



VICTORY DEMANDS
YOU UNCOVER
THE UNSEEN

IRONCLAD OFFICER'S MANUAL

Naval combat for the MSX2



REQUIRES 128 KB VRAM

A game by Mehmet Belgin
github.com/mbelgin/ironclad

01 BRIEFING

Ten by ten squares of open sea, an enemy fleet matching your own hidden somewhere on it, and no way to look across. Every shot you fire is a discovery, and the distance between victory and defeat is what you make of them: cross off the water that cannot hold a ship, corner what is left, and fire where the arithmetic says a hull has to be. Or close your eyes, trust your instincts, and finish the last ship in the moment before it finishes you.

There are seven rulesets. Some answer every shot the moment you fire it. Others make you fire a whole salvo first, then tell you only how many hits each ship took, never which shot caused them.

The computer never cheats. It sees no more of your fleet than you see of its own, and it is told exactly what the ruleset allows and nothing beyond. What makes it dangerous is bookkeeping: in the salvo rulesets it tracks every position your ships could still be in, crosses off the ones your reports rule out, and picks its next target with algorithms as sophisticated as an MSX2 allows.

WHAT YOU NEED

An **MSX2** with **128 KB of video RAM** and a disk drive, real or emulated. Any MSX2 capable emulator will do.

Getting under way

Start IRONCLAD. The title screen loads, then the menu, set the way you left it.

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02 CONTROLS

	MENU	DEPLOY	BATTLE
	choose	move ship	move cursor
	start	drop	fire
		Rotate	
		Undo ship	Undo shot
		auto-place	
			mark a square
		switch view	switch view
	rulesets	keys	keys
	exit ×2	menu	quit ×2



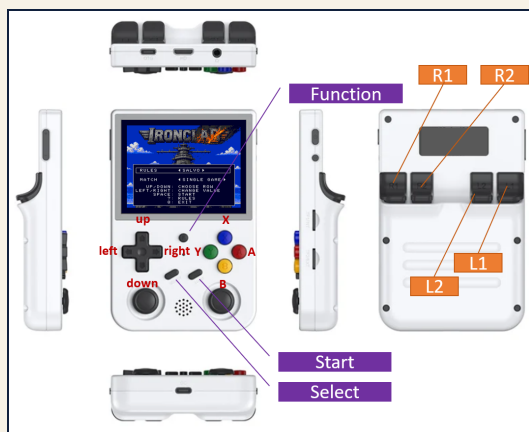
Press ? in a game and the list is on screen. Any key puts you back on the board.

The letter keys are not case sensitive.

03 ON A HANDHELD

IRONCLAD wants a keyboard's worth of keys, so map the buttons once before the first game, in **blueMSX**, the MSX core in RetroArch:

1. Start the game.
2. Press **Function**.
3. Choose **Controls**.
4. Choose a port, for example **Port 1 Controls**.
5. **Set Device Type to RetroKeyboard**. Nothing below works without it.
6. Optionally set Analog to Digital Type to **Left Analog**.



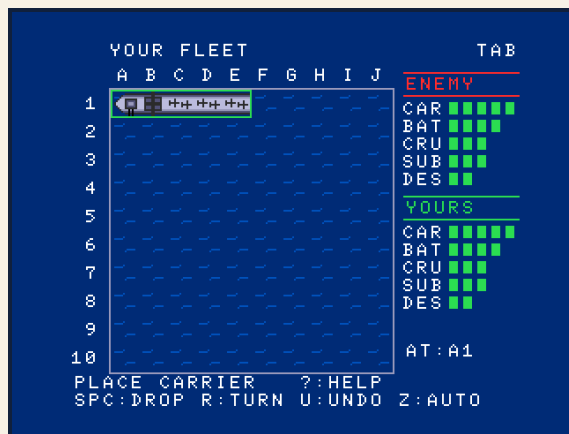
Recommended bindings, tested on blueMSX only:

BUTTON	KEY	FUNCTION
D-pad	↑↓↔	move
Y	SPACE	fire / drop
A	U	undo
B	R	rotate ship
X	X	mark a square
L1	TAB	switch view
R1	Z	auto-place
Select	?	help
Start	Q	menu / quit

Save it with **Save Game Remap File**.

04 DEPLOYING

Your fleet goes down one ship at a time, largest first. A ghost of the ship follows the cursor: **green** where it fits, **red** where it does not.



The Carrier looking for a berth. The message line names the ship and the keys you can use.

↑	↓	←	→	move the ship
R				Rotate it
SPACE				drop it
U				Undo the last deployed ship
Z				place the rest at random

THE ONE-SQUARE RULE

In every ruleset but STEALTH, ships may not touch, not even at a corner, so every ship sits in a ring of clear water. The enemy obeys the same rule, and that is what makes the game solvable: find one enemy ship and you know for certain that every square touching it is empty.

05 THE BATTLE

You fire on **ENEMY WATERS**: move the cursor, **SPACE** fires. The enemy answers on **YOUR FLEET**, where its shots land on your own grid. **TAB** flips between the two views whenever you like, though the guns only work on ENEMY WATERS.

The first side to hit every square of every enemy ship wins.

What you are told

This is the part that changes with the ruleset. In the **single fire** rulesets each shell is answered at once, hit, miss or sunk. In the **salvo** rulesets you fire a whole salvo before anything is said, and then hear only how many hits landed on each ship, never which shells landed them.

The screen, part by part

Top left	which board you are looking at, ENEMY WATERS or YOUR FLEET.
Top center	the match score, GAME 2/3 1-0 , during a series.
The grid	ten by ten, lettered A to J across and numbered 1 to 10 down.
Right	ENEMY above, YOURS below: one entry per ship, and what each has taken.
AT:	the square under the cursor.
Two lines at the foot	what just happened, on your side and on the enemy's, and whatever the game is waiting for you to do.

The enemy says what it is doing while it thinks: **ENEMY REVIEWS LAST SALVO**, then **PROBES OPEN SEA** or **CLOSES IN**.

06 READING THE BOARD

In the salvo rulesets nothing is ever drawn on a square except the number of the salvo you fired it in.

4 **White** (*automatic*). That salvo scored nothing: every square in it is open water.

4 **Yellow** (*automatic*). That salvo scored at least one hit, somewhere among its squares.

4 **Red** (*yours, optional*). A mark you made yourself with **[X]**, on a square you have already fired at.

Buoys, and what you do with them

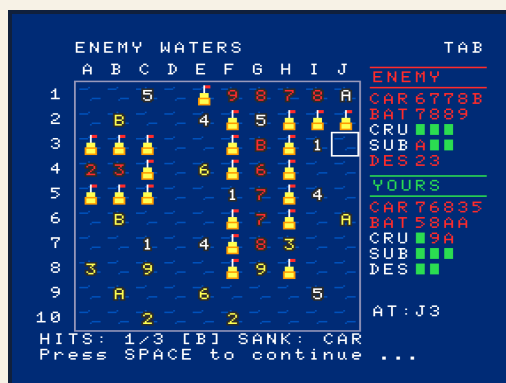
[X] on an empty square drops a buoy: yellow, then gray, then clear. Use of buoys is completely optional, and the game attaches *no* meaning to either color. They are your notepad. One recommended use:



Yellow for the squares around a ship you have found. No ship may touch another here, so all of them must be empty.



Gray for water you have ruled out, because every ship still afloat is too long for the gap.



Salvo B has just sunk the Carrier. The red numbers are the player's own marks, on squares proved to hold a ship; the yellow buoys ring those hulls.

07 GAME RULESETS

Seven ways to fight over the same ten by ten sea. Pick one on the menu with **[←]** **[→]**. The table below is also on screen in the game whenever you press **[?]**.

RULESET	SHOTS	REPORT	TOUCH
SALVO	3	C / S	no
SALVO PLUS	3	C / S	no
BARRAGE	1 per ship	C / S	no
CLASSIC	1	M / S	no
PURSUIT	1, +1 on a hit	M / S	no
STEALTH	1	M	yes
ANKA (KIDS)	1, +1 on a hit	M / S	no

C hits per ship, per salvo

M hit or miss, per shot

S sinkings are named

TOUCH whether ships may lie against each other



The menu. RULESET picks how the game is played, MATCH picks a single game or a series.

08 FLEETS & MATCHES

Ships are listed on the panels by the first three letters of their name, which is how you will see them reported in play.

Standard, five ships

Carrier (CAR, 5) · Battleship (BAT, 4) · Cruiser (CRU, 3) · Submarine (SUB, 3) · Destroyer (DES, 2)

Extended, eleven ships SALVO PLUS

The standard five, then Destroyer (DES, 2) twice more and four single square Boats (BOT, 1).

Light, five ships PURSUIT

Frigate (FRI, 4) · Corvette (COR, 3) · Cutter (CUT, 3) · Launch (LAU, 2) · Skiff (SKI, 2)

Big, five ships ANKA

Carrier (CAR, 5) twice · Battleship (BAT, 4) twice · Cruiser (CRU, 3)

MATCH PLAY

MATCH offers a **single game**, or a series: **best of 3, 5 or 7**. A coin toss decides who opens the first game, and the opening shot alternates from there. A series ends the moment one side takes the majority.

The enemy always plays the strongest game it knows for whichever ruleset you picked.

09 SALVO VARIANTS

SALVO · SALVO PLUS · BARRAGE

Both sides fire a complete salvo before a word is said, and the report names only how many hits landed on each ship. That one line is the puzzle. Each report rules out some of the ways the enemy fleet could be arranged, and what survives is where the ships are.

Each shell is stamped with its salvo number, 1 to 9 and then letters, A, B, C onward. The ENEMY panel keeps the other half of the ledger: for every ship, which salvo numbers have hit it. CAR 1 3 with three green squares says the Carrier took salvos 1 and 3 and has three squares left.

While a salvo is still being aimed, **U** takes back its last shell. Once the final shell goes, the salvo stands.



Your fleet under fire. Each enemy shell is numbered with the salvo it came from, and the buoys are the enemy's own working: it marks a square once it has proved nothing of yours can be there.

SALVO PLUS sends the same three shells against a larger fleet of eleven ships, four of them only one square long. **BARRAGE** gives you one shell for every ship you still have afloat, so your firepower shrinks as your fleet does, and so does the enemy's.

10 SINGLE FIRE VARIANTS

CLASSIC · PURSUIT · STEALTH · ANKA

Classic and Pursuit

One aimed shell a turn, answered straight away: a miss shows as a splash, a hit as fire. A sinking ship is shown on the board, and the water around the wreck is marked off for both sides, since nothing can be touching it. **PURSUIT** is the same duel with a lighter fleet, and every hit earns another shell at once, for you and the enemy alike.

Stealth

Ships may touch here, and you are told hit or miss and nothing else. Sinkings are never announced, so the ENEMY panel shows every ship untouched from first shell to last, and a row of hits could be one long ship or three short ones end to end. The enemy is told just as little.

Anka (Kids)

For young captains. The fleet is big ships only and is placed for you, every hit earns the young side another shell, the computer gets no such favor, and the enemy fires at random until it hits something, then works outward from the hit. Meant to be beaten, though it does not miss on purpose.



SALVO PLUS adds more ships, including four Boats one square long. Hit a longer ship and you learn something: it must carry on into one of the squares beside the hit. A Boat sinks on the first hit and leaves nothing to reason from, so the last of them must be hunted square by square.

11 END OF GAME



A single mistake in your deduction is the difference between victory and death.

When the last ship goes down, the enemy fleet is revealed and **TAB** looks over both boards. In a series, **SPACE** starts the next game.

The verdict screen is kept for the end: a single game, or the game that settles the series. It marks the war rather than each battle. There **TAB** cycles the verdict and the two boards for a post-game analysis, and **SPACE** returns to the menu.

GOOD HUNTING



IRONCLAD is free and always will be. If it made you happy, you can buy the author a coffee at ko-fi.com/mbelgin

The game, its source and the README:

github.com/mbelgin/ironclad

Written for the MSX2 in BASIC and Z80 machine code.

IRONCLAD and its rulesets take after the pen and paper naval battle games played on squared paper for generations. Any resemblance to trademarked products is coincidental. MSX is a trademark of MSX Licensing Corporation; the logo appears here under the MSX Association's policy for non-commercial use.