**WW2 Rules Support Package by Clive Essery**

**Questions**

Should we have state classes such as Init, Assign Extra Damage, Assign Movement, Make Movement, Assign Targets, Attack Targets, Apply Damage.

Should Extra Damage be applied before movement and firing?

Should Targets, Weapons, etc all be separate classes. What about Sides, Unarmed Ships etc.

If having Targets, Weapons et car all separate then maybe all ships regardless of side and armed status should be in the same class so that the index can used into all the classes. Maybe Weapons could have 4 classes, Main, Second, Tert and TT and include the Target info?

Maybe extend Sunk to include Unarmed. -1 for Sunk, 0 for Unarmed, 1 for Fireable

Sections of the Programme

Maybe split to three different programmes – Designer for all those items that need to be done before Start of Hostilites, Player for those items that can only be done after Start of Hostilities and Referee for those items to be done by an independent referee such as the battle phase and sighting opponents after the Start of Hostilities.

Before Start of Hostilities:

* Allow designs to be created or modified for Ficticious Ships
* Update number of ships in each class
* Assign ships to Formations and Formations to Fleets, include Slips, Completion Docks, Dry Docks and Docks and a Sunk Fleet.
* Transfer ships from one Formation to another in the same fleet (include originally empty Transfer, Sunk and Repair Formations)
* Transfer one Formation from one Fleet to another, including to create a new fleet containing only one Formation
* Slips, Completion Docks are Formations with only one ship, Dry Docks and Docks may have several
* Convert some of the Fixed designs to other fixed designs, eg CA1 to CAF

From Start of Hostilities some of the above can still be performed but no changes to designs or number of ships, only EW1 classes can be designed, later MW1,LW1

* Assign repair tasks to Completion Docks and Dry Docks
* Assign build tasks to Completion Docks or Dry Docks
* Design ships for EW2 period and beyond (can also be done before SoH)
* Move Fleets from current location to another, potentially in a new Iris
* Sighting other fleets
* Engage another fleet in combat if they are close enough.
* Load and Unload ships
* Convert Iron Ore to Steel and Crude Oil to Fuel Oil
* Move & record troops and equipment
* Move & record Aircraft and equipment
* Move Cargo
* Food?

**Phases – Menu Columns**

1. design a class

a select the Nation, allows relevant gun types and armour weights

b select the era, allows the relevant ship types

c place gun mounts in chosen locations

d select the desired speed

e select the armour in the relevant locations

f select additional items, floatplanes, catapults, ASDIC, DC, HACs, etc

g add extra oil storage and extra ammo

h will need edit, copy and delete options (edit and delete will require checking if a ship has actually been bought)

1. use budget to buy ships

a select the Nation

b select the era and ship type, allows access to budget

c select the design/class to buy

d is the budget/max #ships exceeded – yes don’t add item

e display amount of budget left

f allow addition of extra oil storage and ammo

g allow modification of design

1. build formations and fleets

a select the Nation

b create/edit a formation

c formations may be 8 ship squadron with optional AA ship or 4 ship division with optional AA ship or 2 ship sub-division with optional AA Ship – note Carriers divisions can be 1 ship plus optional AA ship

d create/edit a fleet

e move formation from one fleet to another if they are in same location

f move ships from one formation to another in same fleet, allow for a SUNK formation

g ships are initially in a port fleet

h delete ship from formation if it is unbought/class deleted

1. build new ships

a assign a class design to an empty slip

b supply steel to slip until ship is 60% complete

c move ship to an empty Completion Dock

d supply steel to completion dock until ship is 100% complete

e tranfer ship to formation in port

1. repair/upgrade ships

a transfer ship to empty Completion Dock or Dry Dock

b supply steel and work gangs to Dock until ship repaired/upgraded

c transfer ship to formation in port

1. battle

a select primary fleet for battle, determines the directory where battle info is stored

b select secondary fleet(s)

c record move number=0, fleet names in battle record

d import formations from all fleets and ships and add to record

e allow record to be saved

f import formation moves and damage from torpedoes/aircraft

g make moves, apply damage from torpedoes/aircraft

h import targets

i calculate ranges to targets, angle of bearing and crossing T angles

j perform battle as below, apply damage to ship record

k save battle situation

l at end of battle save fleets back to original location

note fleets that are out of range at start of battle will also be moved and can join the action at any point

1. other items to note

a need to be able to build slips/completion docks/dry docks or enlarge them

b need to move armies, air groups, civil defense units, work groups

c need to record armies, air groups, etc and destroy them if necessary

d need to build aircraft, tanks, trains etc

e need to train troops, air groups, civil defense units, work groups

f need to be able to build factories, oil refineries, steel mills

g age the population each month to retire people too old to fight, add new recruits for army, civil defense, etc.

h maybe need to feed the population

**Battle Phase**

For each vessel

if the vessel has a target

Point Firer to firing vessel’s data

for each target

Point Target to target vessel’s data

{calculate TN}

calculate dist to target

check range band for targtype

check currspd of target

compute BaseTN from RangeBand and CurrSpd

add SizeTN of target

add DmgTN of firer

add TargetTimeTN

if TargetTimeTN > -5

if TargetTimeTN > 1

subtract 2 from TargetTimeTN

else

subtract 1 from TargetTimeTN

end

if Target size = MZ

handle large guns firing on MZ sized vessels

handle XS/HS guns firing on MZ sized vessels

end

{handle smoke conditions}

{target making smoke}

{target in smoke}

{target beyond smoke}

{handle crossing T}

{handle multiple guns sizes firing on the same target}

{Calculate Hits}

Compute NumDice from TargetNum

If OwnLeadershipDice set then add 1 to NumDice

If SquadronLeadershipDice set then add 1 to NumDice

If FleetLeadershipDice set then add 1 to NumDice

Set DiceResults to zero

Set NumDiceRolled to zero

While NumDiceRolled < NumDice

Get a RandomNumber from 1 to 10

Add RandomNumber to DiceResults

If RandomNumber <> 10

Add 1 to NumDiceRolled

end

if DiceResults >= TN

set NumHits to ceiling(DiceResults-TN)/5

else

set NumHits to zero

end

if NumHits >0

for each hit

Get a RandomNumber from 1 to 10

if RandomNumber >= TNforRangeBand

set DeckBelt to B

calculate Penetration depending on Belt and Range

if Belt is Unarmoured (0)

add Dmg for UnarmouredBelt based on Firer Type and Sub

else

if Penetration > 2\*Belt of Target +1

add Dmg for Medium Armour based on Firer Type and Sub

else

if Penetration > Belt of Target

add Dmg for Armoured based on Firer Type and Sub

else

add Dmg for NoPenetration based on FirerType/Sub

else

set DeckBelt to D

calculate the Penetration based on Deck and range

if Target Deck is Unarmoured (0)

add Dmg for Un-ArmouredDeck based on FirerType/Sub

else

if Penetration >= Target Deck

add Dmg for Armoured based on FirerType/Sub

else

Add Dmg for NoPenetration based on FirerType/Sub

end If RandomNumber >= TN for Range

end of for each hit

end of if NumHits > 0

end for each target

end if vessel has a target

end for each vessel

for each vessel

set CurrentBlock to 0

while DmgRcvdThisMove >0 and CurrentBlock < 8

if CurrentBlock.Size > 0

if DmgRcvdThisMove > CurrentBlock.Size

set DmgRcvdThisMove to DmgRcvdThisMove – CurrentBlock.Size

set CurrentBlock.Size to zero

increase CurrentBlock by 1

set MaxSpd to CurrentBlock.Spd

set DmgTN to CurrentBlock.TN

else

set CurrentBlock.Size to CurrentBlock.Size – DmgRcvdThisMove

end

else

{handle last block entered?}

increase CurrentBlock by 1

end

end;

Classes Format

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grp | Field | Datatype | Units | Range | Description | Widget |
| Misc | Class - Key | String |  | 0..50 | Name of Class | Entry |
| ShipType | 4 char |  | BB,BC | Type of ship, eg BC, BBM, AC, CL1C | Combo |
| Era | 3 char |  | SDr,EDr | Various eras | Combo |
| Budget | String |  | W1BW, CA1, etc | Group of designs this class belongs to, to allow comparison with limits | Combo |
| FireCtrl | Int |  |  | Fire Control Type | Combo |
| MaxSpd | Int | 3 kts | 0..20 | As Built Max Speed | Spin |
| Build | String |  | 3 chars | Hvy,Std,Med,Lt | Combo |
| Flag | Boolean |  |  | If ship=flagship | Check |
| DC | Int |  | 0..150 | #DepthCharges | Spin |
| ExtraOil | Int |  | 0..9999 | Tons extra Oil | Spin |
| ExtraAmmo | Int |  | 0..10 | Sets Extra Ammunition | Spin |
| AC | Int | Inc15 | 0..105 | #Aircraft | Spin |
| FPCat | Int |  | 0..6 | #Float Plane Catapults | Spin |
| Belt | Fore | Dec | Inch | 0..19.75 | Thickness belt | Spin |
| Guns | Do |  | Inc .25 | Guns Area |  |
| Mach | Do |  |  | Machinery Area |  |
| Aft | Do |  |  | Aft Area |  |
| Deck | Fore | Do |  | 0..14.75 | Thickness Deck | Spin |
| Guns | Do |  |  | Guns Area |  |
| Mach |  |  |  | Machinery Area |  |
| Aft |  |  |  | Aft Area |  |
| Gun | Type | String |  | 2 char | List Main Sec Tert,eg HM,LS | Combo |
| Fore | Int |  | 0..8 | #guns forward | Spin |
| Side | Int |  | 0..18 | #guns to side | Spin |
| Aft | Int |  | 0..8 | #guns aft | Spin |

Ship Format

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grp | Field | Datatype | Units | Range | Description | Widget |
| Misc | Name - Key | String |  |  | Name of Ship | Combo |
| Class | String |  |  | Class of Ship | Combo |
| DmgRcvdThisMove | Int |  | <5000 | Amount of Dmg | Entry |
| Offset | Int | Yds | 0..12 | 1000s yards from flag | Entry |
| Sunk | Int |  | -1..1 | No Guns, Sunk, Fireable | Combo |
| Label | String |  | 2 char | To show on map | Entry |
| MaxSpd | Int | 3 kts | 0..20 | Curr Max Speed | Entry |
| Angle | String |  | NN..NW | Angle in 45 deg | Combo |
| OwnDiceUsed | Bool |  | Tru/Fal | Used | Check |
| ExtraDice | Int |  | 0..3 | Extra Dice this move | Spin |
| Targ | Name | String |  |  | Targ ship | Entry |
| GunType | String |  | 2 chars | Code for gun | Combo |
| NumGuns | Int |  | 0..18 | #guns @ targ | Spin |
| TimeStep | Int |  | 0..11?d | #times fired at targ seq | Spin |
| Block | Curr | Int |  | 0..7 | Current block that can take some damage | Spin |
| Left | Int |  | 0..? | Amount left in that block | Spin |
| ? |  |  |  |  |  |

Formation Format

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grp | Field | Datatype | Units | Range | Description | Widget |
|  | Name | String |  |  | Name of Formation | Combo |
|  | Offset (X,Y) | Int,Int | 1kyds | 0..? | Offset from fleet centre in 1000s of yards | Spin |
|  | MaxSpd | Int | 3 kts | 0..20 | Max Spd of formation | Spin |
|  | CurrSpd | Int | 3 kts | 0..20 | Curr Spd of formation | Spin |
|  | List move points | [int,int] |  |  | List of points in current move | Spin |
|  | List Ships | Ship |  | 1..9 | Ships in formation | Ship entry |

Fleet Format

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grp | Field | Data type | Units | Range | Description | Widget |
|  | Name - Key | String |  |  | Name of Fleet | Combo |
|  | Iris | String |  |  | Name of Iris fleet is in | Combo |
|  | Centre (X,Y) | Int,Int | Nmile | 0..6000 | Location of centre of fleet in nautical miles N & E | Entry, Entry |
|  | List of Formations | Form |  |  | Formations in Fleet | Form Entry |

Design Process, need Classes data plus:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grp | Field | Data type | Units | Range | Description | Widget |
|  | Prop# | Int |  | 1..100 | Proposed Number of ships | Spin |
|  | ClassName | String |  |  | Name of new Class | Entry |
|  | Nation | String |  |  | Name of Nation | Combo |
|  | Period or Era | String |  |  | Period of design or repair/conversion | Combo |
|  | ShipType | String |  |  | BB,BC,CA etc | Combo |
|  | [(Turret, | Char |  | A..Eetc | Turret Letter | Combo |
|  | Mount, | String |  | egTw15 | Mount designation | Combo |
|  | Wide, | Bool |  |  | True if one each side | Check |
|  | Echelon, | String |  | None, Narrow, Wide | If two turrets in echelon formation no,ne,we | Combo |
|  | Shield, | Bool |  |  | True if Shield | Check |
|  | ArmH, | Int | Inch | 0..14.75 | Turret roof armour | Spin |
|  | ArmV)] | Int | Inch | 0..19.75 | Turret face armour | Spin |
|  | Sec(NoTurrets, | Int |  | 0..10 | #Secondary Turret | Spin |
|  | Mount, | String |  | Tw4DP | Mountdesignation | Combo |
|  | Wide, | Bool |  |  | True if one each side | Check |
|  | Shield, | Bool |  |  | True if Shield | Check |
|  | Arm) | Dec | Inch | 0..8? | Turret armour | Spin |
|  | Tert(ditto |  |  |  |  |  |
|  | Casemate(Num, | Int |  | 0..10 | Num Casemate guns per side | Spin |
|  | Mount, | String |  | Si6 | Calibre of gun, must be Single | Combo |
|  | Arm) | Dec | Inch | 0..10 | Case Thickness | Spin |
|  | AAA[(Num, | Int |  | 0..200 | #barrels of mount type | Spin |
|  | Mount)] | String |  |  | Type of AAA eg20 | Combo |

Note, there are several designs that are in the Classes database (pre-loaded before the design phase is started) that do not appear in the design database, such as the various CA1, CL1 and MB designs and also the Ficticious Fleets ships. These designs are fixed and cannot be changed under any circumstaces, but the number of each class can be updated (they originally start as 0 ships of each class selected) so that they may be assigned to fleets and formations.

Navy Format

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Grp | Field | Data type | Units | Range | Description | Widget |
|  | DrBW(Limit, | Int | Tons | -1 | There is no limit for Dreadnoughts, 4 can be built in each EDr and MDr period | n/a |
|  | Actual) | Int | Tons | 0..200k | Sum of weights of all ships in period | Calc |
|  | WW1BW(Limit, | Int | Tons | 0..200k inc 100 | Limit of sum of all ships in WW1+SDr | Data |
|  | Actual, | Int | Tons | 0.200k | Sum of weights of all ships in period | Calc |
|  | CarriedFwd) | Int | Tons | 0..70k | Amount actually carried forword | Spin |
|  | EITBW(Limit, | Int | Tons | 0 or 70k | Only Britain can carry fwd tonnage to this period | Data |
|  | Actual) | Int | Tons | 0..70k | Sum of weights of all ships in period | Calc |
|  | LITBW(Limit, cfwd? | Int | Tons | 0 or ? | Some Nations may build BC in this period | Data |
|  | Actual) | Int | Tons | 0..70k? | Sum of weights of all ships in period | Calc |
|  | PLTBW(Limit, | Int | Tons | 0..200k | Limit for all PLT designs inc 1xPB | Data |
|  | Actual) | Int | Tons | 0..200k | Sum of weights of all ships in period | Calc |
|  | EW2BW-Actual | Int | Tons | 0..500k | Sum of weights of proposed ships in period – no limit | Calc |
|  | MW2BW-Actual | Int | Tons | 0..500k | Sum of weights of proposed ships in period – no limit | Calc |
|  | LW2BW-Actual | Int | Tons | 0..800k | Sum of weights of proposed ships in period – no limit | Calc |
|  | CA1 etc? |  |  |  |  |  |