example of the context help screen for your Admiral's office:



You can navigate back and forward through links that you have visited by clicking on the back button: , or the forward button:  respectively.

To close the help screen, click on the close button: .

These buttons are all at the top of the context help screen.

# **Battle Summary**

The results of all battles - between surface ships, or surface ships and submarines, or aircraft and surface ships or land targets, are reported in a summary screen.

## Accessing the Battle Summary screen

Both the [run turn screen](#) and the [replay turn screen](#) will pop up a panel to report on battles, unless the player has disabled the reporting of these events. (See [run and replay options](#) for information on what events are notified and how to disable them).

When a pop up panel appears, it points to the location of each battle being reported on. It also will have one or more entries in a list, each entry corresponding to a battle that is being reported on for that hour.

Pictured below is the popup for a surface battle:



When you click on one of the entries in the list, the battle report screen for that battle will appear.

## Surface Battle Reports

When two surface fleets engage in battle, the report will look something like this:

Battle Results

Started 3 PM

Completely calm, no wind, dry, no cloud Perfect visibility

Opening range: 28662 m.

Battle of the Bismark Sea, 6 April, 1942

in Hex 19/27

Lasted 3 hours, 18 minutes

Up

Down

Replay battle

Own:

Ships:

exp. struc.  
damage  
[\* 10%]

hull  
damage  
[\* 10%]

flooding  
[\* 10%]

speed  
lost  
[\* 2 strc]

Turnat  
hltz

Annno  
lost  
[\* 10%]

repair  
cost  
[\* 10%]

Dunkerque

George Leygues

L'Audacieux

Le Fantasque

Le Malin

Mogador

Enemy

Ships:

flooding  
[\* 20%]

speed  
lost  
[\* 6 strc]

Turnat  
hltz

Ashigara

Mutsuki

Nagato

Satsuki

Yayoi

Yuzuki

## Battle summary

The top portion of the screen reports where and when the battle has taken place, how long it lasted, and will give the battle a name according to the location, such as "Battle of the Bismarck Sea".

The opening range and the weather at the start of the battle and the names of the participating fleets are also reported.

## Own Ships Status

The left hand section of the screen will report the status of each of your ships in the battle.

The information provided includes:

- A general description of the ship's damage status, such as "Trivial damage".
- Approximate damage (in 10% increments) to:
  - superstructure
  - hull
  - flooding

- ammunition loss
  - plus the overall damage cost (as a % of the full construction cost)
- In addition, the following damage is shown:
  - the number of main turrets lost
  - the amount of speed loss (in 3 knot increments)

Note that these stats are for display and have been rounded. The game engine keeps track of actual damage points in finer detail than this.

*Note also that all damage shown for your own (and the enemy's) ships is the latest known damage status, regardless of the cause. The damage shown may include damage from previous surface battles, or damage from previous air strikes or submarine attacks.*

## Enemy Ship Status

Similar but less specific and accurate information is provided for all enemy ships in the battle.

Here, only flooding, speed loss and turrets lost are individually reported, as these are the more observable signs of enemy damage. The stats are in 33% increments rather than 10% increments because judging enemy damage is a less accurate process than estimating damage to one's own ships.

## Scrolling the Display

If there many ships involved, there will be too many to show in a single screen.

In this case, the screen will include a "Scroll down for more..." entry at the bottom of the list.

To scroll down the list, click on the "Down" button at the top of the screen. To scroll back up, click on the "Up" button.

## Replay the Battle

For surface fleet battles only, you can also get a full action replay of the battle, not just the end-of-battle summary.

Click on the "Replay battle" button to bring up the [surface battle replay screen](#). (Follow this link for help on using the Surface Battle Replay screen).

Note that the replay takes you through to the end of the actual battle. After every battle has ended, the computer performs some post-battle calculations in the immediate aftermath. Sometimes, a ship not yet sunk by battle's end will sink soon after, in which case it will show as sunk in the Battle Summary screen but not in the battle replay. Other times, a ship may be able to reduce damage such as flooding. What happens depends on the balance between the severity of damage and the remaining ability of the ship's damage control. This explains why there is sometimes a difference between the damage shown for ships at the end of the battle replay compared to what is shown for the same ships in the Battle Summary screen.

## Encounters between submarines and surface fleets

These battles are reported on in an almost identical fashion.

A panel like this one will popup in the run turn screen and also the replay turn screen (unless you have disabled reporting of submarine contacts):



As well as the kind of details mentioned above, a scrollable text box at the bottom of the screen summarises the number of torpedo hits and depth charge attacks by individual submarines and surface escorts.

*Note that all damage shown for your own (and the enemy's) ships is the latest known damage status, regardless of the cause. The damage shown may include damage from previous surface battles, or damage from previous air strikes or submarine attacks.*

Pictured below is an example of this text box from a submarine encounter:

Mutsuki hit by 1 torpedo from submarine Growler  
Submarine Grouper hit by depth charges.

## Encounters between aircraft and surface fleets or land targets

The same screen is also used to report on battles involving aircraft.




Additional text summarises:

- the number and types of aircraft on both sides
- the aircraft losses, to both Ack-Ack and enemy aircraft
- the torpedo hits and the bomb hits and near misses on shipping
- the damage caused to land installations, such as storages and airfields
- any aircraft destroyed on the ground.

*Note that all damage shown for your own (and the enemy's) ships is the latest known damage status, regardless of the cause. The damage shown may include damage from previous surface battles, or damage from previous air strikes or submarine attacks.*

Shown below is an extract of a battle involving aircraft from the carrier Formidable, on an Italian fleet. The text shows several bomb and torpedo hits as well as aircraft losses:



Alabarda					Air strike from the Formidable involving 17 * Albacore, 9 * Blackburn Skua and 10 * Marlet II and 1 * Swordfish I.
Antilope					Attack catches the defenders rather unprepared
Ariete					Defending fighters: None.
Ariete-1					Dive bomber attack by: Blackburn Skua's 1 a/c vs the Maestrals-2. 1 a/c vs the Maestrals-3. 1 a/c vs the Maestrals-4; 1 near miss. 1 a/c vs the Maestrals-5.
Ariete-2					1 a/c vs the Scirocco.
Ariete-3					4 a/c vs the Vincenzo Gioberti; 1 bomb hit.
Ariete-8					Torpedo bomber attack by: Albacore's , Swordfish I's 1 a/c vs the Alabarda 1 a/c vs the Ariete
Ariete-9					1 a/c vs the Ariete-1; 1 torp hit (machinery flooded). 1 a/c vs the Ariete-2

The further extract below shows a typical aerial attack on a port. The attack destroys some enemy aircraft on the ground, and also causes minor damage to port and airfield facilities:

Land-based air strike involving 4 \* Do 217ZE-1 and 6 \* Do 217ZE-2 and 36 \* Me 210A-2.

Attack catches the defenders partially unprepared

Defending fighters:

18 \* Beaufighter IIF

11 \* Hurricane IIC

11 \* Sea Hurricane IA

Aircraft Lost:

Own:

4 \* Do 217ZE-1

4 \* Do 217ZE-2

10 \* Me 210A-2

Enemy:

8 \* Beaufighter IIF

All aircraft attack ground targets

minimal damage to port defences.

minimal damage to port infrastructure.

minimal airfield damage.

# How to build aircraft

Every turn you can spend RPs on constructing more aircraft. You can vary the amount of expenditure (within limits), and you can also influence which types of aircraft get built.

First, you bring up your 2IC's help. He will prepare a plan for you, taking all the tedium out of making too many decisions. (See the [2IC help with aircraft construction](#) help file for more information).

## The Build Aircraft Screen

Clicking the "View" button will bring up the Build Aircraft Screen:

**BUILD Aircraft**

(Maximum number that can now be operated = 522 ac of all types).

?

Type	Primary/Secondary roles	Best in Class	# to be Produced
Hudson I	Long Range Recce/Light Bomber		8
Maryland Mk II	Medium Bomber		8
A-20A Havoc	Medium Bomber		8
A-20C Havoc	Medium Bomber/Torpedo Bomber		30
B-17C Flying Fortress	Heavy Bomber	*	45
B-18A Bolo	Heavy Bomber		8
B-18B Bolo	Long Range Recce/Heavy Bomber		8
B-25B Mitchell	Medium Bomber		8
B-26 (Pac) Marauder	Medium Bomber		8
B-26 Marauder	Medium Bomber	*	9
B-26B Marauder	Medium Bomber		8
F2A-1 Buffalo	Fighter		8
F2A-2 Buffalo	Fighter/Light Bomber		8
F2A-3 Buffalo	Fighter/Light Bomber		34
F4F-3 Wildcat	Carrier Fighter/Light Bomber		8
F4F-4 Wildcat	Carrier Fighter/Light Bomber	*	112
J2F-5 Duck	Short Range Recce		0
OS2U-3 Kingfisher	Short Range Recce/Light Bomber	*	80

+

-

Total AC: 630

Total RPs: 354.39

Cancel

Change Strategy

Commit

# Overview of the screen

## Maximum number of aircraft that can be operated

At the top of the screen, in red, a message will appear telling you the maximum number of aircraft that currently can be operated from all your airfields and carriers.

(Maximum number that can now be operated = 522 ac of all types).

## Proposed aircraft list

Most of the screen is taken up with the list of aircraft that your 2IC has proposed for construction. The list is scrollable and gives summary information of the primary and secondary roles each aircraft type is suited to, and the number that is proposed for construction.

### Best in Class Indicator

Certain aircraft types also have an asterisk (\*) in the 'Best in Class' column. The asterisk indicates that this aircraft type is considered by the AI to be the best of the available aircraft for the aircraft's *primary role*.

### Number proposed for construction

The number proposed for each type has been carefully determined by your 2IC to meet several criteria:

- The total cost should not exceed a set percentage of your available RPs. (The benchmark is 10% by default - but as explained later, you can vary this).
- The balance of types - fighters, bombers and reconnaissance - should correspond to the 'ideal' as determined by your strategy.
- The selection of particular types has been done to maximise the best aircraft available - usually the more recently designed aircraft - that your country has currently designed and brought to being ready for production. As a game progresses, you will notice that the types will change. For example, in the late war period, jet aircraft become available for most countries. You can access the more advanced later war aircraft types earlier by spending resources on aircraft technology. (See [how to build infrastructure](#) for more information.)
- Nevertheless, there is a minimum number of aircraft of even obsolescent types that will be included because production lines take some time to run down to nought.

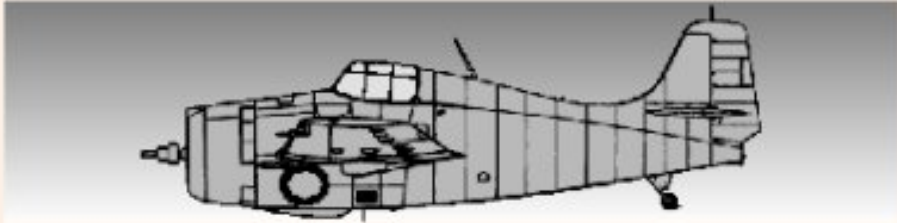
## Aircraft details

You can see the details of any aircraft type by clicking on it in the list. You will now see the Aircraft Details screen:

**BUILD Aircraft** (Maximum number that can now be operated = 522 ac of all types). ?

**RESTRICTED**  
Division of Air Intelligence - Aircraft Recognition and Characteristics

**F4F-4 WILDCAT**  
**Fighter**  
**Light Bomber**



Max Speed: 300 mph.  
Cr. Speed: 171 mph.  
Endurance: 5/4/- hrs.  
Bombload: -/200/- kgs.  
Firepower: 6      Ruggedness: 5      Manoeuver: 6  
Carrier capable

**Production Notes:**  
Introduced: November 1941      Quota:8      Cost: 0.33 RPs      ☐ Restrict  
Production this turn:      Ordered:112      ☐ Prioritize      **Create Order**

**Historical Notes:**  
Additional armor and 2 extra guns reduced maneuverability.

**Close**

Many but not all aircraft will have a silhouette.

Endurance is hours flying time at light/medium/heavy load, and bombload is given also at light/medium/heavy load. Firepower (against fighters), ruggedness, maneuverability, and ASW attack and search (if any) are each values out of 10 (maximum). Special capabilities such as dive bombing, carrier capable and night-equipped are also listed if the aircraft has any of these.

Historical and production notes round out the details screen. 'Cost' is the number of RPs (resource points) it takes to build one aircraft of the selected type. Note though that this value is a total cost figure, i.e. it is the cost not only of any one aircraft, but also the unitised cost of creating the factories to build it.

The use and meaning of the two tickboxes ('Restrict' and 'Prioritise') and the 'Create Order' button, as well as the meaning of the 'Quota' value, will be explained shortly, as they are some of the controls you can use to set aircraft production targets.

Click the 'Close' button to close the details screen and return to the build aircraft screen.

## Totals

At the bottom of the list, on the right hand side, are two totals: 'Total AC' is the total number of aircraft that your 2IC plans to order. 'Total RPs' is the total resource points it would take to build them.

## Plus and minus buttons

These buttons let you incrementally increase or decrease the RPs you wish to spend this turn on aircraft production. There are limits however to the amount that you can adjust the total aircraft construction budget each turn. This reflects real-world constraints: it was not possible to ramp up or down production lines for aircraft without restriction. A lot of investment was needed to tool up for new aircraft types, and to train factory workers in construction methods for each type.

As the number of RPs to be spent increases or reduces, your 2IC adjusts the 'number ordered' value in the list.

## Changing the production numbers and types

As well as changing the overall aircraft production budget, **SAS WW2** gives you two methods for varying your 2IC's plan in regard to the numbers and types of aircraft that get built.

- You can perform minor tuning by placing 'restrict' or 'prioritize' bids on certain aircraft.
- In addition, for specified aircraft types, you can set actual production targets - which override your 2IC's plan for as long as the targets are active.

## Minor tuning options

These options are the easiest to activate, and also in some sense, the most realistic as they reflect real-world production as well as *political* constraints: although you are the **Supreme Naval Commander**, and also the supreme commander in the theatre of operations covered in any



campaign, you are more directly in charge of naval affairs than you are of air forces. In all countries in WW2 the command of naval and airforces was separated (except for naval fleet air arms, where they existed). Your power is akin to that of Admiral King in WW2. He was Chief of Naval Operations and supreme commander of US naval forces, and he also sat with General Marshal as one of the two Joint Chiefs overseeing war strategy. But for many things, including production targets for aircraft, he had only high-level begging rights.

Given this, there are two ways to change the proposed production plan:

1. Change the total level of resources for aircraft production this turn.
2. Change the mix of aircraft types by prioritising or restricting certain types or changing strategy.

## 1. Changing the level of resources

As already noted in the overview above, you do this by clicking on the '+' or '-' buttons. Each click incrementally increases or reduces the amount of RPs that will be spent this turn. You will see the 'Total RPs' and also the 'Total AC' values change as you do this.

Note that the new higher or lower level of spending will carry forward to the next turn. If you have reduced expenditure in a turn, the lower level will be the benchmark for the next turn, and it will take longer to get to a higher level again than if you had not reduced it.

Use the figure at the top of the screen for the maximum number of operable aircraft as a guide to deciding how many aircraft should be produced. You should always produce at least this number. You should actually produce a higher amount - the excess aircraft go into reserve and will be immediately available next turn to replace any losses in the current turn. A cautious player will want to have quite a high level of excess, especially on the first turn, as it is hard to predict aircraft losses.

## 2. Prioritising or restricting aircraft

### Prioritising aircraft

To prioritise the production of a particular aircraft type, select it in the list, and then, in the aircraft details screen, tick the 'prioritise' tick box. Then close the screen. You should notice that more of this aircraft will now have been ordered, at the expense of other aircraft types competing with it in terms of role and capability. Prioritisation simply overrides the computer's assessment of what is the best aircraft type of those currently available for the role needed. You should therefore be a little careful before prioritising because the computer has a reasonably clever way of determining aircraft



suitability.

Note that aircraft types that are prioritised are shown with a 'P' in the list.

### Restricting aircraft

You can also put a restriction on selected aircraft. Only the minimum quota for any restricted aircraft will then be produced. The current quota for the aircraft is shown in the aircraft details screen.

To restrict a particular aircraft type, select it in the list and then, in the aircraft details screen, click on the 'Restrict' tick box. Then close the screen.

Note that an aircraft type cannot both be prioritised and restricted - only one of these options (or none) can apply. Aircraft types that are restricted are shown with an 'R' in the list.

## 3. Changing strategy

You can also change your overall strategy before you commit an order. The mix of aircraft will change to reflect the new strategy. You will also probably notice a change in the total **number** of aircraft as well. This is because smaller aircraft, such as fighters, are generally cheaper to build than bombers. More aggressive strategies favour a greater proportion of bombers and so the total number of aircraft that can be produced for the given resources will reduce.

Before changing your strategy, make sure you understand all the effects that strategies have on game play. It is recommended you start by reading the [strategies](#) help page.

## Manual Production Orders

Despite what has been said about real-world political constraints, the option has been provided to manually set production orders for nominated aircraft.

*You can use this function to not only increase but also reduce the number of certain types that get produced. You can even set the number of any type to zero - which will force your factories to completely halt production so long as the order is in place.* This feature allows you to force a complete cessation of production of any types you regard as outmoded or not requiring further production for any reason.

When a manual order is set, it overrides your 2IC's plan for that aircraft type. Also, aircraft for which manual orders are set get first 'dibs' at available resources.

You can create and edit a production order for any aircraft type. When such an order is in place, your factories attempt each turn to produce exactly that number of the nominated aircraft. The only constraint is the availability of resources.

It is important to understand that there are potential extra costs as well as savings from placing nominated aircraft under direct production orders. When your 2IC is left to plan aircraft, resources are allocated across all factories in a reasonably efficient way. If you intervene by directly placing production orders, there are - initially at least - cost penalties: resources must be diverted to meet your specific targets. But, *if you leave the order in place without significant alteration*, the cost per aircraft diminishes over time and can end up being significantly cheaper.

The approximation used in the game is that aircraft under manual production orders start out being 50% more expensive to produce; but the penalty is reduced by 10% per month. The 10% reduction per month continues so that the aircraft eventually become cheaper to produce - to a limit of 50% of the full cost. The penalty and the reduction reflect the expenses incurred in re-tooling and diverting resources from elsewhere, but then the savings to be obtained from extended production runs. The extra costs or savings are amortised as a per unit cost to make book keeping easier.

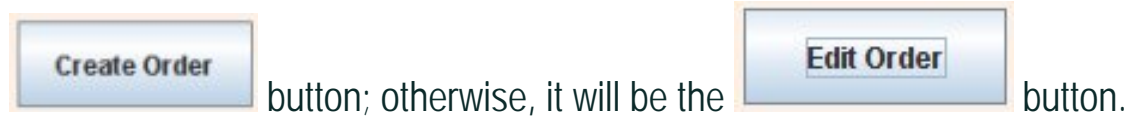
*An order can have its numbers varied by up to plus or minus 20% per month without penalty.* But if the numbers are changed by any greater amount, this has the effect of a contract cancellation and re-negotiation. Higher costs then apply again to the new order. Warning: significant variation is expensive!

By way of example - a manual order for 100 B-17s will cost 50% more per aircraft in the first month, 40% more in the second, 30% more in the third, and so on. By the sixth month, the cost penalty will be zero. After eleven months, the B-17s are each costing 50% less than if no manual order was in place. These cost savings continue for as long as the contract continues without significant alteration. After another 12 months, the order will have effectively delivered 600 B-17s for free! (100 per month at 50% the normal cost). If however the order were changed by a significant amount - say to 150 units per month after the ninth month, then the savings are scrapped, and the 50% penalty starts to apply again from the date of the contract re-negotiation.

A simple rule of thumb to remember is that it takes 11 months for an order to become cost neutral; after that, it delivers significant savings provided no significant variations have occurred.

## Creating and editing an order

The 'Aircraft Details' screen has a button giving access to a screen for creating or editing an order for that aircraft type. If there is no order currently in place for the aircraft type, you will see a



Clicking on the button brings up a screen for creating or editing a order. See [creating and editing aircraft orders](#) for help on this important function.

Note: aircraft under a production order can not also be under a restrict or prioritise order. Restrict and prioritise orders are ways to influence - rather than directly control - the production of nominated aircraft types.

## Indicators of Restrict, Prioritise or Manual Order elections

To help you keep track of which aircraft (if any) may be under restrict or prioritise orders, or else have a manual production order enabled, the list of aircraft in the 'Build Aircraft' screen has a 'R', 'P' or 'O' symbol alongside any aircraft type for which a restrict or prioritise election or a manual production order is in place. As an example, the following screen shows manual orders in place for the B-17C, B-18A and B-18B, a restrict order on the F2A-1 and a prioritise order on the B-26:

Type	Primary/Secondary roles	Best in Class	# to be Produced
Hudson I	Long Range Recce/Light Bomber		9
Maryland Mk II	Medium Bomber		9
A-20A Havoc	Medium Bomber		9
A-20C Havoc	Medium Bomber/Torpedo Bomber		36
<b>D</b> B-17C Flying Fortress	Heavy Bomber	*	70
<b>O</b> B-18A Bolo	Heavy Bomber		0
<b>O</b> B-18B Bolo	Long Range Recce/Heavy Bomber		5
B-25B Mitchell	Medium Bomber		9
B-26 (Pac) Marauder	Medium Bomber		9
<b>P</b> B-26 Marauder	Medium Bomber	*	15
B-26B Marauder	Medium Bomber		9
<b>R</b> F2A-1 Buffalo	Fighter		9
F2A-2 Buffalo	Fighter/Light Bomber		9
F2A-3 Buffalo	Fighter/Light Bomber		9
F4F-3 Wildcat	Carrier Fighter/Light Bomber		9
F4F-4 Wildcat	Carrier Fighter/Light Bomber	*	75
J2F-5 Duck	Short Range Recce		0
OS2U-3 Kingfisher	Short Range Recce/Light Bomber	*	41

## Committing the order

When you are satisfied with the current order, click on the 'Commit' button. This commits the order. The resource points will be taken and production of the aircraft commences immediately.

***Warning!*** the commit action can not be undone, so make sure you are ready before you commit. You can commit a production order for aircraft only once per turn.

After the 'Commit' button is clicked, the build aircraft screen will close and you will be returned to your [Admiral's Office](#).

## Cancelling out

If you are not yet ready to plan the construction of aircraft, click the 'Cancel' button. This returns you to your [Admiral's Office](#).

# **Glossary**

## **A**

### Admiral

A generic term for a naval flag officer but also, technically, a 'four star' rank.

### Admiral's Office

In *Supremacy at Sea* you issue all your commands and have access to all information from your Admiral's Office - your own personal "War Room"

See the [admiral's office](#) help page for more information.

### Admiral of the Fleet

A a 'five star' flag officer rank in Britain and the US, equivalent to [Generaladmiral](#) in Germany or [Ammiraglio di Armata](#) in Italy.

### Advanced Port

By default, when a [campaign](#) is created, the Advanced Port is the second most important port and it will get most of the remaining resources and have the second highest level of [infrastructure](#) after the [Home Port](#). You can only have one Advanced Port.

The default location of the Advanced Port (and Home Port) on the [theatre map](#) is based on actual locations, but simplified where necessary. For example, in the Pacific theatre, the home port and advanced port for the US are San Francisco and Pearl Harbor, whilst for the Japanese they are Tokyo bay and Truk. In the Mediterranean theatre, the Italians have La Spezia and Taranto respectively while the British have Gibraltar and Alexandria.

The default locations can be changed when a [campaign](#) is created.

## **Aggressive Strategy**

This is one of four predefined [strategies](#) that your 2-i-C will follow; each strategy has a favoured approach to spending resources, designing ships and ordering fleet operations.

See [aggressive strategy](#) for more information.

## **Aircraft construction**

Aircraft played a huge role in WW2 - both those from airfields and from aircraft carriers. Land-based and carrier-based airpower can be separately enabled or disabled for a campaign. (See [creating a campaign - an overview](#) for more information).

If aircraft are enabled you can build them every turn provided you have enough [resource points](#).

See [how to build aircraft](#) for more help.

## Allies

Historically, the 'Allies' were the countries in World War 2 that were at war with the Axis powers: The United States, Great Britain and the Commonwealth, Russia and the Free French.

In this game, the term 'allies' has a more generic meaning. An ally is any of the six major countries that are represented in SAS, that is not currently at war with you and that has joined in an alliance. See making alliances.

## Ammiraglio di Armata

A a 'five star' flag officer rank in Italy, equivalent to Generaladmiral in Germany or Admiral of the Fleet in Britain and the US.

## Ammiraglio di Divisione

The second lowest flag officer rank in Italy - a 'two star' rank. Equivalent to Vizeadmiral in Germany or Rear Admiral in Britain.

## Ammiraglio di Squadra

The third lowest flag officer rank in Italy - a 'three star' rank. Equivalent to Konteradmiral in Germany. or Vice Admiral in Britain and the US.

## Ammiraglio di Squadra designato di Armata

A a 'four star' flag officer rank in Italy, equivalent to Admiral in Britain, the US and



Germany.

## Axis

The countries in World War 2 that were at war with the Allies: Germany, Japan and Italy.

## B

## C

## Campaign

In *Supremacy at Sea* you play as the *Supreme Naval Commander* of a chosen country, against a chosen enemy country.

There are six countries you can choose to play for and against, so you can play not only historical match-ups like Britain vs Germany or the US vs Japan, but might-have-beens such as Britain vs the US.

Each such game you play is called a "campaign".

Several campaigns come pre loaded with **SAS WW2**. But you can create a limitless number of other campaigns as well, using the Campaign Creator, choosing the theatre, the countries and setting many starting parameters. See [create campaign - an overview](#) for details.

## **Cautious Strategy**

This is one of four predefined strategies that your 2-i-C will follow; each strategy has a favoured approach to spending resources, designing ships and ordering fleet operations.

See cautious strategy for more information.

## Commodore

The lowest flag officer rank in Britain and the US - a 'one star' rank. Equivalent to Kapitan zur See in Germany or Contraammiraglio in Italy.

## Contraammiraglio

The lowest flag officer rank in Italy - a 'one star' rank. Equivalent to Kapitan zur See in Germany or Commodore in Britain and the US.

## Convoy

Usually a convoy is any fleet with at least one Merchant ship.. But naval vessels can also carry supplies and troops (but not raw materials), so it is possible to also have a fast naval task force in a convoy role.

## Countries

Six countries are in the game - the United States, Japan, Britain, Germany, Italy and France. These were the major naval powers of WW2. You can play for any country, against any other. Each country has historical ship types, technology, infrastructure levels and personalities - leaders and admirals. You can modify historical ship types or

design your own; and you can vary the technology and infrastructure levels that countries start with - to make for easier or harder games.

## Cruising Range

The maximum range in nautical miles that a ship or fleet can travel without refuelling. Note that this is a range, not a radius - it includes the distance the fleet needs to travel to get back to a port to refuel. A ship that can not continue with its fleet - because it is running out of fuel - in most situations will be forced by the computer to detach and return to the nearest friendly port capable of refuelling it.

When a ship is constructed, its design can specify a cruising range factor.

## Cruising Speed

The speed in knots that a ship or fleet can cruise. There are five possible speeds: 6, 8, 12, 16 and 24 knots. A fleet can never cruise faster than its slowest ship can cruise. A ship can cruise at a speed up to 3 knots less than its maximum speed. For example, a ship with a maximum speed of 16 knots can cruise at 6 or 12 knots but not at 16 knots. It is important when forming your own fleets to consider how different maximum cruising speeds of your ships can impact a fleet's effectiveness. Mixing a slow battleship, like the *HMS Nelson* that can not cruise at 24 knots, in with faster battleships and carriers that can, is restricting the effectiveness of the faster ships.

## D

## Domestic Materials Index (DMI)

The value between zero and ten (maximum) that measures the quantity and value of

materials that can be used locally at a port by the port's domestic industry.

The DMI for each port is set when a campaign is created - see [create a campaign - set the DMI](#) for more information.

# E

## Economy

Each [player](#) controls a country that has an economy. The strength of an economy is measured in [resource points](#). These are the fundamental currency in the game and are used for [ship construction](#), [repair](#), [rearming](#) and [refuelling](#), as well as for [building aircraft](#) and [raising troops](#) (if aircraft and troops are enabled for the campaign). Resource points can also be invested in [technology research](#) and [infrastructure](#) (which includes dock facilities and defences, airfields and industry, plus the training facilities for your fleets, airforces and troops, and the quality of your intelligence and counter-intelligence networks).

The player who wins a game will be the player whose economy is most able to sustain a winning war effort.

The economy grows every turn from production at each of your ports that has both an industrial base and supplies of suitable materials - either those available locally or shipped there by [convoy](#).

See [the economic model in SAS](#) for more information.

## Export Materials Index (EMI)

The value between zero and ten (maximum) that measures the quantity and value of

materials that can be exported from a port as well as used locally by a port's export industry.

The EMI for each port is set when a campaign is created - see [create a campaign - set the EMI](#) for more information.

# F

## Fleet

A collection of one or more ships belonging to the same [player](#). If it is not a [Reserve Fleet](#) it is able to move on the [Map](#). (Ships must be organised in fleets before they can be moved.) Fleets cruise at one of 5 standard cruising speeds – 6, 8, 12, 16 or 24 knots, but never faster than the slowest ship. (See [cruising speed](#)). In Battle, all ships sail at their best possible speed.

Each Fleet must be given [rules of engagement](#) which determines the general behaviour in battle of all ships in the fleet.

## Fleet names

Conventions the computer uses when it creates fleets are to use the prefix:

- "EF" for emergency fleets (ie those created by the computer at run time)
- "SF" for all submarine fleets
- "TF" (for "task force") for all fleets of surface ships other than merchant convoys
- "CF" for all merchant convoys
- "RF" for reserve fleets at minor ports, or "Home Fleet Reserve" and "Forward Fleet Reserve" for fleets based at your "home" port (which is where your major industry and shipbuilding facilities are located) or advanced base - which is, like Pearl

Harbour was to the US - their major operational base.

The reserve fleets are automatically created when a campaign is set up.

The active fleets are created by you manually or else by your 2IC when he forms missions. For example, if he were to create missions that require three naval task forces, two submarine flotillas and a convoy, you would see in your list of fleets the names "TF1", "TF2" "TF3", "SF1", "SF2" and "CF1".

The emergency fleets are created by the computer at run time.

The names of the active and reserve fleets can be changed if you prefer more descriptive names. (See [renaming a fleet](#))

## G

### Generaladmiral

A a 'five star' flag officer rank in Germany, equivalent to [Ammiraglio di Armata](#) in Italy or [Admiral of the Fleet](#) in Britain and the US.

## H

### Home Port

By default, when a [campaign](#) is created, the home port is the most important port and it will get most of the resources and have the highest level of [infrastructure](#). You can only have one home port.

The default infrastructure levels for the Home Port allow for ship construction, as well as

repair, rearming and refuelling.

The home port is also where newly raised troops first appear.

The default location of the home port on the theatre map is based on actual locations, but simplified where necessary. For example, in the Pacific theatre, the home port for the US is San Francisco whilst for the Japanese it is Tokyo bay. In the Mediterranean theatre, the Italians have La Spezia while the British have Gibraltar.

The default locations can be changed when a campaign is created.

Note: Your home port (and any of your others also) can be captured by enemy amphibious assault. If your home port is captured, this signals an *immediate* end to the game - your side sues immediately for peace and you are sacked as *Supreme Naval Commander*.

The second most important port - by default - is a player's advanced port. This normally has the second highest level of infrastructure and is often situated closer to the enemy, so often becomes the centre of fleets tasked for offensive operations.

!

## Infrastructure

Your physical assets include not just your ships, aircraft and troops but also your ports, training facilities, technology and naval intelligence networks.

Port infrastructure includes facilities for shipbuilding, refuelling , rearming and repair as well as defences against bombardment attack.

During the game, you can use resource points to invest in better infrastructure. Starting



with a low level compared to your enemy will be a real handicap. Better docks infrastructure increases the rate of construction and repair and also can allow more ports the ability to construct ships. Better defences reduce the damage you will receive from enemy bombardment, and also increase the damage you can inflict on him.

See the [infrastructure - an overview](#) help page for more information.

## Intelligence

Intelligence helps you to locate and intercept enemy fleets at sea - by intercepting and decoding their signals, or sighting them from shore-based coastwatchers. (This supplements information available from reconnaissance by your own fleets).

Intelligence also allows you to build up a general picture of the enemy - from the spies you have "inserted" on his soil. The information gleaned includes the kind of ships he is building, the level of his resources and so on.

A higher intelligence value gives you more and more accurate information as well as a better counter-intelligence capability - thereby reducing the enemy's intelligence.

A low level of intelligence can result in very inaccurate reports, which may be worse than none at all.

Getting a reasonably reliable handle on the enemy is very important to maximising your chances of winning.

During the game, you can use [resource points](#) to invest in better intelligence, but starting with a low level compared to your enemy will be a real handicap.

See [infrastructure - an overview](#) for more information.

**J**

**K**

## Kapitan zur See

The lowest flag officer rank in Germany - a 'one star' rank. Equivalent to Commodore in Britain and the US or Contraammiraglio in Italy.

## Konteradmiral

The third lowest flag officer rank in Germany - a 'three star' rank. Equivalent to Vice Admiral in Germany or Ammiraglio di Squadra in Italy.

**L**

**M**

## Map

The game Map on which all movement takes place. Consists of open sea areas (blue), land areas and ports. Overlaid with a hexagonal grid to assist giving fleet movement orders. The hex grid can be toggled on or off in most map views.

On the large theatre map you can also toggle on or off the display of non-navigable land hexes, to help with plotting fleet paths.

The hex size varies depending on the map. For example, the hex size is 96 nautical

miles in the Pacific and Atlantic theatres, but 48 nautical miles in the Mediterranean.

When you create your own campaign you can choose the map you want. (See [create a campaign - select the theatre](#)).

During game play, there are many views of the game map that you use:

- The full screen theatre map, where you can review information and plot moves.
- The map you see from the mission details page, which shows you the route of the selected mission.
- The map you see when creating fleets manually, which shows you the location of the currently selected fleet.
- The map you see during turn calculation and again during turn replay, which shows the dynamic movement of fleets.

## Merchant Ship

A ship that can load and unload raw materials as well as troops or supplies.

Merchant ships are slow, vulnerable and unarmed. There are 5 sizes of merchant ship you can have - from very small slow coastal steamers of just a few thousand tons and a maximum speed of only 12 knots up to large, faster ships of up to approximately 15000 tonnes and a top speed of 21 knots.

Merchant ships play a vital role in keeping your economy running and in strategically transporting troops and supplies to where they are needed.

In **SAS WW2** fuel consumption by merchant ships is simplified - unlike for naval ships. It is assumed that merchant ships have an unlimited cruising range. (Naval ships however have their fuel usage calculated hourly; their operational range is a vital planning consideration).

## N

## O

### Odds

The odds of victory that you face are set when a [campaign](#) is created.

The odds are calculated based on the relative strengths and weaknesses of the two countries involved.

The odds are expressed descriptively, such as "very easy"" as well as numerically - e.g. favouring one side by a certain percentage. The percentage is directly applied when a player's performance is assessed annually. For example, a country facing inferior odds of say 20% will get 20% more leniency for the same objective outcomes than if the odds were equal.

## P

### Port

Each player has a [Home Port](#) and an [Advanced Port](#). They also will have several lesser ports. The locations and infrastructure levels at these ports are set when a campaign is created. (See [create a campaign - setting port parameters](#)).

Convoys sail between the ports carrying raw materials, troops or supplies.

Enemy ports can be bombarded by aircraft as well as surface ship gunfire, and can be assaulted and possibly captured by amphibious assaults.

The infrastructure at ports can be degraded by enemy attack as well as improved with more resource expenditure. (See [infrastructure - an overview](#) for more information).

Depending on the level of dockyard facilities, ports can be used for ship construction, repairs, rearming and refuelling. And aircraft from surrounding airfields can become powerful weapons; the airfields are unsinkable! (though they can be degraded by enemy attack).

## Player

A game has two players who play opposing sides in the war. At least one side must be a human player. The other side is played by another human or the computer.

The sides are set when a campaign is created, but can later be changed.

Player names are defined when a [campaign](#) is created. Each player makes as many of the strategic, operational and tactical decisions for his side as he wants - the rest he leaves to his 2IC.

**Q**

**R**

## Rules of engagement

Rules of engagement ("RoE") tell a fleet what odds it should accept when facing an enemy fleet, and, in combination with each ship's orders, determines the aggressiveness of each ship in a surface battle - how much damage it will accept before retiring and how

close to the enemy it will try to get.

In fleets set up by your 2IC, as part of the missions he creates, default RoE apply based on the mission type.

You can change these orders; and you can also set up orders for the fleets you create yourself.

See [setting rules of engagement](#) for more information.

## Raising troops

**SAS WW2** is not only a game of sea power; it includes aircraft and troops as well - provided these have been enabled for the campaign you are playing. (See [creating a campaign - an overview](#) for more information).

You use troops to defend your bases and to capture the enemy's.

See [how to build troops](#) for help on this topic.

## Rear Admiral

The second lowest flag officer rank in Britain and the US - a 'two star' rank. Equivalent to [Vizeadmiral](#) in Germany or [Ammiraglio di Divisione](#) in Italy.

## Rearming

Naval ships use gun ammunition and torpedoes during combat and need to be rearmed either at your [Home Port](#) or your [Advanced Port](#).

Merchant ships do not require rearming, only naval ships.

It costs resource points to rearm. Torpedoes and small calibre ammunition are cheap but heavy calibre ammunition is not - a 45000 tonne battleship takes around 20 resource points to rearm from empty. (See the economic model in SAS - RP Costs for more information).

Only as much rearming can occur as can be paid for at the time. Not all the points at a Port can be used for rearming - a maximum of 20% of the total points stored there can be available for rearming at any time.

Rearming is calculated hourly and can occur at any port with the infrastructure to support rearming. It can occur simultaneously while refuelling is occurring, but not repairing - a damaged ship must be fully repaired before it can rearm (or refuel).

The maximum rate of rearming for any ship is 10% of ammunition capacity per hour.

## Refuelling

Naval ships use precious oil fuel when they sail -especially at high speeds. Shortages of fuel were a real life constraint for all of the Axis powers in World War 2 and in this game your ships will need to be frequently refuelled, at any of your ports that have the infrastructure to support refuelling.

Merchant ships do not require refuelling, only naval ships.

Refuelling costs costs resource points - 1 RP for every 500 tonnes of fuel. Some examples may help: an Escort ship would normally carry less than that, a cruiser up to 2000 tonnes and a battleship up to 6000 tonnes (or more) depending on size and range (fuel capacity). Only as much refuelling can occur as can be paid for at the time. Not all the points at a Port can be used for refuelling - a maximum of 50% of total points stored there can be available to use for refuelling at any time.



Refuelling is calculated hourly and can occur while rearming is occurring, but not repairing - a damaged ship must be fully repaired before it can refuel (or rearm).

The maximum rate of refuelling for any ship is 10% of its capacity per hour, up to a limit of 300 tonnes per hour. A big battleship with a capacity of say 6000 tonnes will therefore take 20 hours to refuel.

## Repairing

Ships that are damaged but not sunk can be repaired if they make it back to a friendly port that has the dockyard infrastructure to repair them and sufficient resource points to carry out the work.

Repairs to a large heavily damaged ship can take many months. You do not need only to sink the enemy's ships to gain the upper hand - if you manage to seriously damage his major ships, his ability to fight will be seriously impaired while they are undergoing repair; and he also faces the cost of the repairs.

## Replaying a Turn

You can replay a turn at the strategic and tactical level.

All fleet movement, operations, sightings and battles are shown on a Turn Replay screen. This replays a turn hour-by-hour. To view it, click "Briefings" on the whiteboard in the Admiral's Office. Then click the film reels lying on your desk.

When a battle occurs, the pop-up panel that notifies you has a hyperlink to a battle summary screen. For surface battles, the summary screen lets you launch a full shell-by-shell replay of all the surface action for that battle!

# Reserve Fleet

Every port has a reserve fleet that always stays in being, whether it is empty of ships or not. The reserve fleet is the home fleet for that port. Reserve fleets can never be deleted.

If the port is one that can construct ships, the reserve fleet there will be the one that takes newly constructed ships at the port.

Also, at the end of every turn, all ships in every port are returned to the reserve fleet there. Think of the reserve fleet at each port as the "pool" of ships available there. You (or your 2IC) can draw undamaged ships from this pool to create active fleets. The reserve fleets are non combatant - they can not move anywhere, although ships in them will fight back from inside the port, if bombarded by enemy forces.

## Resource Points (RPs)

Resource points are measure of your economic ability to wage war. Everything of value to the war effort in **SAS WW2** has to be paid for in RPs.

One RP 'buys' you:

- 100 tonnes of new ship
- 500 tonnes of oil fuel, for refuelling ships.
- 1000 tonnes of supplies for troops.

RPs are also used to build aircraft, and to build port infrastructure. The RP cost depends on the type of aircraft or the kind of infrastructure. See [the economic model in SAS](#), [how to build infrastructure](#) and [how to build aircraft](#) for more information.

# Scenario

Every game starts with a defined map and two named players. Each player has an economy that has a set production rate per turn, and a number of resource points at home port and advanced port. Together, these defined values are a scenario.

A 'scenario' is synonymous with the term 'campaign'.

# Second In Command

You have a famous Admiral as your 2-I-C. For example, the United States' player has Spruance, Halsey, King or Mitscher to choose from. The Japanese player can choose Yamamoto, or Nagumo among others. Each admiral has a personality and strategic approach ranging from very cautious through to very aggressive. They can take all the key decisions for you, or only as many as you want.

# Ship

Another name for a Unit. A Ship has a type (e.g. Battle, Cruiser, Escort) and attributes (e.g. size, speed, armour) that are set when it is constructed. Players exercise their power through their ships, moving them around like chess pieces. Using a simple but powerful ship designer, players can set attributes for their ships: maximum speed, number and calibre of main guns, armour thickness, general structural strength and cruising range. They can choose from more than 70 historical ships, or design their own.

# Ship Construction

**SAS WW2** is primarily a game of naval power which you project through your ships. See [building ships - an overview](#) for an introduction to this topic.

Note that in **SAS WW2** you may only ever build new ships at your home port, and even then, only if the dockyard infrastructure is sufficient and you have enough resource points there. See [dockyard infrastructure](#) and [resource points](#) for more information.

## Situation Report

Your strategic situation is summarised every turn in a Situation Report. This shows the state of your own economy, your ship losses in the last quarter and other key information. It is an important tool to help you plan your next moves for a turn. You can view the Situation Report at any time by clicking on "Briefings&" on the whiteboard in the Admiral's Office. The Report is searchable by hyperlinks, and also by scrolling through the document.

## Start Page

Each time you start up *Supremacy at Sea* you will see the Start Page.

It has a menu that allows you to:

- Create a Campaign
- Continue a Campaign
- Access the tutorials
- or Quit.

## Strategy

Strategy is defined in the *Compact Oxford English Dictionary* as a "plan designed to achieve a particular long-term aim. 2 the art of planning and directing military activity in a war or battle."

As the *Supreme Naval Commander* you make the strategic decisions - where to direct your resources and, what sort of navy you want that will best achieve victory.

You also make the grand tactical decisions - deploying your ships in fleets and giving them operational orders.

To help you, you have a 2-I-C who will follow one of four pre-defined strategies - very cautious, cautious, aggressive or very aggressive.

Each of these strategies has a favoured approach to spending resources, designing ships and ordering fleet operations.

## **Task Force**

In *SAS WW2* a task force is synonymous with a fleet.

## **T**

## Technology

There are 12 different technologies (such as radar, armour, and torpedoes.).

Better technology means more efficient, better fighting ships and aircraft.

In World War 2, significant differences between countries in their technological attainment did exist, and these are reflected in the default values for new campaigns.

But these can be adjusted up or down when a campaign is being created.

See [technologies](#) for more information.

During the game, you can use [Resource points](#) to invest in better technology, but starting with a low level compared to your enemy will be a real limitation, and advances in technology do not come immediately or predictably.

## Training

Ships, aircraft and troops all have training levels.

The training level is on a 1 to 10 scale (10 is the best). It is impossible to have a level higher than 10 or lower than 1.

The training level is a crucial factor because it directly affects combat efficiency.

For ships, it affects:

- The efficiency of your searches for the enemy, whether doing visual searches from ships, using radar or using ship-launched scout planes.
- The accuracy of your gun and torpedo fire control.
- The efficiency of your ship damage control.

Well trained ships therefore fight and survive much better than they would if poorly trained.

For aircraft, higher training increases the effective defensive and offensive strength vs other aircraft, the accuracy of bombs and torpedoes, as well as the probabilities of sighting the enemy.

For troops, it increases offensive and defensive strength.

Training is one of only two ways that ships, aircraft and troops can improve their combat efficiency. (The other is through battle experience.)

During the game, you can use [Resource points](#) to invest in better training, but starting with a low level compared to your enemy will definitely be a handicap.

## U

### Unit

Another name for a [Ship](#).

## V

### **Very Aggressive Strategy**

This is one of four predefined [strategies](#) that your 2-i-C will follow; each strategy has a favoured approach to spending resources, designing ships and ordering fleet operations.

See [very aggressive strategy](#) for more information.

### **Very Cautious Strategy**

This is one of four predefined [strategies](#) that your 2-i-C will follow; each strategy has a favoured approach to spending resources, designing ships and ordering fleet operations.

See [very cautious strategy](#) for more information.



# Vice Admiral

The third lowest flag officer rank in Britain and the US - a 'three star' rank. Equivalent to Konteradmiral in Germany or Ammiraglio di Squadra in Italy.

# Vizeadmiral

The second lowest flag officer rank in Germany - a 'two star' rank. Equivalent to Rear Admiral in Britain and the US Ammiraglio di Divisione in Italy.

# W

# Winning

The player who wins a game will be the player whose economy is most able to sustain a winning war effort.

# X

# Y

# Z

# **Build Menu**

The *Build Menu* on the blackboard at the left of your [Admiral's Office](#) enables functions to build all your ships, troops, infrastructure and aircraft (if aircraft are enabled for the current campaign).



The recommended order to build these is as shown on the menu, from top to bottom. If you deviate from this sequence you can find that you do not have enough resources for infrastructure after first building ships. If aircraft carriers are enabled in the campaign, you can also find that after building aircraft their deployment will be wrong if you have not first built your aircraft carriers, and you will need to manually correct this from the *Deploy Menu*.

## **Build Infrastructure**

Click on "Infrastructure" to bring up the screens for building infrastructure.

"Infrastructure" here means the industry, docks, defences and airfield capacity at (or near to) your ports, plus your fleet training, expenditure and priorities for technology R&D, and your naval intelligence capability. Don't forget the importance of infrastructure in the rush to build more tangible resources like ships and aircraft; success is likely to depend just as much on having good infrastructure.

# Build Ships

This is self-explanatory. Clicking on "Ships" will bring up screens for ordering new ships. On the first turn, they can be available immediately; on following turns, they take a realistic time to enter the game.

# Raise Troops

Click on "Troops" to raise troop units of specified size and quality at your Home Base. From here they can be shipped to where assaults are planned or garrisons needed.

# Construct Aircraft

Click on "A/C" to access screens for building aircraft of all types.

(Note: the option to build aircraft will be disabled if neither land-based nor carrier aircraft have been enabled for the current campaign).

# Done

Click on "Done" when all build tasks are finished. This returns you to the **Main Menu**.

# *The effects of battle experience on ship and aircraft crews*

Battle experience improves the performance of surviving aircraft and ship crews. The computer AI tracks the battle experience of every ship and every aircraft crew. The best crews are likely to have been both well trained AND battle hardened.

The ship details panel shows current levels of training and experience. In the following picture, the blue line at the top right of the panel shows training levels, and the red bar shows the supplement due to battle experience:



In this example, it can be seen that the British battleship *Invincible* has a base training level of approximately 4.5, and has gained over half a point from battle experience, making the total crew efficiency just over 5 out of a possible 10.

In the case of aircraft, each surviving aircraft crew gains experience from combat, and that experience is then tracked at the air group to which the aircraft is attached, helping to raise the experience level of the group. (The experience level may also drop (or rise)

when new aircraft crews join the group and have a lower (or higher) training level than the current group average).

# Ship Roster

The Ship Roster is a full screen listing of all of your ships, grouped by category.

You can apply filters to the listing (using the various tick boxes at the top of the screen) so that you see all ships, or only those sunk, or damaged, or building.

Here is an example of the Ship Roster:



**Ship Roster** ☒ see Undamaged ☒ see Damaged ☒ see Lost ☒ see Building

**AIRCRAFT CARRIERS**

Indomitable		Indomitable class	29730	Building (13 turns to launch)
Famidable		Illustrious class	28861	Building (2 turns to launch)
Victorious		Illustrious class	28861	Building (7 turns to launch)
Ark Royal		Ark Royal class	27000	
Furious		Furious class	26018	
Audacity		Archer class	15700	Building (9 turns to launch)
Activity		Archer class	15700	Building (20 turns to launch)

**BATTLESHIPS**

Hood		Hood class	52001	
Anson		King George V class	45368	Building (22 turns to launch)
Howe		King George V class	45368	Building (19 turns to launch)
Duke of York		King George V class	45368	Building (13 turns to launch)
Prince of Wales		King George V class	45368	Building (7 turns to launch)
King George V		King George V class	45368	Building (3 turns to launch)
Rodney		Nelson class	38080	
Nelson		Nelson class	38080	
Repulse		Renown class	36800	
Renown		Renown class	36800	
Queen Elizabeth		Queen Elizabeth class	36480	Building (7 turns to launch)
Royal Sovereign		Revenge class	35200	
Resolution		Revenge class	35200	
Revenge		Revenge class	35200	

**CRUISERS**

Edinburgh		Belfast class	13732	
Belfast		Belfast class	13732	
Norfolk		Kent class	13350	
Dorsetshire		Kent class	13350	
Sussex		Kent class	13350	

...scroll down for more

The Ship Roster gives summary information on each ship, including the class of ship it belongs to, its full load tonnage, current status and a silhouette.

The Ship Roster can be accessed from either of two places:

- From the [briefing report](#) - there is a hyperlink in the Table of Contents to the 'Own Ship Roster'.
- From the [theatre map](#) - if you have the 'Own Ships' option ticked at the top of the screen, you will be able to see a summary listing of your ships at the bottom of the screen. Clicking on the 'See Ship Roster' button on that listing will bring up the Ship Roster.





# ***Building Ships***

You can build ships - first select, modify or design them, and then lay them down, all from the "Build ships" screen.

You use this screen whenever you want to edit your 2IC's plan, or first build the key ships before using the 2IC, or when you are not using your 2IC at all and intend to manually give ship building orders for all of your navy. The process is the same in each case.

## Accessing the ***Build Ships*** screen

First, click on "Build" and then "Ships" on the blackboard in your [Admiral's office](#).

When the ***2IC Help Screen*** appears, click on the "No" button. This takes you to the Build Ships screen.

You also get to the Build Ships screen automatically, after clicking "Yes" on the 2IC Help screen. In this case, the 2IC will take a few moments to plan ship construction and then the results will be displayed in the [Ship Roster](#). When you close the Ship Roster, the Build Ships screen appears to allow you to make edits if you want.

## The ***Build Ships*** screen

You will now see the screen for designing and building ships:

**BUILD Ships**

**1. Select type**

- Battle
- Cruiser
- Escort
- Merchant
- Submarine
- Carrier

**2. Select class**

- Montana
- Nevada
- New Mexico
- North Carolina
- Pennsylvania
- South Dakota

**3. Or set these values...**

Size	Gun #	Calibre	Dec	Armour	Strength	Speed	Range
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5

**Ship Data:**

Class: South Dakota  
 Name: South Dakota  
 medium Battleship  
 44819 tonnes (full load)  
 9 \* 16.0 in. guns  
 13.5 in. side belt  
 2778 pts strength  
 27 kts. max speed  
 15676/14002/6223 nms @ 12/16/24 kts

Weeks to commissioning: 0

**Build**

**Navy List**

Ship	Tonnes

Total Tonnage Built: 0  
 Remaining Tonnage To Build: 324000 tonnes

**Cancel**  
**View All**  
**Finished**

Before you start designing and building ships, you may want to first read the [introduction to building ships](#), which explains what kind of ships you can construct.

Once you are ready, building ships is very easy. You can select historical ship designs, or modify them, or even create your own entirely new designs, all with just a few mouse clicks.

You can accept the suggested class and ship names, or select new ones or set your own names.

Then, if you have enough resources, you can build them.

You can also cancel any build command you have given in the current turn (but not in previous turns).

On the first turn of a campaign, you can also optionally delay the entry of any ships that are built. (Normally, ships built on turn 1 of a campaign enter the game immediately, whilst those built on subsequent turns take a realistic time to construct. But sometimes - such as when you want to model historically accurate scenarios - you may want to delay

the entry of ships that are ordered on turn 1.)

All of these operations are performed from the build ships screen.

Follow these links to learn more:

- [Cancelling a ship.](#)
- [Selecting an historical design.](#)
- [Modifying an historical design.](#)
- [Creating a new design.](#)
- [Optionally changing ship and class names.](#)
- [Optionally delaying ship commissioning.](#)
- [Building a ship.](#)

# Creating and editing aircraft orders

As explained in the [how to build aircraft](#) help page, each turn during the build aircraft phase you can manually set production orders for any of your aircraft. These orders override the production targets your 2IC would otherwise set.

You do not have to set any orders - your 2IC can handle all aspects of aircraft production. But you have the option of manually setting targets for selected aircraft types.

## Accessing the Create/Edit Aircraft Orders dialog

During the build aircraft phase, you will see the 'Build Aircraft' screen:

Type	Primary/Secondary roles	Best in Class	# to be Produced
Hudson I	Long Range Recce/Light Bomber		8
Maryland Mk II	Medium Bomber		8
A-20A Havoc	Medium Bomber		8
A-20C Havoc	Medium Bomber/Torpedo Bomber		30
B-17C Flying Fortress	Heavy Bomber	*	45
B-18A Bolo	Heavy Bomber		8
B-18B Bolo	Long Range Recce/Heavy Bomber		8
B-25B Mitchell	Medium Bomber		8
B-26 (Pac) Marauder	Medium Bomber		8
B-26 Marauder	Medium Bomber	*	9
B-26B Marauder	Medium Bomber		8
F2A-1 Buffalo	Fighter		8
F2A-2 Buffalo	Fighter/Light Bomber		8
F2A-3 Buffalo	Fighter/Light Bomber		34
F4F-3 Wildcat	Carrier Fighter/Light Bomber		8
F4F-4 Wildcat	Carrier Fighter/Light Bomber	*	112
J2F-5 Duck	Short Range Recce		0
OS2U-3 Kingfisher	Short Range Recce/Light Bomber	*	80

**Total AC: 630**  
**Total RPs: 354.39**

Buttons: Cancel, Change Strategy, Commit

To create or edit a production order for any aircraft type, click on the row where the aircraft type is

listed. You will now see the 'Aircraft Details' screen:

**BUILD Aircraft** (Maximum number that can now be operated = 522 ac of all types). ?

**RESTRICTED**  
Division of Air Intelligence - Aircraft Recognition and Characteristics

**F4F-4 WILDCAT**  
**Fighter**  
**Light Bomber**  
Max Speed: 300 mph.  
Cr. Speed: 171 mph.  
Endurance: 5/4/- hrs.  
Bombload: -/200/- kgs.  
Firepower: 6      Ruggedness: 5      Manouever: 6  
Carrier capable


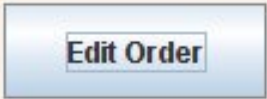


**Production Notes:**  
Introduced: November 1941      Quota:8      Cost: 0.33 RPs      ☐ Restrict  
Production this turn:      Ordered:112      ☐ Prioritize      **Create Order**

**Historical Notes:**  
Additional armor and 2 extra guns reduced maneuverability.

**Close**

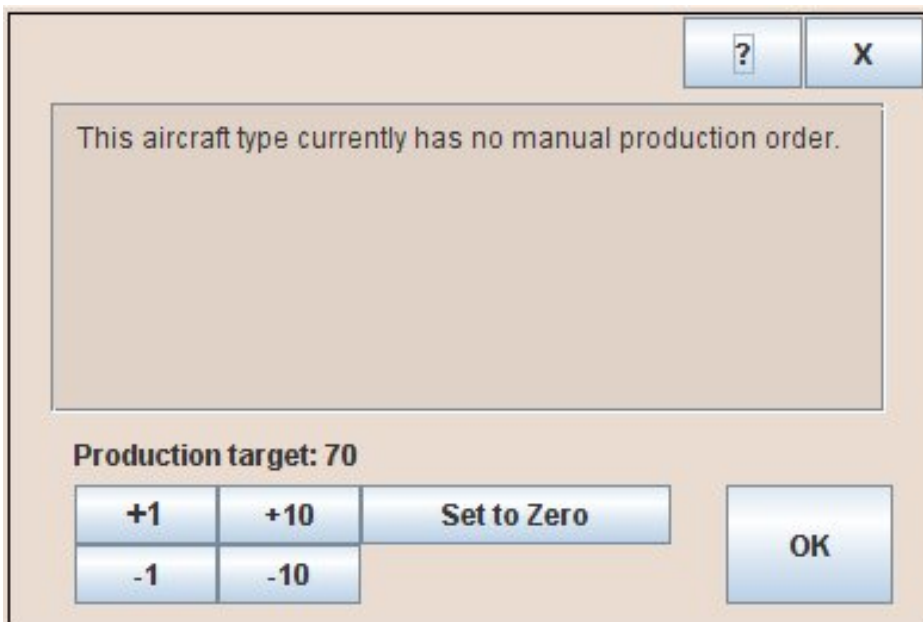
The 'Aircraft Details' screen has a button giving access to a screen for creating or editing an order for that aircraft type. If there is no order currently in place for the aircraft type, you will see a

 button; otherwise, it will be the  button.

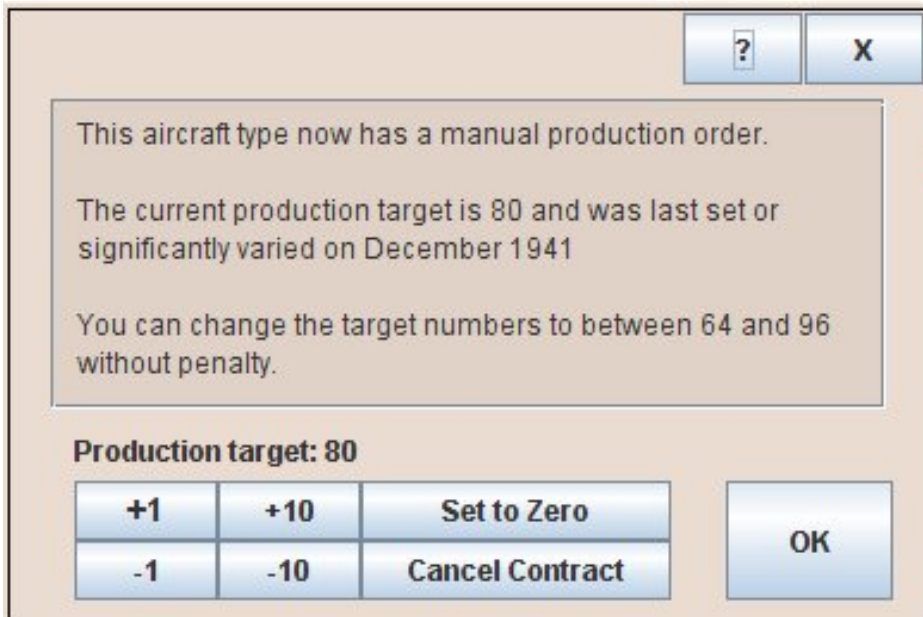
Clicking on the button brings up a screen for creating or editing a order.

## The Create/Edit Aircraft Orders dialog

You should now see a dialog in the lower right of the Aircraft Details screen. If there is no current order in place for this aircraft, the dialog will look like this:



Otherwise, it will look like this:



You can increase or decrease the number to be built each turn by using the '+1', '+10', '-1' or '-10' buttons, pressing them as often as you need until you arrive at the desired number, which is shown above the buttons:

**Production target: 113**

## Setting to Zero

If you want to force a complete halt to production of the aircraft type, click on the 'Set to Zero' button.

*This feature is the best way to force your factories to cease production of*



*outmoded types.* As long as an order is in place with a zero production target, your factories will halt all production of the aircraft.

## Avoiding significant variation penalties

Once an order is in place, you can vary the target numbers to be produced on any turn by up to plus or minus 20% without incurring any cost penalty. But if the variation exceeds that amount, significant re-tooling and resource diversion is required and the variation is regarded as though you had cancelled and restarted the contract. This means that aircraft produced under the order start again at the higher (50% extra) cost per unit (with the extra cost again diminishing over time).

To help you avoid the penalty, the text in the dialog will tell you the upper and lower limits you can set in the current turn before you encounter the penalty:

This aircraft type now has a manual production order.

The current production target is 114 and was last set or significantly varied on December 1941

You can change the target numbers to between 92 and 136 without penalty.

## Cancelling the contract

You can cancel the current order for this aircraft type at any time by clicking on the 'Cancel Contract' button. The dialog will then close. The number of this aircraft type that will be produced will again be determined by your 2IC.

## Exiting the dialog

When you have finished with the dialog, you can exit from it by clicking either the 'OK' or the 'X' buttons.



# ***Deploy Menu***

The *Deploy Menu* on the blackboard at the left of your Admiral's Office gives you access to sceens to deploy all your resources: ships, troops and aircraft (if aircraft are enabled for the current campaign).



# **How to access the theatre map**

The theatre map is the starting point for both reviewing your overall situation and also issuing orders to create or edit new fleets and missions.

To get to your theatre map, from your [Admirals office](#), just click on the wall map.

You also end up at the theatre map after using or refusing your 2IC's help with forming fleets.

## The Theatre Map

The theatre map is a full screen view of the map of the theatre for the campaign you are currently playing.

It also includes controls for filtering out the information displayed on the map, as well as for manually creating or editing fleets and missions.

The example shown below is from a sample Pacific theatre campaign:

See [how to edit or create missions](#) for an overview of using the map controls to edit or create fleets and missions.

# **Ordering cargo loading and unloading**

This is done as part of manually setting the movement orders for a fleet - see [how to set a movement path for a fleet](#) for the background to this task.

## Loading Cargo

When a fleet is berthed in one of your ports that has any cargo to ship, and the fleet has spare load capacity, the "Load" button will be enabled. (The computer performs this calculation behind the scenes):



To load up cargo, click on the "Load" button. A series of dialogs - like a wizard - will now appear for you to specify how much and what type of cargo to load.

The first dialog tells you how much the fleet is already carrying, how much more it can load, and asks for confirmation to proceed:

**Fleet CF1:**

is carrying 0 troops, and 0 tonnes of supplies.

It can carry 4600 more troops or 32000 more tons of supplies or raw materials, or lesser amounts of each of these.

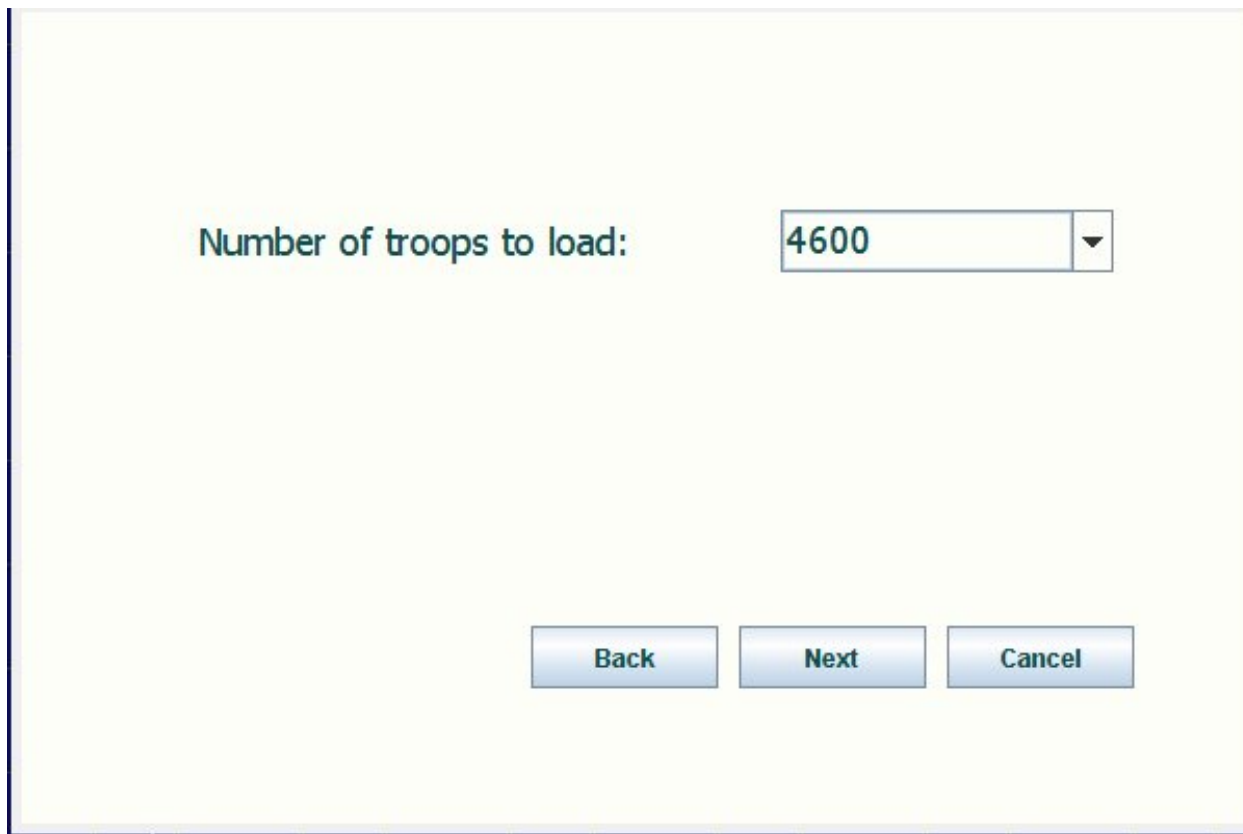
To order the fleet to load troops, supplies or raw materials click 'Next'. Or else click 'Cancel'.

Next

Cancel

Loading troops

Clicking the "Cancel" button cancels the loading operation. Clicking the "Next" button takes you to the next dialog, for loading troops:

A screenshot of a software dialog box with a light yellow background. It features a label "Number of troops to load:" followed by a text input field containing the number "4600" and a small downward-pointing arrow icon. At the bottom of the dialog, there are three buttons: "Back", "Next", and "Cancel".

Number of troops to load: 4600

Back Next Cancel

The combo box lets you choose the number of troops to load, up to the maximum the fleet can carry.

In this example, we will load a small battalion of 1000 troops:

A screenshot of the same dialog box as above, but with the number "1000" entered in the text input field. The "Number of troops to load:" label is still present.

Number of troops to load: 1000

Clicking the "Back" button takes you back to the start. Clicking the "Cancel" button cancels the load operation. Here, we will click "Next" to continue on.

## Loading Supplies

You will now see a dialog for loading supplies:

Tons of supplies to load:

25200



Back

Next

Cancel

Note that the dialog says there are 25,200 tons of supplies to load, whereas there were 32000 tons at the start. This reduction is because the fleet has reduced load capacity (after loading the troops).

Here, we will load 10,000 tons of supplies:

Tons of supplies to load:

10000



Again, you have a "Back" and a "Cancel" option, but we will click "Next" to proceed further.

Loading Raw materials

The final dialog lets you use remaining capacity (if any) to load raw materials:



Tons of raw materials to load:

15200 ▼

Back

OK

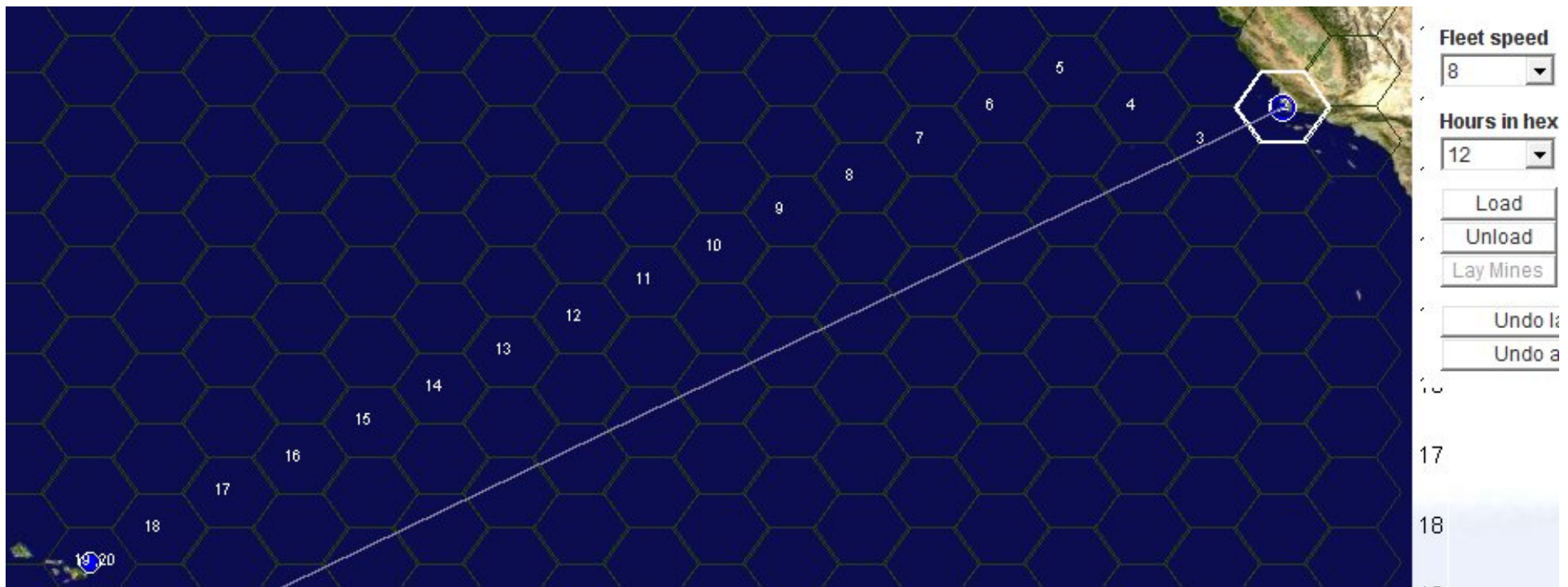
Cancel

In this example, we will load to full capacity by accepting to load the maximum amount (15,200 tons) of raw materials we can. Just click the "OK" button. That completes the special commands need to set up cargo loading.

## Cargo Unloading

When a fleet carrying cargo is scheduled to berth at one of your ports, you can schedule to unload some or all of it at the port.

In the example shown below, after the loading operation above, fleet CF1 has been ordered to sail to Pearl Harbour at its maximum cruising speed of 8 knots:



The "Unload" button at the right of the map is now enabled



Clicking this button brings up a dialog to control the unloading operation:

A screenshot of a software dialog box with a light yellow background. It contains three rows of labels and input fields. The first row is 'No. of troops to unload:' followed by a text box containing '1000' and a dropdown arrow. The second row is 'Tons of supplies to unload:' followed by a text box containing '10000' and a dropdown arrow. The third row is 'Tons of raw materials to unload:' followed by a text box containing '15200' and a dropdown arrow. At the bottom center, there are two buttons: 'OK' and 'Cancel'.

Label	Value
No. of troops to unload:	1000
Tons of supplies to unload:	10000
Tons of raw materials to unload:	15200

Buttons: OK, Cancel

You can see that it is showing as available for unload, the amounts and types of cargo it has been scheduled to load on the US west coast

You can unload none, some or all. Just select the amounts in each of the three combo boxes, and click "OK" to finish the order (or "Cancel" to cancel out of the order).

# **Aircraft squadron organisation**

*SAS version 1.1* introduced basic squadron organisation for aircraft operating from airfields and carriers.

A squadron is a group of aircraft of the same 'category', with a theoretical establishment.

There are eight categories of aircraft for squadron purposes:

1. Fighter and interceptor.
2. Torpedo bomber.
3. Dive bomber.
4. Heavy bomber.
5. Medium bomber
6. Light bomber.
7. Long range reconnaissance.
8. Short range reconnaissance.

Within a squadron, there can be aircraft of different types, i.e. makes and models, but all types in a squadron must have the same primary role. For example, a British torpedo bomber squadron could have both Albacores and Barracudas.

## Squadron sizes

The theoretical operating establishment of a squadron depended on the category, and also the country - different countries had different organisations.

Category	Country	Full Establishment
Fighter/interceptor	United States	24
	Other	20
Torpedo bomber	Japan	20
	Other	12

Dive bomber	United States Japan, Germany Other	16 20 12
Heavy, medium & Light bomber	All	12
Long & Short range reconnaissance	All	12

## Minimum operational sizes

The numbers above represent theoretical full establishment. In practice, because of aircraft loss, damage and unserviceability, and production and deployment limitations affecting replacements, most squadrons operated below full strength most of the time.

Category	Country	Minimum Establishment
Fighter/interceptor	United States Other	8 6
Torpedo bomber	Japan Other	6 4
Dive bomber	United States Japan, Germany Other	5 6 4
Heavy, Medium & Light bomber	All	6
Long & Short range reconnaissance	All	3

The minimum operational size affects aircraft deployment by the computer: automated deployment is always in 'packets' equal to the minimum operational size of the squadron for which the aircraft are destined. (Manual deployment can override this though - see [how to deploy aircraft](#) for information.)

The minimum size also affects operations: squadrons falling below minimum strength cannot contribute aircraft to offensive operations.

# Hot Keys

Certain screens in **SAS** have hot keys. Mostly they provide alternative means of control to the buttons on the screen or to mouse actions, but sometimes they provide for added functions.

These hot keys are listed below:

## Run Turn and Replay Turn screen hot keys

These screens have a number of hot keys in common.

Key	Function performed	Equivalent control/mouse action
left, right, up, down arrows	moves the map 20 pixels in the indicated direction	click and drag the map
'z' or keypad '+'	zooms in (enlarges) the map by a set amount	'+' button
'x' or keypad '-'	zooms out (reduces) the map by a set amount	'-' button
'Pause'	pauses the action or, if it is already paused, re-starts it	' ' button (to pause) and '>' button (to re-start)
'n'	Closes the 'Own Air Strikes' dialog if it is open, and moves action to the next hour	'> ' button
'g'	Closes the 'Own Air Strikes' dialog if it is open, and starts (or re-starts) continuous running of the action	'>' button
's'	slows the running of the action (by doubling the delay between hours, to a maximum of 8 seconds)	'S' button



'f'	speeds up the running of the action (by halving the delay between hours, to a minimum of a tenth of a second)	'F' button
'o'	displays the 'Options' screen	'Options' button
'e'	toggles the ability to get enlarged event message pop-ups on mouse-over	(none)
'h'	toggles hexes on or off	'hexes' tickbox
'm'	toggles music on or off	'enable music' tickbox on the 'Options' screen

There are some additional keys that work only on the Run Turn screen:

Key	Function performed	Equivalent control/mouse action
'a'	toggles between 3 modes for showing air power maps: none own air power maps enemy air power maps	(none)
'p'	displays the 'Air Strike Preferences' dialog - for viewing and editing preferences	'Edit air strike preferences' button on the 'Options' dialog
'Ctrl'	toggles on or off the ability to call up the 'Hex Assets' dialog when the mouse is over any friendly or enemy fleet or port	(none)

## Run Turn and Replay Turn Options screen hot key

Key	Function performed	Equivalent control/mouse action

'q'	closes the dialog	'X' button
-----	-------------------	------------

## Air Strike Preferences dialog hot key

Key	Function performed	Equivalent control/mouse action
'q'	closes the dialog	'X' button

## Air Strikes dialog hot keys

Key	Function performed	Equivalent control/mouse action
'q'	closes the dialog	'X' button
't'	while pressed: In the 'Pending' strikes tab a mouse click sets the target as player-selected In the 'Promotable' strikes tab a mouse click promotes the strike to pending	(operates in conjunction with a mouse click on a strike in the relevant list')
'Tab'	tabs between available tabs	mouse click on the tab header

## Fleet tactical response dialog hot key

Key	Function performed	Equivalent control/mouse action
'q'	closes the dialog	'OK' button

# Hex Assets dialog

Key	Function performed	Equivalent control/mouse action
'q'	closes the dialog	'X' button

# Edit Fleet Movements dialog

Key	Function performed	Equivalent control/mouse action
'q'	closes the dialog	'X' button

# **Editing fleet movement orders**

During the hour by hour calculation of a turn you can view and change the movement orders for any of your fleets, including giving them special orders to bombard, lay mines or assault, as well as load or unload troops, supplies or raw materials.

This is a new feature, introduced in v1.0.4.2, to further extend tactical play options. For an overview of all tactical play options, see [tactical play options](#).

Being able to change movement orders is not a substitute for proper operational planning. But it does allow you to make small or even large adjustments during calculation, in response to the unfolding picture you get of enemy fleet movements and strengths, changes in the battleworthiness of your own fleets, changing weather patterns, and so on.

You are never forced to make these changes, but the player who likes to closely follow the action and control things in fine detail will now be able to become full immersed in the run of play as it unfolds hour by hour.

## Accessing the Edit Fleet Movements Dialog

Editing fleet movements is available during turn calculation, so you must be at the screen for running the turn. (See [running the turn](#) for more information).

Then, you must pause the turn calculation at any hour that you want to review the situation. You pause the calculation either by clicking anywhere on the map or by using the pause

button () on the bottom controls bar.

Now, move the mouse over the hex where is located the fleet whose orders you want to review. You will immediately see a popup 'Hex Assets' window showing details of any fleets in the hex - your own and the enemy's. Full instructions on the use of this window are given in the help page for [accessing hex assets while running a turn](#). The pointers below are a quick summary.

Now, click on the hex to 'lock' the fleet details window.

If you have more than in fleet in the hex, select the one you are interested in. Details of the fleet will be shown, along with one or more buttons.

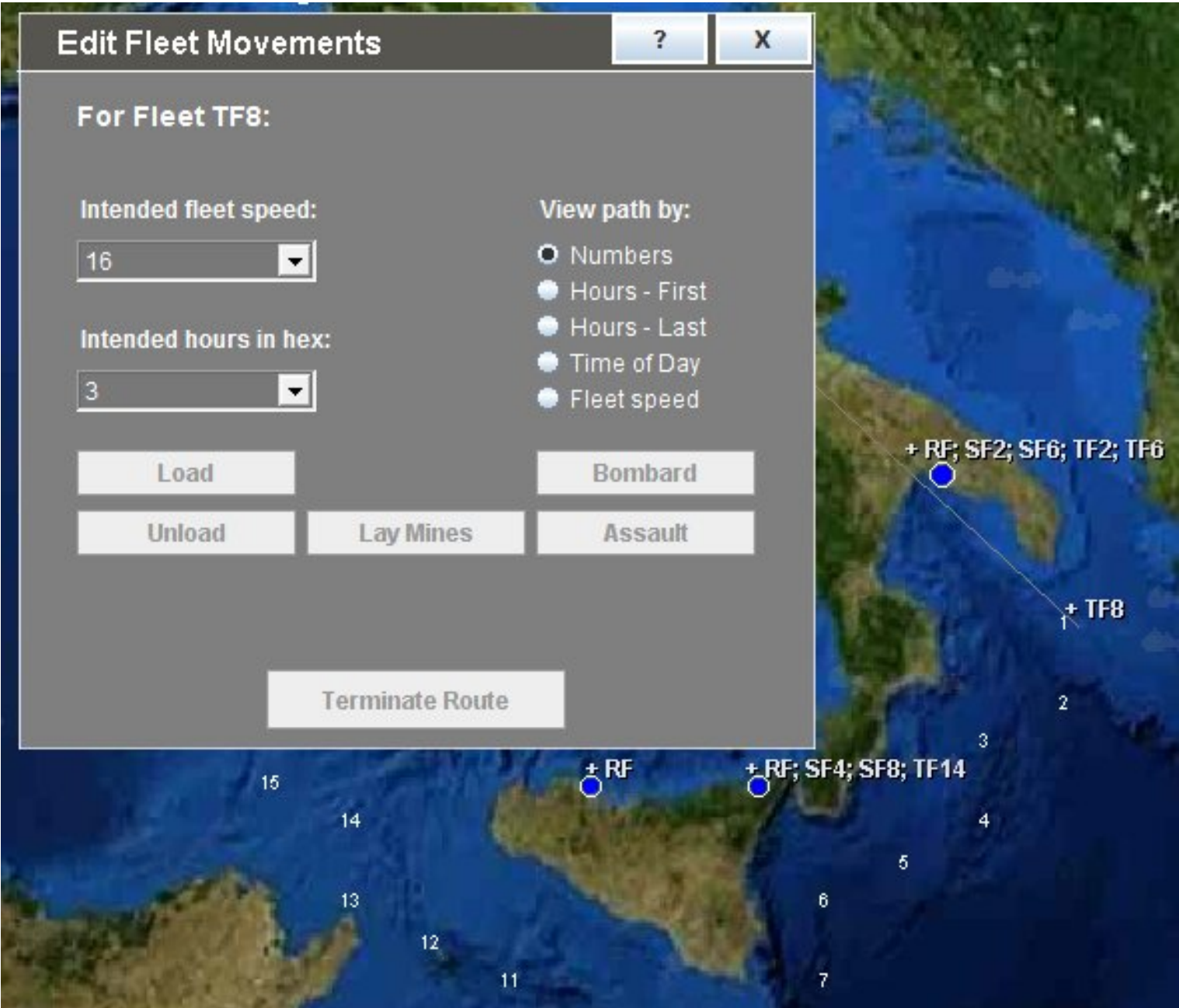
If the selected fleet is not a 'reserve' fleet, the 'Route' button will be shown:



Click on the 'Route' button to bring up the 'Edit Fleet Movements' dialog.

# The Edit Fleet Movements Dialog

An example of this dialog, from a Mediterranean campaign, is shown below:





This dialog gives you full control over the future movement orders for the selected fleet.

You can click and drag it around the map as desired.

You can change the intended route, or part of it, including changing the intended speed.

You can set special orders such as bombard, assault, lay mines, load and unload in nominated hexes (provided the preconditions for these operations are met).

See [Using the Edit Fleet Movements Dialog](#) for full instructions.

Note: because you can call this dialog up at any time during calculation, you can make as many changes to orders for any of your fleets as you want. Each change overwrites what you had previously ordered.

To close the dialog at any time, click the 'X' button at the top right of the dialog or use the 'q' hot key.

# **Surface Battle Replay**

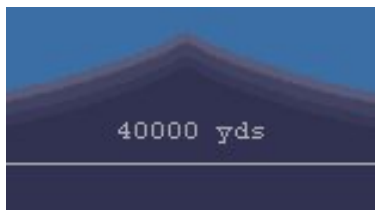
Battles between surface fleets are replayable in the Battle Replay screen. Watch as ships move, fire shells and torpedoes, change orders and suffer damage. The action is calculated shell by shell, and the replay can be run forwards at varying speed, as well as backwards. You can also force the replay to stop on key events, such as torpedo or main gun hits.

Ship movement is shown in a simplified 2D representation. The position of ships in the horizontal axis measures the distance between them. The vertical positioning on screen is purely for display purposes, to allow ships to be separated.

Note that during battle, new fleets may join in. If so, the additional ships will appear in the battle replay at the time they join in.

## Range information

The scale currently applying to the binocular view is shown just beneath the lower centre of the binoculars:



In the picture above, the width of the binocular view is 40000 yards.

You will notice that as you zoom in or out, this scale will change. (See [zooming and scrolling](#).)

More detailed range information is displayed each time a hit occurs. With every hit, the range between target and firer is given.

## Ship colours

To aid visual recognition, all ships of one side are colored pale grey, while ships of the other side are a darker grey.

When a ship is firing guns or torpedoes, it is temporarily highlighted in a whiter colour. If it has been hit by shells or torpedoes, it is temporarily highlighted in a pinkish colour.

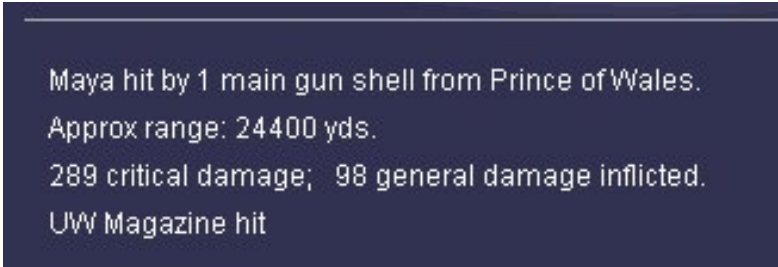


Ships that are sunk are shown in black.

Gun and torpedo hits are also shown visually as splashes. The larger the splash, the more damaging the hit. Also, hits that cause severe damage, such as a magazine explosion, are shown in red.

## Hit data

In addition to the visual splashes for hits, each hit is described in the panel below the binoculars. Here is a sample:



The calculation of damage is quite sophisticated - refer to [surface battle mechanics](#) for more information.

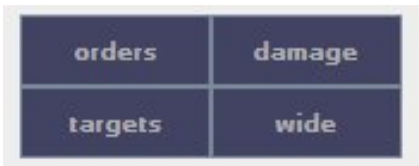
## Accessing the Battle Replay

From the [surface battle summary](#) report, just click on the "Replay battle" button at the top of the report screen.

## Battle Views

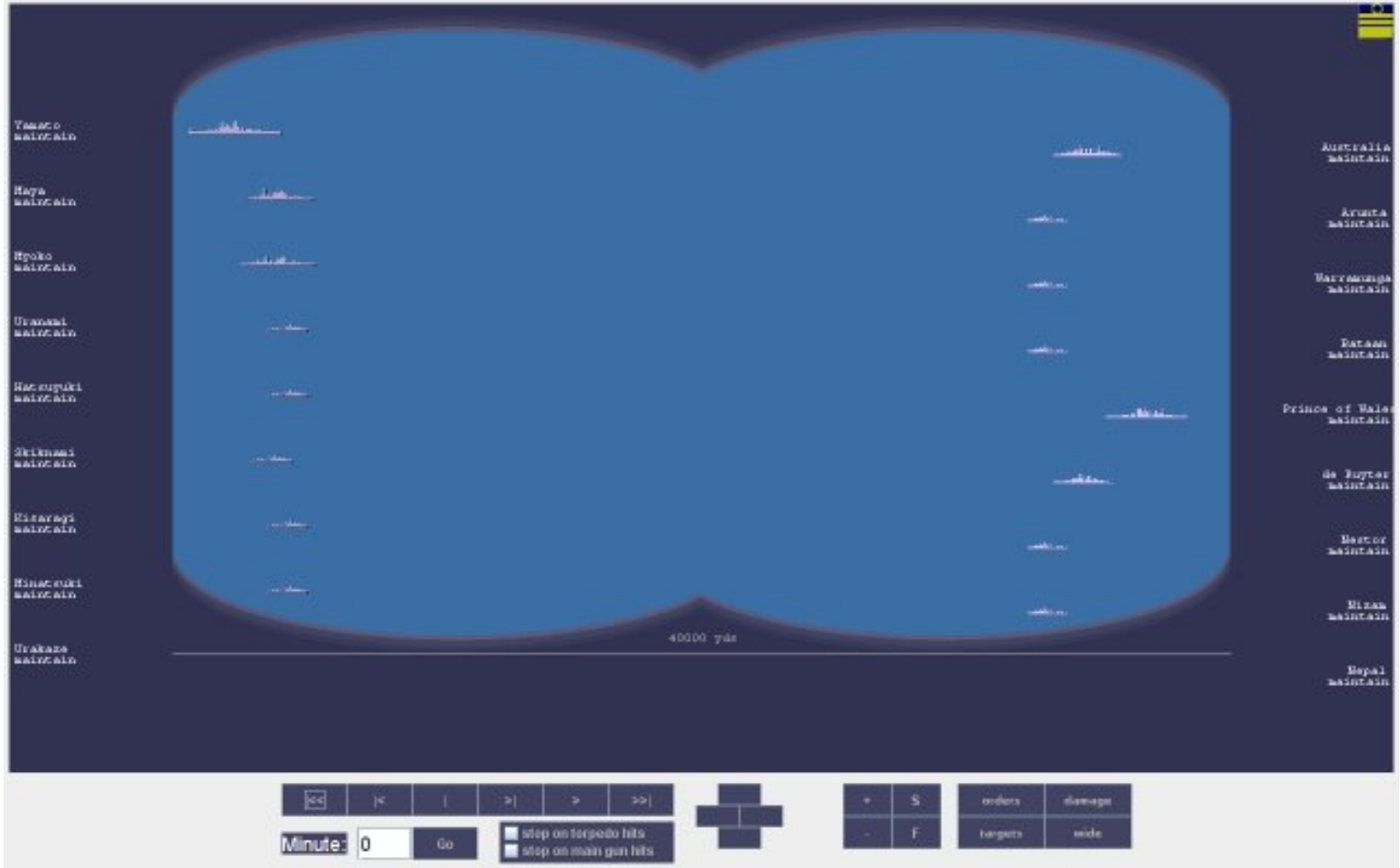
There are four views of the battle. While the central binocular view remains unchanged, the four different views present different information in the side panels.

You can toggle between these views by clicking on the view buttons at the bottom right of the screen:



# Orders View

The default view when the replay is opened is the orders view. It will look something like this:



Ships of both sides appear in the central binocular view. Each ship is shown by its silhouette. The ship's name and current orders are given in either side panel, in the row corresponding to where the silhouette is located.

The side panels show the current orders for each ship. Two pieces of information are given:

- The ship's current movement intention is described. This will be either "maintain", "run", "open directly", "open", "close directly" or "close". These terms have the following meaning:
  - "maintain" means that the ship will try to maintain the current range to its current target.
  - "run" means that the ship will try to open the range from its current target as quickly as possible, without regard to the bearing of its own guns or torpedoes (if it has any). This order is given to a ship when it needs to escape due to excessive damage or because the enemy odds are too high.
  - "open directly" is similar to "run" but the line of retreat is not so fine and allows some

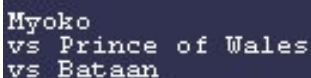
tactical manoeuvring to improve the ship's ability to fire back while trying to temporarily increase the range.

- "open" is similar to "open directly" but the withdrawal is more measured again, allowing for further improved tactical manoeuvres to preserve favourable offensive capabilities.
- "close directly" is like "open directly" but this time the ship is trying to aggressively close the range on the enemy target whilst keeping some degree of tactical manoeuvre.
- "close" is a cautious approach to reduce the range to the enemy, yet trying to maintain full tactical manoeuvre.
- In addition, the **reason** for the movement order will often be given. For example, if the order is to "open", the reason may be "low on ammo". The range of possible reasons is given below:
  - out of guns or ammo (run)
  - too damaged (run)
  - low on ammo (open)
  - get outside enemy gun range (open or open directly)
  - get inside IZ (open or open directly) (Note: "IZ" means immunity zone against the enemy target, if there is one)
  - avoid torpedoes (open or open directly)
  - get to best gun range (close or close directly)
  - get to torpedo range (close directly)
  - no target in range (for close or close directly)
  - defenceless target (close or close directly)
  - making too few hits (close or close directly)

## Target view

In this view, the movement order information is replaced by information about the current primary and secondary targets for each ship.

In the example below:



Myoko  
vs Prince of Wales  
vs Bataan

The Japanese cruiser Myoko is targeting the Prince of Wales as its primary target (ie, as the target for its main guns) while it is targeting the destroyer Bataan as its secondary target (ie for its secondary guns and torpedoes)

If no target info is shown for a ship it means that there are no enemy ships currently in range. If

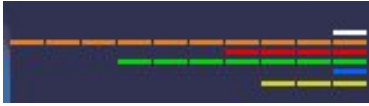
there is only one target entry, this will be because its primary guns are in range of enemy but its secondary guns and torpedoes are not.

## Damage View

In this view, the current damage status of each ship is shown graphically, by means of coloured bar segments:

- white bars mean ammunition loss - each segment means 10% loss
- red bars mean hull damage - each segment means 10% loss
- brown bars mean superstructure damage - each segment means 10% loss
- blue bars mean loss of flotation - each segment means 10% loss
- yellow bars mean loss of main turrets - each segment means one main turret lost
- green bars mean speed loss - each segment means 3 knots lost speed

As an example, the following extract is of the damage bars for a ship:



The bars show that the ship has lost 10% of its ammunition, all of its superstructure is damaged, 40% of its hull is damaged, its speed is down by 21 knots, there is 10% flooding and three main turrets are lost.

By toggling between the views, you will be able to quickly see how particular ships are doing - how damaged they are and what their movement and targeting orders currently are.

Note that the damage view shows the current damage status of the ship. Sometimes, ships will start a battle already damaged from a previous encounter. If so, the damage bars will show that damage as soon as the replay is started.

Note also that the replay takes you through to the end of the actual battle. After every battle has ended, the computer performs some post-battle calculations in the immediate aftermath. Sometimes, a ship not yet sunk by battle's end will sink soon after, in which case it will show as sunk in the [Battle Summary screen](#) but not in the battle replay. Other times, a ship may be able to reduce damage such as flooding. What happens depends on the balance between the severity of damage and the remaining ability of the ship's damage control. This explains why there is sometimes a difference between the damage shown for ships at the end of the battle replay compared to what is shown for the same ships in the Battle Summary screen.

## Wide View

In this view, the side panels disappear completely, and the full screen width is used for the binocular view.

## Replay Controls

### Running the replay

The replay can be run forwards, or backwards, or stopped at any point.

These functions are performed using these controls at the bottom of the battle replay screen:



The replay always starts paused at minute zero.

- use the '>' button to start the replay
- use the '>|' button to replay only the next event (shell or torpedo hit)
- use the '>>|' button to jump to the end of the battle.
- use the '|' button to pause the replay.
- use the '|<' button to jump back to the start of the previous minute
- use the '|<<' button to jump back to the start of the battle.

### Stopping on events

While the replay is running, you can force it to stop whenever a main gun hit and/or a torpedo hit occurs.

Select either or both these options using these tick boxes:



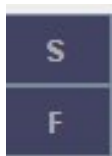
### Jump to a selected minute

To jump to a particular minute of battle, enter the number and click the "Go" button:



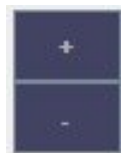
## Changing the replay speed

Speed up the replay speed clicking the "F" button; each click speeds the replay up by an increment. Slow it down clicking on the "S" button:



## Zooming and scrolling

Zoom in on the binocular view clicking the "+" button; each click zooms in by an increment. Zoom out clicking on the "-" button:



As you zoom, the scale for the binocular view will change.

Often you will want to move the binocular view around to see all of the battlefield, especially if you are zoomed in.

Move the binoculars in any of four directions (up/down/left/right) using these buttons:



## When ships are also under aerial attack

Note that it is possible for ships in a surface battle to be simultaneously under air attack at any point in the surface battle.

If this occurs, you may notice that damage to one or more ships from the air attack will suddenly

appear in the surface battle replay even though the damage was not from a shell or surface-fired torpedo.

The surface battle replay always shows the up to date damage condition of ships (from all causes).

## Exiting the replay

Exit the replay at any time by clicking on the SAS WW2 icon at the top right of the screen:





# **Using passwords on files**

For each campaign, the data for a player - including any player controlled by the computer - is saved in a file.

By default, these files are not password protected. A player can freely load, view and make changes to these game files. This has the advantage of allowing much freedom of play when playing against the computer as it allows for unfettered swapping of sides.

When playing another human player - either hot-seating or by email - such freedom is likely to cause too much temptation! And PBEM games also require a very controlled environment to make sure that both players get exactly the same results from their turn calculation even though they are physically using different computers.

The solution is to allow game files to carry passwords.

When a player adds a password to their game file, this prevents the other player from (inadvertently or otherwise) loading up the game file - to view it or make unauthorised changes.

The password also signals that the game is to be played in a controlled way during turn calculation. As soon as either player adds a password, the computer will detect this during turn calculation and will prevent either player from making any changes during calculation that could affect the result and leave each player with an 'out-of-synch' game after calculation.

## **Adding and Editing a Password**

This is done as part of the process of creating an end-of-turn file for use in PBEM games.

If you click on the 'Out' box on the desk of your Admiral's Office:



you will now be prompted to enter (or edit) a password for your file:



When prompted by the password dialog box, if you want to play the current game by email, ***make sure that you enter a password*** at least one character in length. If you leave the password field blank, the computer does not recognise the save file as suited to PBEM.

Enter a password, and click the 'OK' button. (Do not click the 'X' button, as this has the effect of cancelling any current password and closing the dialog).

The computer will now save the game file with your latest moves, to a folder called 'PBEM'. This folder is located under the place where you installed to.

See [Play by Email](#) for more information on how to play by email.

## Removing a password

Removing a password is done the same way - just clear the password field and click 'OK'. But remember - this leaves your file unsecured; and more importantly it makes it no longer suited to PBEM use.

## When a password check is made

You are required to enter the password for a game file (if there is one) whenever you:

- First load a new campaign when first starting **SAS**
- While playing a game, try to load up a different campaign or swap sides.

If the file for the side and the campaign you are loading has a password, you will be prompted to enter it:



## Getting the password wrong

You have only one chance to get the password correct.

Note: passwords ARE case-sensitive. To take an example: 'Mypassword' is not the same as 'mypassword'.

If you get the password wrong, several things can happen, depending on the situation:

- If you have just started **SAS**, you will see this error message:



On clicking the 'OK' button, **SAS** will exit.

- If you are already playing a game and get the password wrong when trying to load a new campaign or side, you will see this error message:



On clicking the 'OK' button, you will be returned to the game you were already playing.

# **Building Ships - an Overview**

This overview answers these questions:

- What type of ships can I build?
- How do I afford new ships?
- How long do they take to build?
- Can I design my own ships?

## What type of ships can I build?

There are six types of ships you can build:

- Aircraft carriers
- Battleships and Battle cruisers
- Cruisers
- Escorts
- Submarines
- Merchant ships

## Aircraft carriers

You can build fast, large fleet carriers for offensive operations, and smaller, slower escort carriers for protecting your own fleets, especially convoys. They can carry fighters and bombers (including torpedo bombers). Aircraft in enough number can sink even the largest ship, and have an unequalled range of attack. But aircraft cannot fly at night or in very poor weather, sometimes cannot locate their target and must break through the enemy's defensive fighters and anti-aircraft fire before attacking.

Aircraft and especially the pilots to fly them can only be replenished at a certain rate, so you must husband your resources and order offensive carrier operations carefully.

The carriers themselves are also very vulnerable to damage when their aircraft are away on a strike somewhere else.

Nevertheless, carriers became the dominant instrument of naval power in WW2, eventually replacing battleships in all navies that tried them.

## Battleships and Battle cruisers

These ships can range from the size of the German "pocket battleship" *Graf Spee* class of less than 20,000 tonnes through to the biggest naval ships ever conceived – the German "H 43" class monsters of over 120,000 tonnes. Gun calibres can range from 11 through to 20 inches; speeds from 21 through to 33 knots. All ships of this type carry seaplanes that are very useful for aerial reconnaissance; and they can carry large amounts of fuel, giving them a very large cruising range.

Battleships rely on their big guns as the main weapon and often have very heavy armour and a high degree of survivability. Battle cruisers typically mount similar size guns but are faster and more lightly protected, although the German *Scharnhorst* class sacrificed gun calibre instead of armour. Battle cruisers originated as fast scouts for the main battle fleet and as raiders suited to hit-and-run attacks, alone or in small squadrons. The battle cruiser can be a very powerful attack vessel, suited to bombarding enemy ports and conducting hit and run attacks on enemy convoys and naval squadrons not protected by battleships.

Both battleships and battle cruisers can give tremendous punishment at ranges that make them immune to damage from smaller ships; nonetheless, without a proper escort they are vulnerable to torpedo attack from fast destroyers and submarines, and air attack remains their greatest threat. Though these ships can take a lot of punishment they are not unsinkable, and the loss of (or major damage to) one of them is a critical blow to any navy. Unless the ship is relatively small it will take a long time to launch a replacement or to repair major damage.

## Cruisers



These ships make the best scouts: they carry seaplanes for reconnaissance and can carry more, tonne for tonne, than the larger ships; they can carry reasonable amounts of fuel for good cruising ranges and with speeds up to 36 knots (faster than battleships and battle cruisers) and relatively small size they are often able to see without being seen, or to escape unharmed if they are spotted.

But cruisers also fulfil many other roles: from small, fast torpedo-armed cruisers that are effectively enlarged destroyer-leaders, through medium size 6 inch gun cruisers with good range and all-round capability, to larger 8, 10 or even 11 inch gun cruisers, often more heavily armoured and able to be defeated only by battleships or battle cruisers. (In this game, cruisers can carry up to 11 inch guns and range up to 26000 tonnes, so there is some cross-over with the size and capability of small battle cruisers. But the "Cruiser" type is more vulnerable – it will generally have less armour and structural strength, and finer hull lines that allow for more speed but make anti-torpedo defences marginal at best).

A navy will often have between 2 and 4 cruisers (and escort carriers) for every battleship battle cruiser or fleet carrier; the ratio depends on your overall strategy. (See [strategies](#) for more information.)

Note that some historical differences are built-in – namely all Japanese cruisers get a torpedo-armament bonus (in terms of a higher number of torpedo reloads).

## Escorts

These do not carry seaplanes so have no aerial reconnaissance capability. But they are the only vessels that can fight submarines or lay mines, and they can carry more torpedoes than cruisers, tonne for tonne. Their fine lines allow them to be the fastest ships in the navy – up to 39 knots. They generally have less cruising range than cruisers and with little or no armour have low survivability. (Being small and quick to build, they are more expendable though).

The "escort" type represents what in reality was a wide range of small-ship types: from



slow, small lightly-armed corvettes and sloops used mainly for anti-submarine work, through medium size general-purpose destroyer-escort vessels that were faster and better armed, to very large and fast fleet super-destroyers that were often armed with many torpedoes. While all the historical ships are classed as "General Purpose", in your own designs you can make them specialist mine-laying or minesweeping, torpedo-attack, anti-aircraft or anti-submarine warfare vessels. They will then have increased capability in the chosen area and reduced capability for other functions.

A navy will often have between 8 and 16 escort ships for every battleship, battle cruiser or fleet carrier; the ratio depends on your overall strategy. (See [strategies](#) for more information.)

Note that some historical differences are built-in – namely all Japanese escort vessels above size “2” get a torpedo-armament bonus (in terms of a higher number of torpedo reloads).

## Submarines

In this game, each country has two basic historical types – a small sea and coastal-going type, and a larger ocean-going type. But you can design your own to a much greater variety of characteristics. Submarines do not carry seaplanes, so they will often rely on being guided to enemy fleet locations from fleet sightings picked up by other forces or signal intercepts.

They have good cruising endurance for their size and can only be attacked if they themselves launch an attack. Their survivability is generally low but can be improved through higher underwater speeds, stronger hulls and of course better training!

## Merchant ships

Merchant ships carry cargo (raw materials or finished supplies), and cargo-carrying to your home and advanced ports is the major way of improving your resource position, so merchant ships are vital to your success. They are slow and have low survivability when

damaged, so defence of them against enemy submarine, surface and air attack will be a major part of your operational plans. Unlike the naval vessels mentioned above, merchant ships are powered by diesel machinery for which oil fuel is plentiful; it is assumed they can easily carry enough for even the longest voyages, so running out of fuel is never a factor for merchant ships whereas it is a major factor for naval vessels.

Merchant ships can also carry troops.

## How do I afford new ships?

Each turn, if you have enough resource points at your Home Port, you can lay down new ships.

One resource point can be used to construct 100 tonnes of shipping, so a medium size 45,000 tonne battleship like the South Dakota will require 450 points.

## How long do they take to build?

On the first turn, unless their commissioning has been delayed, these ships become immediately available but on subsequent turns they take a realistic amount of time to build: big battleships may take 2-3 years or even longer. Escort ships may take up to a year, Cruisers perhaps 1 to 2 years. The construction rate for naval ships depends on the ship tonnage and your Home Port Docks efficiency. (See dockyard infrastructure for more information).

Merchant ships are of course much quicker to build than naval ships.

## Can I design my own ships?

If this option has been enabled in game options you can freely create your own ship designs. For example, you can design battleships up to 130,000 tonnes in size - nearly twice the size of the Japanese *Yamato* class and equal to the biggest battleships ever conceived (by Germany, as part of its "Z Plan".)

See [building ships](#) for more information.

Designing ships (or selecting suitable designs) is a critical part of **SAS** because you only get real value from your ships when their design matches their intended role.

In WW2, each country tried out many different designs of each type of ship, always striving for the best combination of speed, range, armour, gun power and so on for the size of ship they could afford and the kind of role they wanted the ship to perform.

For example, a battleship suited to fast hit-and-run missions – such as the German ***Scharnhorst*** - should (and did) look very different to one suited for purely defensive escort work - like the British ***Nelson*** - even though their tonnage was rather similar.

As the ***Supreme Naval Commander***, you take advice from your ***Director of Naval Construction***, but the final decision is always yours to make.

# Create Campaign - Set the export industrialization index

Every port has an export industrialization index value of between zero and 10.

The index is a measure of the level of industrialisation that is able to service the port. Export industry uses export materials available locally OR convoyed in.

A higher industry value means not only more but more complex industry. The higher the level, the more the value that can be extracted from a given amount of export raw materials.

Note that the level of a port's export industry has nothing to do with its *domestic* industry level. Both may be high, both low, or one high and the other low. These values are set to create starting economic conditions for each side that determine not only how wealthy a country is but also how relatively dependant it may be on the import of materials - ie trade by sea. For example, in the 'Atlantic1' scenario, the Germans have deliberately been given high levels of domestic materials and industry - to simulate that their wealth was generated very largely without reliance on the import of materials *by sea*. Conversely, Britain was given industry and materials indices at its ports that greatly necessitate sea trade to maintain a robust economy.

The export industry levels at your ports, together with the accompanying export materials indices, are used by the computer when it calculates the total value of your economy. The value of every possible convoy route between your ports is calculated, and a weighting is also applied based on how short the route is: shorter routes are worth more because more goods can be carried in a given amount of time. The value of a route is directly and inversely proportional to its length.

Changing the industry levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

Your export industry factories at each port produce RPs in two ways:

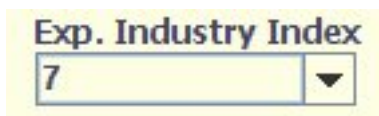
- Every turn, any export materials locally available at the port get converted to RPs. The formula is:  

$$\text{number of RPs} = 10 * \text{the port's export materials index} * \text{the port's current export industry index}.$$
 This formula assumes that the **strategic** turn is the standard 30 days (one month). The RPs produced are directly increased or reduced by increases or reductions in the length of the strategic turn.
- Every time a convoy unloads tons of export raw materials at the port, the factories go to work. The formula here is:  

$$\text{number of RPs} = \text{tons of export materials unloaded} * \text{the } \textbf{average} \text{ export materials index value}(1) * \text{a standard conversion factor of } .0005.$$
 (1) The average index value is calculated by recording the value and tonnage of the materials loaded at each port that the convoy loaded at before arriving at the port for unloading. For example if the convoy loaded 10000 tons of value '2' cargo, and then another 10000 tons of value '6' at a different port, the average value is '4'. To give an example: 20000 tons of export material at an average value of '4' and a port export industry index of 5 equates to 200 RPs produced.

As industry values are changed you should notice the odds change also (unless the change is small).

To change the industry level for the currently selected port, just select a new value in the combo box.



Note that although you can improve industry levels at selected ports during a game, this gets increasingly expensive as industry levels increase. It is relatively easy to establish small scale industry, but to create a fully sophisticated industrial base is very expensive (and time consuming) indeed. Giving a country an advantage with its industry at the start of the war represents a significant advantage (all else being equal).

Note also that it is most productive for industry levels to be highest at your home port, because this is where aircraft and troop unit production take place and most or all of

your ship production also. Surplus RPs can be convoyed in to home port but this takes time and involves risk of course.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# Create Campaign - Set the domestic industrialization index

Every port has a domestic industrialization index value of between zero and 10.

The index is a measure of the level of industrialisation that is able to service the port *using only domestic materials available locally* - the quantity and value of which are determined by the port's 'Domestic Materials Index' (DMI) - which is set separately. (See [setting the domestic materials index](#)).

A higher industry value means not only more but more complex industry. The higher the level, the more the value that can be extracted from a given amount of materials.

Note that the level of a port's domestic industry has nothing to do with its *export* industry level. Both may be high, both low, or one high and the other low. These values are set to create starting economic conditions for each side that determine not only how wealthy a country is but also how relatively dependant it may be on the import of materials - ie trade by sea. For example, in the 'Atlantic1' scenario, the Germans have deliberately been given high levels of domestic materials and industry - to simulate that their wealth was generated very largely without reliance on the import of materials *by sea*. Conversely, Britain was given industry and materials indices at its ports that greatly necessitate sea trade to maintain a robust economy.

The domestic industry levels at your ports, together with the accompanying domestic materials indices are used by the computer when it calculates the total value of your economy.

Changing the industry levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

Your domestic industry factories at each port produce RPs every turn. Any domestic materials available locally get converted to RPs. The formula is:  
number of RPs = 10 \* the port's domestic materials index \* the port's current domestic



industry index.

This formula assumes that the *strategic* turn is the standard 30 days (one month). The RPs produced are directly increased or reduced by increases or reductions in the length of the strategic turn.

As industry values are changed you should notice the odds change also (unless the change is small).

To change the industry level for the currently selected port, just select a new value in the combo box.



Note that although you can improve industry levels at selected ports during a game, this gets increasingly expensive as industry levels increase. It is relatively easy to establish small scale industry, but to create a fully sophisticated industrial base is very expensive (and time consuming) indeed. Giving a country an advantage with its industry at the start of the war represents a significant advantage (all else being equal).

Note also that it is most productive for industry levels to be highest at your home port, because this is where aircraft and troop unit production take place and most or all of your ship production also. Surplus RPs can be convoyed in to home port but this takes time and involves risk of course.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.

# Create Campaign - Set the industrialization index

Every port has a domestic and an export industrialization index value of between zero and 10.

The index is a measure of the level of industrialisation that is able to service the port. Export industry uses export materials available locally or convoyed in to create RPs that are then stored at the port. Domestic industry uses domestic materials available locally.

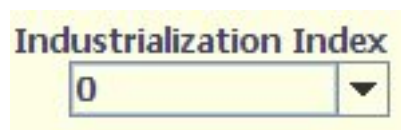
A higher industry value means not only more but more complex industry. The higher the level, the more the value that can be extracted from a given amount of materials.

The industry levels at your ports, together with the export and domestic materials indices (see [setting the export materials index](#) and (see [setting the domestic materials index](#) for more information), are used by the computer when it calculates the total value of your economy. The value of every possible convoy route between your ports is calculated, and a weighting is also applied based on how short the route is: shorter routes are worth more because more goods can be carried in a given amount of time.

Changing the industry levels can have a big affect on the value of a country's economy, and hence on the starting odds also.

As industry values are changed you should notice the odds change also (unless the change is small).

To change the industry level for the currently selected port, just select a new value in the combo box.

A screenshot of a user interface element titled "Industrialization Index". Below the title is a text box containing the number "0" and a small downward-pointing arrow on the right side, indicating it is a dropdown menu.

Note that although you can improve industry levels at selected ports during a game, this

gets increasingly expensive as industry levels increase. It is relatively easy to establish small scale industry, but to create a fully sophisticated industrial base is very expensive (and time consuming) indeed. Giving a country an advantage with its industry at the start of the war represents a significant advantage (all else being equal).

Note also that it is most productive for industry levels to be highest at your home port, because this is where aircraft and troop unit production take place and most or all of your ship production also. Surplus RPs can be convoyed in to home port but this takes time and involves risk of course.

## Other Port Parameters

Click [here](#) to return to the help page detailing what other port parameters you can change.


## **2IC help with constructing aircraft**

Every turn you can spend RPs on constructing more aircraft. You can vary the amount of expenditure (within limits), and you can also influence which types of aircraft get built.

Then, you can review the details of how they have been deployed by your 2IC to your airfields and carriers. He has taken the tedium away from you, but you can manually override any part of the plan and deploy chosen aircraft to selected locations.

To build new aircraft, from your [Admiral's Office](#), click on "Build" on the [main menu](#) on the blackboard, and then on "A/C" on the [build menu](#).

You will now see a screen like this:



### Aircraft Construction Plan

In accordance with our cautious strategy, the Theatre Commander, Air Forces, Air Chief Marshall Donald Stimson, and I have drawn up a proposed aircraft construction list.

Our strategy is to favour fighters for defense: 30% interceptors, 20% escort fighters, 30% bombers of all types and 20% reconnaissance aircraft.

You can of course amend the plan by varying the resources available for production, and also by designating certain aircraft as having production priority.

Admiral of the Fleet Ernest J. King

Change StrategyView

Your 2IC stands ready to present to you a plan for the construction of new aircraft, which is

consistent with your country's overall strategy. It has been negotiated with your senior theatre land commander, who reports to the most senior army generals who have control over aircraft targets.

You have two options at this point:

1. Optionally change your strategy first, by clicking on the "Change Strategy" button. See [how strategy affects aircraft construction](#) for more information.
2. Then, view the plan by clicking on the "View" button.

See [how to build AC](#) for help on how to amend your 2IC's plan.

# **Cancelling the Building of a Ship**

You can cancel any command to build a ship that you or your 2IC have given in the current turn.

To do this, select the ship to cancel from the "Navy List" , and then click on the "Cancel" button:  .

The "Navy List" updates automatically, and the tonnage allotted to building the ship is returned and available for the building of other ships.

Note though that you cannot cancel ships that were built on any previous turn.

# Selecting Historical Ships

First, bring up the [build ships screen](#).

Then to select a historical class of ship to your navy, just two mouse clicks are required:

- Select the type of ship you want to build, from the top left list:



Note that "Battle" means battleship or battlecruiser. "Escort" refers to naval vessels smaller than cruisers, that is ships from the very largest super destroyers approaching cruisers in size through to the very smallest sloops and corvettes (but excluding motor torpedo boats) of just several hundred tonnes.

- When you select the ship type, the adjacent ship class list is populated with the names of historical classes of ship that were available to your country in WW2. In addition, if the [game options](#) have been so set, you will see the names of some ships that were planned but never built, like the giant ***USS Montana*** class battleships, or even the much larger again ***H Class*** battleships planned by Germany. You may also see some "might-have-beens" - like an enlarged French ***Richlieu*** class battleship carrying the 16 inch guns actually designed in France but never employed. These "might-have-beens" add some play balance to certain navies to enable them to compete on more equal terms.
- Now select the class of ship from the adjacent ship class list:



## 2. Select class



- To make sure you are happy with your choice, review the ship details. You will see these displayed on the right hand side of the screen:

### Ship Data:

Class **South Dakota**  
Name **South Dakota**

#### medium Battleship

44819 tonnes (full load)

9 \* 16.0 in. guns

13.5 in. side belt

2778 pts strength

27 kts. max speed

15676/14002/6223 nms @ 12/16/24 kts

If you are completely happy with the selection, and have enough resources, you are now ready to optionally name the ship, and then to build it.

# **Modifying Historical Ships**

First, bring up the [build ships screen](#).

Then, [select an historical design](#).

If this option is enabled in the [game options](#), you can now modify the design.

The design editor is extremely simple and intuitive to use. Just a few mouse clicks is all it takes to modify a design.

A design consists of a small number of design factors: the type of ship (eg, whether it is a battleship, cruiser, submarine etc); the size of the ship (which is a scaling factor for its type); the number and calibre of the main guns; the quantity of secondary/tertiary weapons; the amount of heavy armour; the hull structural strength and extent of light protection and compartmentation; the maximum speed, and the amount of fuel for cruising.

The design factors are *relative* factors. For example, a "Calibre" factor of 2 for a size 2 battleship means something different for a size 3 battleship, or of course, for a cruiser or escort of any size.

The screen lets you set any of these variables with one mouse click. As any factor is increased or reduced, the ship's fighting capability in the chosen area will be increased or lowered, as will the ship's full load tonnage. You can see the ship design details change as you change any of the factors.

The factors are largely self-explanatory; but there is detailed information available on each of them if you want to know more. See [ship design factors](#) for more information.

Let's take an example of modifying an historical design - we will be upgunning the **King George V** class - just as Churchill had wanted - with 10 \* 15 inch guns instead of the 10 \* 14 inch guns it actually carried.

Pictured below is the ship summary for the *King George V* class:

**Ship Data:**

Class

King George V

Name

King George V

**medium Battleship**

45369 tonnes (full load)

10 \* UK 14 in. guns

15.0 in. side belt

2722 pts strength

27 kts. max speed

8774/7837/3483 nms @ 12/16/24 kts

And here is the set of design factors that makes up this design:

Size	Gun #	Calibre	Sec.	Armour	Strength	Speed	Range
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5

To give the ship 15 inch guns instead of 14 inch, just increase the "Calibre" factor by 1. That's it. It is as simple as that. The ship now has 10 \* 15 inch guns. You will see from the updated summary that some other details of the ship have also changed:

## Ship Data:

Class **Medium Battleship**

Name **Jellicoe**

### medium Battleship

45440 tonnes (full load)

10 \* 15.0 in. guns

15.0 in. side belt

2726 pts strength

27 kts. max speed

8593/7675/3411 nms @ 12/16/24 kts

The changes are as follows:

- The ship class is no longer the "King George V". The computer has given the modified design a default name of "Medium Battleship". You can change this class name to anything you like - so long as it is unique - by typing in a suitable name in the "Class" text box. In the example below, the name of "Modified KGV" has been given to the new design:

Class **Modified KGV**

- The default name is now "Jellicoe", which is a name chosen by the computer. As explained in [naming ships](#), you can change this name to another by selecting another suggested name, or just typing in your own choice of name.
- The full load tonnage has increased by almost 100 tonnes.
- The structural strength of the ship has increased very slightly
- But the cruising range for the now heavier ship has been slightly reduced.

These changes illustrate an important fact about ship design - everything is a trade-off. As capability increases, so does tonnage: "you can not get a quart out of a pint pot", as the saying goes. To keep tonnage the same, you have to reduce some other design factor or factors.

# Escort specialisations

Escort ships are a special case. They have an additional factor to denote if the design is "general purpose", i.e., able to carry out any function reasonably well, or is specialised for anti-submarine, anti-aircraft, minelaying and sweeping, or as a torpedo-attack vessel.

See [escort specialisations](#) for more information.

By default, escorts are general purpose (or "GP"). If you decide to specialise, the vessel's capability in the chosen area is doubled, and halved in all other areas.

As soon as you decide to build any ship to this new design, the design details will be saved as a template for you to use later. The illustration below shows the "Modified KGV" has been added as a battleship class to select at any time in the future in the current campaign. (Your own designs are not saved from one campaign to the next however).



If you are now completely happy with the modification, and have enough resources, you are ready to [build the ship](#).

# **Creating a New Ship Design**

The process for designing your own ship is exactly the same as for modifying an historical design. Start with a ship type and adjust the factors until you are happy with the ship data summary.

You can optionally give the class a suitable name.

# ***Naming Ships***

First, bring up the build ships screen.

Then after selecting an historical ship design, or modifying an historical design, or creating a new design, you are ready to optionally name it.

Pictured below are details of the US battleship *South Dakota*.



**Ship Data:**

Class	<input type="text" value="South Dakota"/>
Name	<input type="text" value="South Dakota"/>

**medium Battleship**

44819 tonnes (full load)

9 \* 16.0 in. guns

13.5 in. side belt

2778 pts strength

27 kts. max speed

15676/14002/6223 nms @ 12/16/24 kts

The class name and ship name are both "South Dakota". It was common in most navies for the first ship of a class to have the class name.

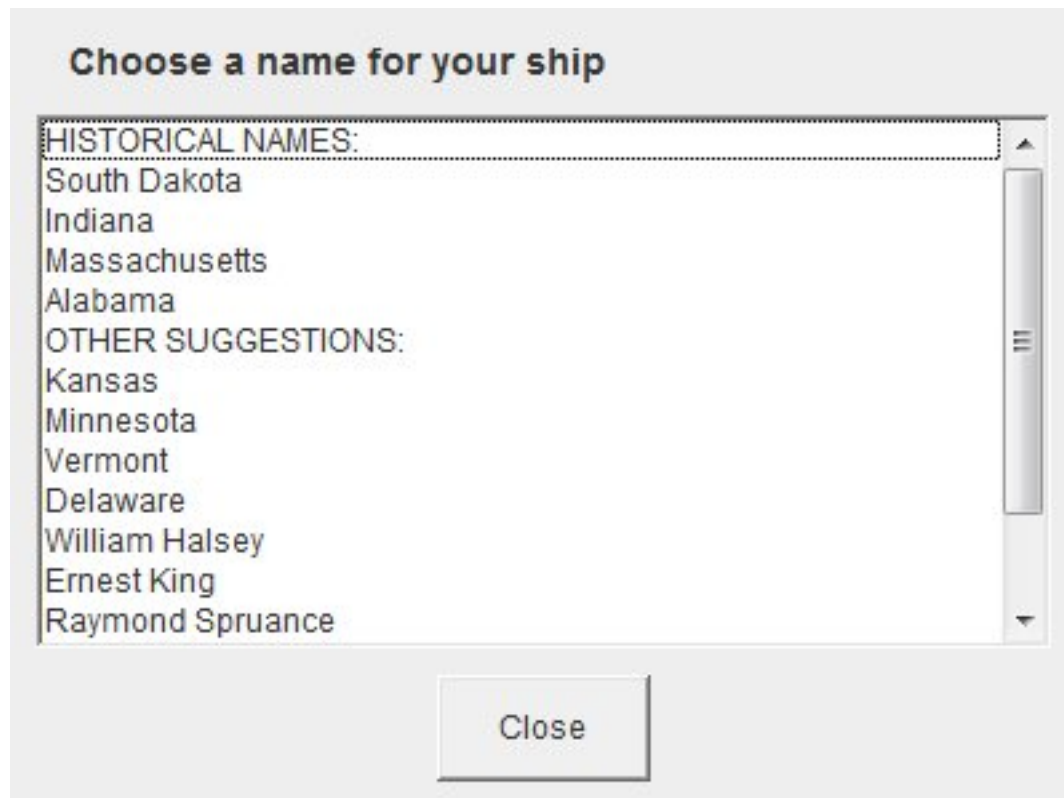
As you build more ships of the same class, the computer will select from the list of remaining available historical ship names. If you build more of a class than were built in WW2, the computer gives you a default unique name, like "South Dakota-1".

You can change this name by selecting something more appropriate from a list of suggested names.

Bring up the list of names by clicking on the "Get Name" button: . You will



see a list like this:



Just click on a suggested name to select it. The name list will then close.

Alternatively, *you can just type any name you want* into the "Name" field.

You will get an error if a ship to be constructed has no name or else the same name as one you have already. (**SAS** requires that each ship actually built has a unique name. Two or more ships can never share a common name.)


# ***Delaying the Commissioning of a Ship***

Normally, ships built on the first turn of a campaign enter the game immediately, whilst those built on subsequent turns take a realistic time to construct.

Sometimes - such as when you want to model historically accurate scenarios - you may want to delay the entry of ships that are ordered on turn 1.

You can do this when you are giving orders to build the ship.

To delay the launch of any ship ordered on turn 1, on the build ships screen, set the "weeks to commissioning value" to the desired figure, and click on the "Set" button:

A screenshot of a game interface showing a text label "Weeks to commissioning:" followed by a blue input box containing the number "28" and a small downward arrow icon. To the right of the input box is a button labeled "Set". The entire element is set against a light yellow background.

Weeks to commissioning:  

Make sure you do this *before* you click on the "Build" button.

# ***Building a Ship***

First, bring up the [build ships screen](#).

Then after [selecting an historical ship design](#), or [modifying an historical design](#), or [creating a new design](#), and optionally [naming it](#), you are ready to build it.

To build one ship of the chosen design, click once on the "Build" button:



Each time you click on "Build", one ship of the selected class will be constructed.

You will see the ships progressively added to the "Navy List" at the bottom of the screen:

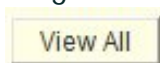
Navy List			Tonnes
South Dakota	South Dakota Class	medium Battleship	44819
Total Tonnage Built:			44819
Remaining Tonnage To Build:			279200 tonnes

At the bottom of the "Navy List" you can see a progressive total of the tonnage you have built so far, and the remaining tonnage that you have left to build.

Note that ships built on turn 1 of a campaign are available immediately (unless they have been [delayed](#)), whereas those built on any subsequent turn take a realistic time to construct.

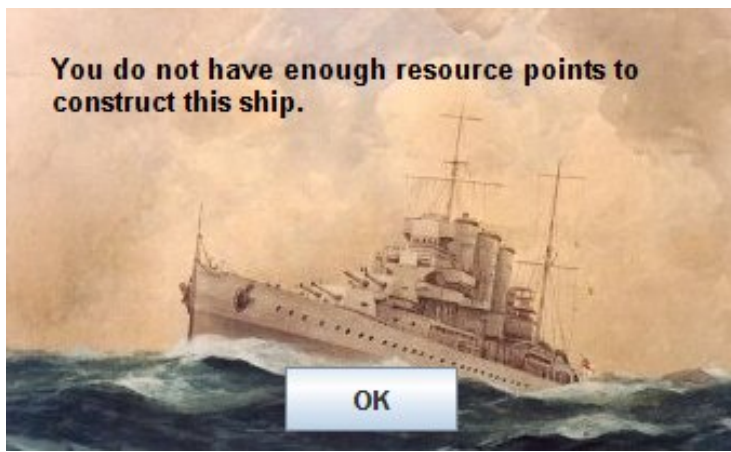
You can [cancel any build command](#) given in this turn.

To get a clearer view of your navy than the small "Navy List" gives you, just click on the "View All" button:



. This brings up your detailed, full screen [ship roster](#).

You will get an error message if you try to build a ship when you have insufficient resources for it:



You will also get an error if a ship to be constructed has no name or else the same name as one you have already.

# *Surface Battle Mechanics*

# **Ship Design Factors**

A ship design consists of a relatively small number of design factors. The following information about these factors will help you get the most out of your ship designs.

The design factors are *relative* factors. For example, a "Calibre" factor of 2 for a size 2 battleship means something different for a size 3 battleship, or of course, for a cruiser or escort of any size.

The factors are:

- Ship type
- size
- Number of main guns
- Calibre of main guns
- Secondary/tertiary armament
- Armour
- Structural strength
- Maximum speed
- Cruising range
- Escort specialisations

## Ship Type

## Size

A Battleship of size "1" will, all else being equal, be much smaller than a Battleship of size "5" but probably bigger than any "Cruiser".

As the size factor is adjusted, not only will the tonnage go up or down, but also so

will the real meaning of the other characteristics. For example, if you Take the King George V class and simply adjust the size to “1”. You will see that not only has the tonnage significantly dropped but so has the real value of the other factors – gun armament is now 9 \* 13 inch instead of 10 \* 14 inch; armour is 12.5 inches instead of 15 inches, and so on. Think of size as a scaling factor. You can only get so much out of a pint-pot.

## Number of main guns

Not surprisingly, the higher the value here, the larger the number of main calibre guns, although again, this is relative. Actual number of guns depends on the interaction of all the characteristics and the ship type.

## Calibre of main guns

The higher the value, the larger the main gun calibre. Actual calibre depends on the interaction of all the characteristics and the ship type.

## Secondary/tertiary armament

The higher the value, the more powerful is the secondary armament. For battleships and cruisers, this value affects the number of secondary guns, which are very useful against small enemy targets like destroyers, as well as for anti-aircraft defence. For escort ships, this value affects the number of torpedoes or mines or anti-submarine or ant-aircraft weapons (depending on the selected specialty).

How this translates to actual numbers of such weapons depends on the interaction of all the characteristics.

Escort ships are a special case in terms of how the secondary/tertiary armament is



determined. See

## Armour

This value helps determine the thickness of vertical (side) armour over the machinery and magazine spaces and main gun turrets. The actual thickness also depends on ship type and size.

In the game, the side armour is assumed to be uniformly thick and set at a vertical plane. In reality it was much more complicated. The side armour often varied in thickness and was sloped to increase effective thickness. It is also assumed that the horizontal armour – over decks and turret tops – was armoured in a fixed proportion to the side armour; but design practice in real life was again somewhat more varied -between different countries and even between different ship classes in the same country. However, the general rule of thumb that was used in practice still holds, namely that battleships facing enemy gun calibres of "x" inches need the same effective thickness of side armour to be immune from penetration at reasonable battle ranges. Well-armoured cruisers typically had side armour around 2 inches less than their own main gun calibre.

The purpose of armour is to stop shells from exploding in critical parts of the ship and causing critical reductions in fighting ability. For example: penetrating hits over the machinery spaces reduce a ship's speed; those over a turret or its magazine spaces automatically disable the turret while the magazine explosion can cause massive structural damage; underwater hits cause flooding; all hits contribute to leaking (eg from popped seams) and all water ingress slows the ship and ultimately will sink it if the flooding rate is greater than the pumping ability and the potential loss of buoyancy is greater than the ship's reserve buoyancy. (Reserve buoyancy depends on ship type and size and "strength" value -see the next item).

Note that when battles are fought, the game engine generally tries to keep battleships and battle cruisers within their own immunity zone against the enemy's big ships. Manoeuvring to open or close the range to do this reduces your gun-laying accuracy.

All in all, the better your armour the better your odds of scoring hits and the smaller the chance of your being critically damaged. Note that destroyer “armour” is just splinter armour, which is nevertheless useful because it adds to overall strength (see “Strength” below).

## Structural strength

This value helps determine the general structural strength of the ship, covering such things as the general thickness of steel used, the strength of construction, the degree of hull compartmentalisation, the thickness of armour (if any) to exposed ‘soft’ areas such as gun director systems, secondary guns and so on. It also determines the capability of your back-up damage control systems.

So for a given size and type of ship, a higher strength value will:

- Increase general structural strength.
- Increase reserve buoyancy.
- Reduce the rate of loss of damage control ability, including pumping systems that keep the ship afloat.
- Reduce the rate of loss of fire control ability.
- Reduce the rate of loss of secondary armament.
- All in all, keep the ship fighting more effectively for longer and keep it afloat longer.

Submarines will have stronger hulls and be able to dive to deeper depths when evading enemy depth charge attacks. The actual strength depends on the interaction of all the characteristics and the ship type.

## Maximum speed

Submarines will have stronger hulls and be able to dive to deeper depths when evading enemy depth charge attacks. The actual strength depends on the

interaction of all the characteristics and the ship type.

Note that these maximum speeds are in fair weather, undamaged. Maximum speeds are relevant mainly to tactical situations, i.e. during battles. But they are also relevant to cruising speeds because a ship cannot cruise faster than 3 knots less than its maximum speed. So a 24 knot ship can cruise at 18 knots but not at 24 knots.

## Cruising range

This helps determine the range in nautical miles at the four possible varying cruising speeds (6, 12, 18 and 24 knots). Ship type and size and to a lesser extent the other factors also affect how much fuel the ship can carry and hence its range.

Technology in the form of machinery efficiency also significantly affects the range by making the ships more or less efficient as steamers. (US and French ships were very good steamers; British ships were poor steamers. See [machinery technology](#) for more details).

Remember that range means not just distance but also time at sea. Your ships may be stationed close to home, on patrol, but to keep them there for as long as possible means they must have sufficient endurance. Bear in mind that some British, French and German and most Italian ships had low endurance and would struggle in theatres much bigger than the Mediterranean. Remember this in case you want to modify them!

## Escort Specialisations

Escort ships have an extra characteristic, which determines the kind of role they are meant to perform.

When you select “Escort” as the ship type, you will see a new set of tick boxes:

☒ GP   ☐ Torpedoes   ☐ ASW   ☐ Mines   ☐ Ack-Ack

Ship Type

Ship Type

# ***Escort Ship Design Specialisations***

Escort ships are a special case. They have an additional factor to denote if the design is "general purpose", i.e. able to carry out any function reasonably well, or is specialised for anti-submarine, anti-aircraft, minelaying and sweeping, or as a torpedo-attack vessel.

By default, escorts are general purpose (or "GP").

If you decide to specialise, the vessel's capability in one chosen area is doubled, and halved in all other areas.

A "GP" vessel has these capabilities:

Torpedoes	Escort ships all carry torpedoes in sets of 3. General Purpose escorts carry as many sets as their "sec." value, plus 1 if above a size of "2".
ASW	General Purpose escorts have a capability that is equal to their "sec." value plus 1 minus their size but is always a minimum of 1. So, the smaller the size, the greater the capability (all else being equal), which reflects the reality of the role that smaller escorts played.
Mines	General Purpose escorts carry a number of mines that is a function of their deck area, which is proportional to two-thirds the power of the tonnage. (So smaller ships are better minelayers tonne-for-tonne than larger ships).

Warning -Once a ship has been laid down as having a particular speciality, this cannot be changed. Think carefully before you specialise as the balance of your escort ships can become compromised by disproportionate damage to certain types. The only remedy then is to lay down more of the type you need, and these will take a little time to enter the game.