

Command Manual Addendum:

version 1.04 (Build 554)

Welcome to the Command manual addendum pages!



This material acts as supplemental to the existing Command v1.0 manual (bundled with the game and also available in printer-friendly format [here](#)) and details the changes and additions to the interface and functionality of the game. We welcome feedback for improving the content of these pages and providing even better and more useful information to new and old players alike.

The information currently detailed on these pages is correct up to version 1.04 (Build 554). Later versions (available as public releases through the MatrixGames forum) are likely to have additional features and changes, please consult the release notes of each published build for details.

USER INTERFACE

GENERAL GAMEPLAY

AI & MECHANICS

SCENARIO EDITOR

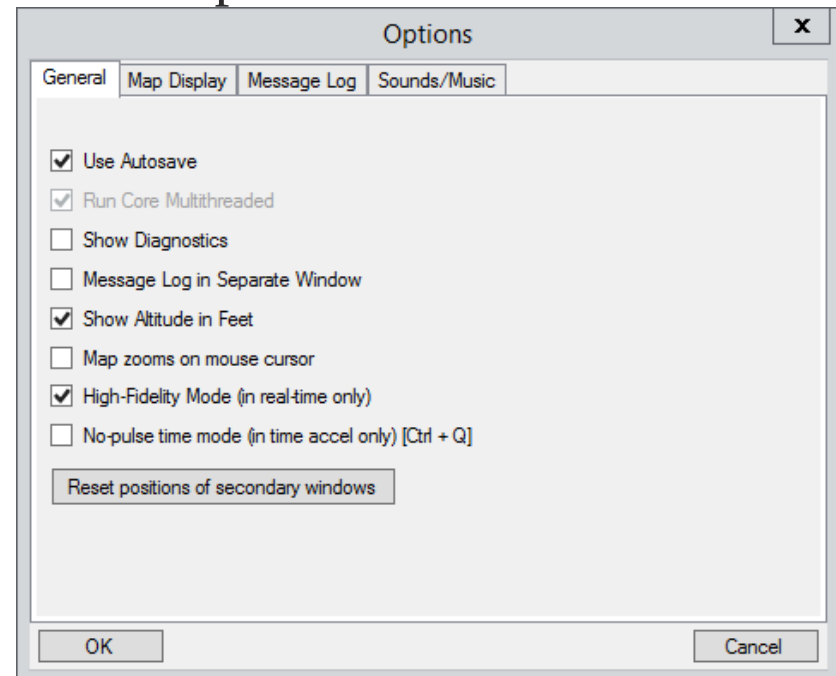
AIR OPS

User Interface

Start Menu

- Added *Order scenarios by...* filter on the *Load Scenario* window. The player can list scenarios by order of their filename, scenario date, difficulty and complexity. This should help new players easily pick out easy/simple scenarios to get started.
- When the player attempts to load a scenario for which the corresponding DB is missing, the game informs them of this and aborts the load.

Game Options



General:

The *Options* window has been significantly expanded, with the followings additional options:

- **Map Zooms on mouse cursor location:** When enabled, the map will zoom to the point at which the mouse cursor is located (similar to Google Maps), instead of the camera center.
- **Sonobuoy Visibility.** This helps declutter the tactical map if too many sonobuoys are present in the view. Available settings are: *Normal* (sonobuoys appear like every other unit), *Ghosted* (buoys appear semi-transparent) and *Do Not Show* (buoys do not appear at all; not recommended unless necessary).
- **High Fidelity Mode:** When enabled, at 1:1 time compression (ie. realtime mode) Command's simulation engine runs in 0.1 sec time slices and also refreshes the map every 0.1 seconds. This provides increased simulation & visual fidelity at the cost of performance. When disabled, at realtime mode Command runs in 1-sec slices and refreshes the map every 1 sec. This can speed up gameplay on less powerful machines.
- **No Pulse Mode** . This is on by default and at any time acceleration setting, the map & UI do not refresh every second but every 0.1 sec. This means that the sim engine executes each turn not in "pulsing" mode (emulating Harpoon's presentation), but as fast as possible. The net result of these changes is that at time acceleration (particularly at high values, e.g. 1:30 or 1:60 sec) the map updates much more smoothly and the overall game speed is significantly improved. To retain the "traditional", Harpoon-style pulsing map refresh set this option to *NO*.

This setting can be toggled on/off via three ways:

1. From the main menu bar: *Game* -> *Options* -> *No-pulse time mode*.
2. Drop-down selector *Time Mode*, placed to the right of the existing *Time Compression* drop-down selector.
3. Keyboard shortcut: Ctrl+Q .

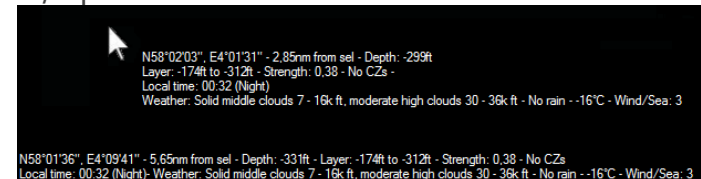
Map Display



- **Sonobuoy Visibility.** This helps declutter the tactical map if too many sonobuoys are present in the view. Available settings are: *Normal* (sonobuoys appear like every other unit), *Ghosted* (buoys appear semi-transparent) and *Do Not Show* (buoys do not appear at all; not recommended unless necessary).

- **Reference point visibility.** Three settings are available: *Normal* (as currently), *Small* (half-size and grayed out), and *Do Not Show*. This significantly declutters the map in cases of dense ref-point concentrations.

- **Map Symbols:** You can now choose different map symbol sets. The choices are (a) *NTDS + NATO APP-6* (current & default setting), and (b) *Stylized*. By default, the stylized set consists of Terry Courtney's icon replacement set, but players can edit/replace each icon at will.



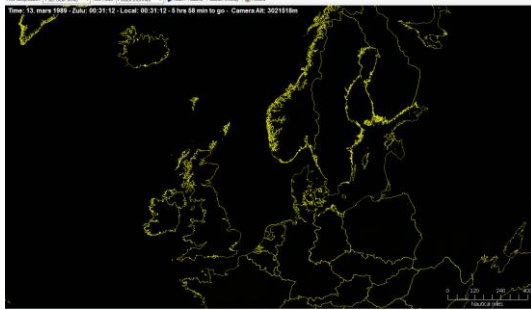
- **Group View**

Map Cursor Databox: The map-cursor databox (a.k.a. Black Box of Data, or simply BBD) can now be configured to appear beside the cursor (as currently), appear on the bottom of the map, or not appear at all.

- **Show Ghosted Group Members:** You can toggle ghosted members of group off and on. If off you'll just see a group symbol and if on you will see the ghosted member at its present location.

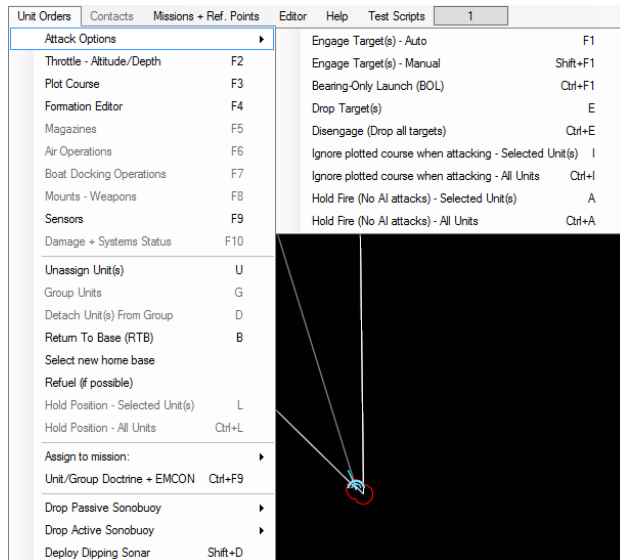
- **Show Plotted Paths:** Can choose to show plots lines of the select unit, all units or no units.

View



• **Wireframe Map (Black Globe) View:** Turning off *BMNG* from the map-view options enables a black wireframe map, emulating the Harpoon3 map style. Note that the relief layer can still be overlaid as usual.

Unit Orders



The Unit Orders menu has received many new menu items, the most important ones are:

- **Attack Options:** All attack, disengage and weapon state commands are found under the new Attack Options menu item. All menu items have been given associated hotkeys for quick access.
- **Attack Options -> Drop Target(s):** This function allows a player to drop one or more units from it's target list. After selecting this function simply click on the unit you would like to drop or drag select multiples.
- **Attack Options -> Disengage (Drop All Targets):** This function drops all targets from the unit target list and the unit will continue on with its previously assigned mission or plot.
- **Attack Options -> Ignore Plotted Course When Attacking – Selected Unit(s):** When selected, units assigned to missions will ignore plotted courses and attempt to intercept targets.
- **Attack Options -> Ignore Plotted Course When Attacking – All Units:** Sets this property for all own units, not just the selected one(s).
- **Attack Options -> Hold Fire (No AI attacks) – Selected Unit(s):** When selected, units will not fire weapons automatically. Weapons will only fire when manually assigned to targets through *Engage Target(s) – Manual*.
- **Attack Options -> Hold Fire (No AI attacks) – All Units:** Sets this property for all own units, not just the selected one(s).
- **Hold Position – Selected Unit(s):** This function orders the selected mobile facilities to hold position, i.e. ignore movement orders.
- **Hold Position – All Units:** Sets this property for all own units, not just the selected one(s).

Own Unit Context Menu (Mouse Right-Click)

* The Unit Context Menu has been updated to match the Unit Orders menu. In addition, the context menu has a menu item for the *Range / Bearing Tool*, as well as a handful extra items for use in the scenario editor (*Edit Unit Properties*, *Unit is Auto-Detectable*, *Set Orientation*)

- “Hold Position” command added to right-click menu for mobile ground units.

Missions & Reference Points

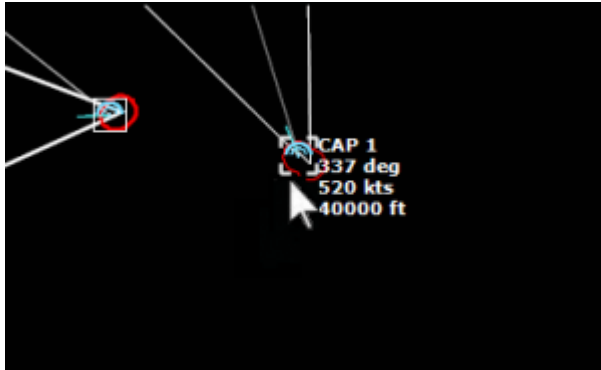
Missions + Ref. Points		Editor	Help
Mission Editor		F11	
Add new mission		Ctrl+F11	
Add Reference Point		Ctrl+Ins	
Rename selected Reference Point		Ctrl+R	
Delete selected Reference Point(s)		Ctrl+Del	
De-select All Reference Points			
Define Area			
Make selected Ref Point(s) relative (fixed bearing) to...			
Make selected Ref Point(s) relative (rotating bearing) to...			
Change bearing type of selected Ref Point(s) to FIXED			
Change bearing type of selected Ref Point(s) to ROTATING			
Remove relativity from selected Ref Point(s)			
Lock selected Ref Point(s)			
Unlock selected Ref Point(s)			
No-Navigation Zones			▶
Exclusion Zones			▶

The Missions & Reference Points menu has received the following additions:

- **De-select all reference points:** All currently selected reference points will be de-selected.
- **Define Zone:** Selecting this option and then left click and dragging a square on the map will drop 4 reference points. Same as right click function.
- **Remove relativity from selected Ref Point(s):** This option will clear Fixed or Rotating Bearing settings for the selected reference point(s).
- **Navigation Zone and Exclusion Zone Submenus:** These functions were moved from the unit menu.

Map Information, Unit/Group/Contact Status & secondary windows

- Command now handles the 125% desktop font setting (increased DPI) much more gracefully, and adjusts the dimensions of the right-column panels to compensate. (We welcome feedback on any UI problem/mismatch we have missed.)
- Significant UI/map modification: Detected non-friendly unit groups (airbases, installations, naval bases, mobile groups etc.) are shown as group entities while in Group view.
- Unit Status Panel now includes a weapons summary panel for selected unit/group. This lists the current weapons inventory for the unit/group selected. Each of the weapon lines is also a link to the relevant page on the DB viewer.
- While having a weapon selected on the map, clicking on the weapon-class button on the unit status window will bring up the weapon's relevant page in the DB viewer.



• New map UI feature: Mouse preview mode. When hovering over a non-selected unit/contact, the selection & datablock information for that unit is displayed slightly ghosted. This is useful for quick-look info (without having to display datablocks for all units) and particularly handy when targeting contacts.

• New major UI feature: Quick-jump slots. This allows the player to quickly & easily jump between locations/views of the battlefield without map zoom/pan delays.

How they work:

- To store a slot: Select a unit/contact. Press Ctrl+[num], where [num] = 1...0 . The unit selection & camera altitude are now stored on slot No.[num] (and persisted per-side).
 - To jump to a saved slot: Simply press [num]. If a slot with that index exists, the camera will move to the marked unit location & altitude.
 - If you are using tracking-camera when saving a slot, this setting is also saved and enforced the next time you jump to this slot.
- Secondary windows now remember their last position and size (these are saved on the Command.ini file so they can be tweaked offline). So you can set up your desired "working environment" once and the windows will retain the customizations accross scenarios and game sessions. To reset the locations & sizes to

their default values, click on the button "Reset positions of secondary windows" on the Game Options window.

• Secondary windows now correctly minimize/maximize together with the main game window, and they no longer visually block other program windows.

• Secondary windows can now be closed by pressing Esc, or their assigned function key (F2 etc.).

• When you select a unit, its weapon range symbols (in addition to sensor symbols) are now also highlighted (thickened).

• You can now manually mark a contact as friendly ('F') or neutral ('N'). If the contact is subsequently detected with sensors capable of establishing its true side and/or posture, the manually-set posture is discarded.

• Added "Quick Jump" top-level menu which lists all saved quick-jump slots. Clicking any of the slots jumps the camera to the specified location & altitude (ie. same as using 1...10 keys).

• Most hotkeys now have a menu item. Three new menu categories added ('View', 'Contact' and 'Quick Jump').

• On the unit status window, the assigned mission description (if applicable) is now a hyperlink. Clicking it brings up the mission editor window and selects this mission. This streamlines the process of quickly checking up the mission details of the selected unit/group.

• Significant UI/map modification: Detected non-friendly unit groups (airbases, installations, naval bases, mobile groups etc.) are shown as group entities while in Group view.

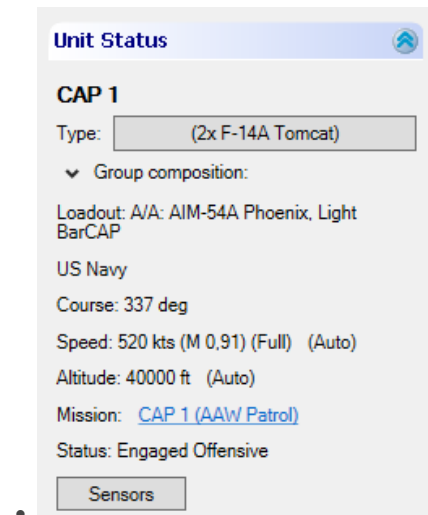
As an example, [this](#) is a view of Kien An airbase in "Down Town" under v1.03 (both group- and unit-view). And [this](#) is the same base as presented in group-view under v1.04. The (detected) member units of the group appear as before (ie. individual contacts) in unit-view.

When selecting for attack etc., any orders given affect the member units of the group and not the group entity itself. So for example if the player selects an enemy airbase as the target for manual weapon allocation, the target list of allocation window lists all the detected facilities of said airbase.

Mouse Functionality:

- Added double-click functionality:
 - Plotting course (F3): double-click when placing the last waypoint when plotting a course to exit Plot Course mode.
 - Using Range/Bearing tool (Ctrl + D): double-click to exit Distance/Bearing tool.
- Create new Waypoint: Press and hold Ctrl key, select and drag existing waypoint. Note that the mouse must move minimum 4 pixels for the new waypoint to be created.
- Create new Reference Point: Press and hold Ctrl key, select and drag existing reference point. Note that the mouse must move minimum 4 pixels for the new reference point to be created.

Mission Editor



You can now launch the mission editor by selecting the mission name in the Unit Status dialog.

- Delay-timed missions are displayed in the mission editor with a "[D]" prefix.
- New patrol option: Patrol Throttle (default is Loiter/Creep). Units that are following a patrol course inside their patrol area and have no other throttle override obey this throttle setting. This allows customizing patrol behavior for persistence (loiter), maximum area scan (cruise) or special cases that warrant full/flank throttle.
- New patrol option: Prosecution Area. You can now define an exact area you want units to pursue contacts during a patrol. Units assigned to it will not pursue contacts outside the area. To use: add and select the necessary reference points, press the prosecution area button and add/remove reference points as you would with the patrol area function. If no prosecution area is added the mission works as it traditionally did in that there is no threshold.

Prosecution Areas (PAs) serve two purposes:

a) They act much like a forbidden zone in that contacts appearing within them are marked for interception, but they also restrict the extent at which interceptions will happen. So if you want your fighters to e.g. be triggered only by bandits within 200nm of a protected HVU instead of "waking up" to contacts thousands of miles away, PAs are the solution.

b) They act as a "leash" for assets on a patrol; they effectively determine the extent to which the patrol assets can give chase to receding targets. If the bandit moves out of the PA, the defender is forbidden to follow (though it can still engage with weapons if feasible). This solves the problem of patrol assets over-extending themselves during interception, quite often falling victims to feints/traps.

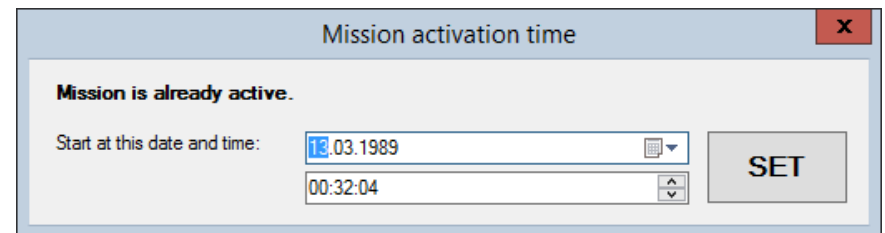
PAs are supported in the UI by modifications to the Mission Editor UI, and are populated by reference points in the same way as existing patrol areas. They are empty by default, and in this case the AI behavior is the same as before (intercept bandits far away etc.), to facilitate existing scenarios.

Units that are assigned to a patrol with a prosecution area will target & engage only contacts that are within this area (or their patrol area). If they are not on patrol or their patrol does not have a prosecution area, the existing AI rules apply. This makes it possible to create SAM ambushes (shoot at far less than max range), divide areas of responsibility for multiple patrol forces etc.

- Added sprint-and-drift behavior for units that are part of a surface or sub group (the most common case requiring this behavior). This behavior is enabled by going in the formation editor, selecting the desired unit, and ticking the checkbox "Sprint and Drift" on the formation editor toolbar.
- New Strike Mission option: Use Auto-Planner. Selecting this check box activates the auto mission planning. This allows the AI to set up a variable preplanned flight plan based on range, fuel and load-out flight profile.
- Units listed on the mission editor and the air ops window now use natural sorting for the list order. So instead of this:
 - Archer #1
 - Archer #10
 - Archer #11
 - Archer #12
 - Archer #2
 - Archer #3
 - Archer #4

...you get this:

- Archer #1
- Archer #2
- Archer #3
- Archer #4
- [...]
- Archer #10
- Archer #11
- Archer #12
-



You can now set the activation time for a mission through the mission editor.

- Aircraft entries are now color coded to show readiness in various lists. Red is unavailable, black is readying, and green is ready.

Misc Improvements

- You can now select a new home base for multiple-selected aircraft.
- You can now manually order a helicopter to hover and use its dipping sonar if it has one. The key combination is Shift+D.
- Major new feature: You can set speed, altitude and sensor commands per waypoint. There are currently two ways to do this: Select the waypoint and either right-click on it to show available command, or press F2 and/or F9 to bring up the *Speed / Altitude* and *Sensor* windows respectively. Waypoint-specific command are applied to the unit once the unit reaches said waypoint.
- Significant improvements on the *Speed / Altitude* window (F2): Altitude presets for aircraft, similar to existing submarine depth

presets, and ability to input precisely the desired speed & altitude/depth with arithmetic values in addition to the slider bars.

- The player can no longer plot paths or select and drag-move the waypoints of non-datalinked or non-wire-guided weapons. Only datalinked or wire-guided man-in-the-loop weapons can have courses altered.
- Datalinked and wire-guided man-in-the-loop weapons can be re-targeted. Select the weapon(s) to retarget, press the F1 hotkey, and select the new target.
- Datalinked Air-to-Air Missiles (AAMs) and Surface-to-Air Missiles are automatically re-targeted if the original target has been destroyed, granted the new target is of the same general type, within 20 degrees (no sharp turns that bleeds energy), at least a few seconds from impact, etc.

Database Viewer

Database Viewer: DB3000 Database Build 416 (1980-2015+)

Type: **Weapon**

Filter by: **Class:** AIM-120 **Country:** None

AIM-120A AMRAAM - 1992
AIM-120B AMRAAM - 1996
AIM-120C AMRAAM P31.1 - 1999
AIM-120C-4 AMRAAM P31.2 - 2001
AIM-120C-5 AMRAAM P31.2 - 2003
AIM-120C-6 AMRAAM P31.2 - 2005
AIM-120C-7 AMRAAM P31.3 - 2007
AIM-120D AMRAAM P31.4 - 2014
RB 99 AMRAAM [AIM-120B]

#718 - AIM-120C-7 AMRAAM P31.3 -- 2007

GENERAL DATA

Type:	Guided Weapon	Cruise Altitude:	80000 ft, 24384 m	Range (anti-air):	60 nm	Air PoH:	95 %
Length:	3,66 m	Climb Rate, S/L:	130510 ft/min, 663 m/sec	Range (anti-surf):	-	Surface PoH / Reliability:	-
Span:	0,45 m	Launch Altitude:	200 - 65000 ft, 60,96 - 19812 m	Range (anti-sub):	-	Sub PoH:	-
Diameter:	0,18 m	Launch Speed:	-			CEP (nominal):	-
Weight:	154 kg	Target Altitude:	30 - 80000 ft, 9,14 - 24384 m				
Burnout Weight:	-	Target Speed:	0 - 1950 kt				
Guidance Type:	All-Aspect and Datalink (DL/INS) mid-course plus Active Radar Homing (ARH) terminal guidance						

SENSORS / EW

Model	Max Range	Notes	Abilities
1x Active Radar Seeker	5 nm	Weapon Seeker, Active Radar	Air Search, Altitude Info, Heading Info, Range Information, Speed Information

COMMS / DATALINKS

Name	Type	Max Range	Channels	Properties
AIM-120 Missile Datalink [One-Way]	AIM-120 Weapon Link	160 nm	1	LOS-limited, Receive-only, Secure

SIGNATURES

Signature Type	Front	Side	Rear
Visual Detection Range	1,89 nm	5,16 nm	1,89 nm
Infrared Detection Range	0,71 nm	4,2 nm	9,61 nm
Radar, A-D Band (30-2000 MHz)	-18 dBsm, 0,016 sq.m.	-17 dBsm, 0,02 sq.m.	-18 dBsm, 0,016 sq.m.
Radar, E-M Band (2-100 GHz)	-18 dBsm, 0,016 sq.m.	-17 dBsm, 0,02 sq.m.	-18 dBsm, 0,016 sq.m.

A weapon-specific page has been added to the DB Viewer. This allows viewing information relevant to a weapon such as its stats (dimensions, speeds, altitudes), engine, warhead(s), datalink, etc. Search, filtering etc. for weapons work just like any other unit type, except that country-level filtering is not available for weapons.

- When viewing information on a platform, the per-engine maximum speed is displayed on the "Powerplant" section. This is particularly useful for diesel-electric submarines as it shows the maximum speeds available for each of the available engines (including Air Independent Propulsion, or AIP).
- Added DB Viewer hyperlinks to weapons on the aircraft *Loadout Selection* window. Click on the weapon name and the DB Viewer will display the page for that weapon.
- Added DB Viewer hyperlinks to the aircraft types in the *Air Operations* (Air Ops) window. Click on the aircraft type and the DB Viewer will display the page for that aircraft.
- Added DB Viewer hyperlinks for weapons on the *Unit Weapons* window.
- The weapon page on the DB Viewer now lists the guidance details for the displayed weapon.

Music & Sound effects

- Sound effects are now played on a single channel instead of multiple parallel channels. This fixes the distortion & crackle problems when too many effects were played concurrently.
- New and improved sound effects for various gun calibers (incl. lasers), aircraft & helicopter take-offs, new contacts, alert (weapon contacts) etc.
- Background music is now available. This can be enabled & disabled through *Game -> Game Options -> Sounds/Music*. Players can add more soundtrack files (MP3) to be played randomly, by placing them on the *Command\Sound\Music* folder.

The included track is the “official” Command soundtrack, i.e. the one from the promo trailer.

Updated Hot Key List

Hotkeys			
Basic			
F12	Start / Resume / Pause Game	F1	Engage Target(s) (Auto) / Re-Target Weapon
+ (plus)	Increase Time Compression	Shift + F1	Engage Target(s) (Manual)
- (minus)	Decrease Time Compression	Ctrl + F1	Bearing-Only Launch (BOL)
Enter	Normal (1:1) Time Compression	F2	Throttle - Altitude/Depth
Ctrl + S	Save Scenario	F3	Plot Course
Ctrl + Q	Toggle no-pulse game mode	F4	Formation Editor
Tactical Map			
Mouse Right-Click	Center map on clicked point	F5	Magazines
Up Arrow / Num 5	Pan Map Up	F6	Air Operations
Right Arrow / Num 6	Pan Map Right	F7	Boat Docking Operations
Left Arrow / Num 4	Pan Map Left	F8	Mounts - Weapons
Down Arrow / Num 2	Pan Map Down	F9	Sensors
Z, Mouse Scroll	Zoom In	Ctrl + F9	Unit / Group Doctrine + EMCON
X, Mouse Scroll	Zoom Out	F10	Damage + Systems Status
V, PgUp, Num 9	Switch Group / Unit View	F11	Mission Editor
Space	Select Next Unit	Ctrl + F11	Create New Mission
Backspace	Select Previous Unit	F12	Start / Resume / Pause Game
T	Track Selected Unit	Own Units	
Ctrl + Ins	Add Reference Point	A	Toggle Hold Fire (no AI attacks) for selected unit(s)
Ctrl + R	Rename Reference Point	Ctrl + A	Toggle Hold Fire (no AI attacks) for all units
Ctrl + Del	Delete Reference Point	I	Toggle Ignore Plotted Course When Attacking for selected unit(s)
Ctrl + D	Range / Bearing Tool	Ctrl + I	Toggle Ignore Plotted Course When Attacking for all units
End, Num 1	Toggle Illumination Vectors	E	Drop Target(s)
Home, Num 7	Toggle Targeting Vectors	Ctrl + E	Disengage (Drop all targets)
* (star)	Toggle Datablocks	L	Hold Position for selected unit(s)
Scenario Editor			
Ctrl + V	God's Eye view (See All)	Ctrl + L	Hold Position for all units
Ins	Add Unit	Shift + [	Drop Passive Sonobuoy, Shallow - Over Layer
C	Copy Unit	]	Drop Passive Sonobuoy, Deep - Under Layer
M	Move Unit	Shift +]	Drop Active Sonobuoy, Shallow - Over Layer
R	Rename Unit	Shift + D	Drop Active Sonobuoy, Deep - Under Layer
Del	Delete Unit	O	Display Dipping Sonar
Alt + S	Toggle Sides (switch sides)	Contacts	
		P, PgDn, Num 3	Display current side's Order Of Battle (OOB)
		H	Drop Contact(s)
		N	Mark Hostile
		F	Mark Neutral
		R	Mark Friendly
			Rename

You can always see the current list in a new window displaying all hot keys From the main menu, “Help” -> “Hotkeys”.

- Many new hotkeys have been added.
- Most menu items now have a hotkey.

Other UI Changes

- Losses and expenditures are now listed in alphabetical order, to make it easier to search for specific unit types lost & weapons/stores expended.
- When the player attempts to load a scenario for which the corresponding DB is missing, the game informs him of this and aborts the load.

General Gameplay



The “Start Game” window has an extra button added: Resume from last Autosave. This makes it even easier (and more immediate) to continue a game session after a crash, freeze or other problem.

- Autosave now allows going farther “back in time”: When an autosave is performed, the existing autosave file is renamed to autoscen_20, the existing (if any) autoscen_20 file is renamed to autoscen_40 etc. all the way to autoscen_100. This way, whenever there is a reported problem the dev team can go back up to 100 (RL) seconds to troubleshoot reported issues. This solves the “autosave after the fact” problem.

AI & Mechanics

- Aircraft now determine the correct altitude to drop their ordnance much more reliably without manual control. (*We would love to boast "100% reliably" but that's tempting fate. So we don't.*)

- Helmet-mounted sights (HMS) are now taken into account when deciding how much off-boresight an aircraft can shoot an AAM.
- Aircraft & submarines have more realistic dive rates.
- Ships can now effectively use semi-active SAMs in anti-surface mode, as they are taking terminal illumination concerns into account during pre-fire checks.
- Refined acoustic reverberation modifiers for sonars. Now the sonar's tech level (more modern sets are affected less) and operating frequency (lower-frequency sets suffer the most) also play a part in determining degradation due to reverberation from shallow water or under-ice conditions.
- Aircraft dropping sonobuoys are now constrained by the channel capacity of their sonobuoy datalinks. In most cases this means they will drop fewer sonobuoys per "string". To compensate for this, the default minimum spacing between successive sonobuoys has been doubled.
- Strategic submarines now actively evade not only weapon contacts but also potential sub & surface threats in proximity.
- Aircraft now have different safety margins for the Bingo calculations depending on their type. "Force-multiplier" assets like tankers, AWACS, EW aircraft have higher, more conservative safety margins while more "expendable" assets like tactical fighters have lower, more aggressive margins.
- Any aircraft with less than 1500 lbs of internal fuel remaining is considered to be in bingo status regardless of its proximity to its home base (this helps with bingo calcs very close to the base).
- Aircraft AI improvements. Group members now always stick with the leader on a manual plotted course even if they have strike targets assigned.
- New doctrine option: Use SAMs in anti-surface mode (or not).
- New patrol type: Sea Control. This type effectively combines the targeting criteria of the ASuW-Naval and ASW patrol. Units

assigned to this patrol type will target anything on the sea surface and below it.

- New doctrine option: Engage targets of opportunity (default is NO). When enabled, a unit will target and engage any contact for which it has suitable weaponry (at range up to 2x of max suitable weapon range), regardless of its mission tasking.
- Major new simulation feature: Payload weight & drag affects the aircraft fuel consumption. You can test this easily by e.g. assigning two identical aircraft to a patrol, one heavily armed and one lightly loaded, and comparing their endurance & range figures.
- Engine throttle (cruise, full, flank etc.) is now taken into account when calculating the IR signature of aircraft, and thus its detection range by a sensor.
- Floating mines can now be detected by visual sensors (incl. eyeballs) on ships and aircraft who fly lower than 150m/450ft and slower than 200kts. Perfect-conditions detection range is 300 meters but actual detection range can be significantly lower depending on lighting, weather etc.
- Aircraft on ground attack whose attack profile altitude is lower than the minimum weapon release altitude will attempt to stay just over the latter (instead of bombing from max release altitude). This significantly improves bombing accuracy but can also make aircraft more vulnerable to air defences.
- Improved weather effects modelling: cloud cover now significantly disrupts EO/IR/laser sensors, depending on cloud thickness (difficult but doable in light/medium clouds, but good luck dropping LGBs from med/high altitude in typical CentFront weather).
- There are now 11 pre-defined cloud cover profiles. The mouse pointer has been updated with more information on the clouds so that the player can adjust operations accordingly. Some profiles

have two layers of clouds which opens the door for some interesting scenarios. It is now possible to operate underneath clouds, over clouds, inside clouds, and visibility through cloud layers depends on cloud density. The profiles are:

- Thick fog 0-2k ft, solid cloud cover 7-36k ft
- Thin fog 0-2k ft, solid cloud cover 7-36k ft
- Solid middle clouds 7-16k ft, moderate high clouds 30-36k ft
- Moderate middle clouds 7-16k ft, light high clouds 27-30k ft
- Moderate high clouds 25-28k ft
- Moderate middle clouds 7-16k ft
- Moderate low clouds 2-7k ft
- Light high clouds 20-23k ft
- Light middle clouds 10-16k ft
- Light low clouds 5-7k ft
- Clear sky

* Offboard sonar sensors (e.g. towed arrays & VDS) not only have their powerplant own-noise modifiers halved, but also get a further reduction as per the existing thermal layer and deep sound channel modifiers on sound propagation. This makes these sensors even more potent, especially when they hang on the other side of the thermal layer than their carrier platforms.

- The AI in ships & surfaced submarines can now engage incoming SAMs in ASM mode. (Player-issued attacks on SAMs are still deliberately ignored).

- The AI can now fire heavyweight torpedoes out to 8nm instead of 6nm. (This, BTW, proved in repeated tests to be the practical upper limit against targets who are reasonably alerted and attempt to evade. Any longer than that and more than often the target will outrun the weapon. This holds even for super-heavy torpedoes like the Type 65 series.)

* Significant improvements to ABM/ASAT intercept logics:

- Units with ABMs/ASATs target & begin tracking ballistic & orbital targets at much larger distances (to compensate for

the very fast closure speed). This allows taking shots at the maximum intercept range.

- Additional pre-fire checks for mandatory datalinks. If a mandatory datalink connection cannot be established, the firing sequence is aborted rather than launching the weapon "blind". (This is critical for ABMs but also benefits other weapon types with mandatory datalinks).

* New major feature: Proficiency levels

- Proficiency modifiers are applied on a side level (on the "Add/Edit Sides" window in ScenEdit mode) and can affect a wide number of factors. The available levels are Novice, Cadet, Regular, Veteran & Ace. Default proficiency level for each side is Regular. • Aircraft turn rates and agility modifiers on missile evasion attempts are now affected by proficiency levels. The changes, as percentages of the original values, are as follows:

1. Novice : 60% of nominal
2. Cadet : 70% of nominal
3. Regular : 80% of nominal
4. Veteran : 100% of nominal
5. Ace : 110% of nominal

- The weapon endgame messages have been updated to display the information of these modifiers. • OODA values are affected by proficiency levels. Novice crews take twice the nominal OODA value to execute their targeting process while ace crews beat even the nominal best-case value (all other levels in-between).

Scenario Editor

The "Add Unit" window now remembers all selection filters used on the last unit addition and re-applies them whenever called up.

This makes it easier to rapidly add different but similar units.



You can now edit aircraft names and delete specific aircraft directly through the Air-Ops window.

New event trigger: Unit Detected. Fires when a unit (flexibly filtered from side-wide down to specific unit) is detected by the specified side.

New event-engine addition: Event Conditions.

Conditions are managed and added to/removed from events just like triggers and actions. An event without conditions fires normally (probability check etc.). If conditions are present, all of them must be satisfied in order for the event to fire. (We intend to add the option to configure whether all conditions must be satisfied or at least one of them, for greater flexibility).

Added new realism option: Unlimited Aircraft Weapons. When enabled, aircraft have unlimited loadout packs available even if their bases are not loaded with weapons at all. This is not recommended for realistic prolonged scenarios (it makes airpower too omnipotent) but can be useful for quick experimentation.

Added first event condition: Side posture. (e.g. Side-A must consider Side-B as [friendly|neutral|unfriendly|hostile]). The

condition also has an optional "NOT" operator (e.g. Side-A must not consider Side-B as friendly).

Significant addition to patrol missions: Prosecution Area.

- Prosecution Areas (PAs) act much like a forbidden zone in that contacts appearing within them are marked for interception, but they also restrict the extent at which interceptions will happen. So if you want your fighters to e.g. be triggered only by bandits within 200nm of a protected HVU instead of "waking up" to contacts thousands of miles away, PAs are the solution.
- PAs Act as a "leash" for assets on a patrol; they effectively determine the extent to which the patrol assets can give chase to receding targets. If the bandit moves out of the PA, the defender is forbidden to follow (though it can still engage with weapons if feasible). This solves the problem of patrol assets over-extending themselves during interception, quite often falling victims to feints/traps.
- PAs are supported in the UI by modifications to the Mission Editor UI, and are populated by reference points in the same way as existing patrol areas. They are empty by default, and in this case the AI behavior is the same as before (intercept bandits far away etc.), to facilitate existing scenarios.
- Units that are assigned to a patrol with a prosecution area will target & engage only contacts that are within this area (or their patrol area). If they are not on patrol or their patrol does not have a prosecution area, the existing AI rules apply. This makes it possible to create SAM ambushes (shoot at far less than max range), divide areas of responsibility for multiple patrol forces etc.

Grouping land units with ammo dump type units with matching weapons records for replenishment. This allows for reloads which means that SAM, artillery and land units can be replenished.

Added sprint-and-drift behavior for units that are part of a surface or sub group (the most common case requiring this behavior).

This behavior is enabled by going in the formation editor, selecting the desired unit, and ticking the checkbox "Sprint and Drift" on the formation editor toolbar.

When rebuilding a scenario with the latest database, the simulator will automatically re-shuffle the aircraft and move those that are ready in less than 60 minutes to the flight deck. Ditto when readying an aircraft in the scenario editor and selecting 'Ready Immediately'. It may be worth noting that the simulator is not topping up the deck completely, it is keeping some free space on the deck for the recovery cycles since landing aircraft may have to park there in case all elevators are busy.

Air Ops Air Ops UI

Air Ops - USS Ranger				
Aircraft (click for info)		Status	Mission	Loadout
12x E-14A Tomcat 12x A-6E Intruder 12x A-6E Intruder				
VA-145 Swordmen, NE-500		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-501		Parked on flight deck	Surface Strike (Maritime Strike)	AGM-84D Harpoon IC, Long-Range
VA-145 Swordmen, NE-502		Parked on flight deck	Surface Strike (Maritime Strike)	AGM-84D Harpoon IC, Long-Range
VA-145 Swordmen, NE-503		Parked on flight deck	Surface Strike (Maritime Strike)	AGM-84D Harpoon IC, Long-Range
VA-145 Swordmen, NE-504		Parked on flight deck	Surface Strike (Maritime Strike)	AGM-84D Harpoon IC, Long-Range
VA-145 Swordmen, NE-505		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-506		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-507		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-510		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-511		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-512		Parked in hangar	-	(Maintenance [Unavailable])
VA-145 Swordmen, NE-513		Parked in hangar	-	(Maintenance [Unavailable])
8x S-3A Viking 2x E-2C Hawkeye Basic 4x SH-3H Sea King				
HS-14 Chargers, NE-610		Parked on flight deck	-	Maritime Surveillance
HS-14 Chargers, NE-613		Parked in hangar	-	(Maintenance [Unavailable])
HS-14 Chargers, NE-614		Parked in hangar	-	(Maintenance [Unavailable])
Loadout Details: AGM-84D Harpoon IC, Long-Range				
Stores (click for info)		# Available Magazines	# Available Mags + A/C	Loadout Role: Standoff Strike, Naval
2x AGM-84D Harpoon IC		0	12	Capabilities: Day and night, All-weather capable
3x 300 USG Drop Tank		-	-	Range and Profile: 1000 nm Strike radius, H-Lo-H profile, Cruise at 39k ft, 50nm (25nm+25nm) dash on target at SL and MI. Weapon release at max range. Form up 10 min at 2k ft, 5% reserves and 20
				Attack Altitude: 200 ft typical
				Loadouts available in magazines: 0
				Loadouts available, incl. weapons mounted on all aircraft: 6
				Loadouts available, same as above excl. optional weapons: 6
Launch individually Launch as group(s) → Ready / Arm Abort Launch Set time to ready Rename Remove				

An "Abort Launch" button has been added to the Air Ops menu. When clicked, any of the selected aircraft which is preparing to launch will abort the sequence and attempt to return to an available parking facility.

Air Ops Mechanics & AI

- Only aircraft that are in a parking facility can be armed. This solves the problem of airbase traffic jams due to aircraft being readied while they are parked on transit points, e.g. elevators.
- When an aircraft being re-equipped (at its base) ends up in Winchester status because one or more of the loadout's primary stores are missing, the outfitting is cancelled and the aircraft reverts to Reserve (clean) loadout. If this is happening interactively (ie. the player has manually ordered this re-equipment) then a notification pop-sup for this; otherwise the action is performed silently.
- Tweaked the non-bingo RTB behavior for aircraft so that they return to base at full rather than cruise throttle.
- Significant tweaks to "air boss" AI:
 - a) When an aircraft is about to occupy a transit facility (e.g. elevator on ship) in order to get to the runway and take off, a check is first made if another aircraft is in the post-touchdown sequence. If that's the case, and if only one transit facility is available, the outgoing aircraft is held to wait so that the incoming one uses the transit facility to clear the runway. (This was added to rectify the problem of "the air boss is sending back to the hangar one or two aircraft from an entire outgoing group [in order to make the transit facility available to the ones that just landed] and therefore breaks group cohesion". So now an outgoing group may take longer to get out, but it get out whole.)
 - b) Likewise, the air boss sends back aircraft to hangars more selectively (much more rarely).

Hotkeys

Basic

F12	Start / Resume / Pause Game
+ (plus)	Increase Time Compression
- (minus)	Decrease Time Compression
Enter	Normal (1:1) Time Compression
Ctrl + S	Save Scenario
Ctrl + Q	Toggle no-pulse game mode

Tactical Map

Mouse Right-Click	Center map on clicked point
Up Arrow / Num 8	Pan Map Up
Right Arrow / Num 6	Pan Map Right
Left Arrow / Num 4	Pan Map Left
Down Arrow / Num 2	Pan Map Down
Z , Mouse Scroll	Zoom In
X , Mouse Scroll	Zoom Out
V , PgUp, Num 9	Switch Group / Unit View
Space	Select Next Unit
Backspace	Select Previous Unit
T	Track Selected Unit
Ctrl + Ins	Add Reference Point
Ctrl + R	Rename Reference Point
Ctrl + Del	Delete Reference Point
Ctrl + D	Range / Bearing Tool
End, Num 1	Toggle Illumination Vectors
Home, Num 7	Toggle Targeting Vectors
*(star)	Toggle Datablocks

Scenario Editor

Ctrl + V	God's Eye view (See All)
Ins	Add Unit
C	Copy Unit
M	Move Unit
R	Rename Unit
Del	Delete Unit
Alt + S	Toggle Sides (switch sides)

Function Keys

F1	Engage Target(s) (Auto) / Re-Target Weapon
Shift + F1	Engage Target(s) (Manual)
Ctrl + F1	Bearing-Only Launch (BOL)
F2	Throttle - Altitude/Depth
F3	Plot Course
F4	Formation Editor
F5	Magazines
F6	Air Operations
F7	Boat Docking Operations
F8	Mounts - Weapons
F9	Sensors
Ctrl + F9	Unit / Group Doctrine + EMCON
F10	Damage + Systems Status
F11	Mission Editor
Ctrl + F11	Create New Mission
F12	Start / Resume / Pause Game

Own Units

A	Toggle Hold Fire (no AI attacks) for selected unit(s)
Ctrl + A	Toggle Hold Fire (no AI attacks) for all units
I	Toggle Ignore Plotted Course When Attacking for selected unit(s)
Ctrl + I	Toggle Ignore Plotted Course When Attacking for all units
E	Drop Target(s)
Ctrl + E	Disengage (Drop all targets)
L	Hold Position for selected unit(s)
Ctrl + L	Hold Position for all units
[	Drop Passive Sonobuoy, Shallow - Over Layer
Shift + [	Drop Passive Sonobuoy, Deep - Under Layer
]	Drop Active Sonobuoy, Shallow - Over Layer
Shift +]	Drop Active Sonobuoy, Deep - Under Layer
Shift + D	Deploy Dipping Sonar
O	Display current side's Order Of Battle (OoB)

Contacts

P, PgDn, Num 3	Drop Contact(s)
H	Mark Hostile
N	Mark Neutral
F	Mark Friendly
R	Rename

Expert's Tricks and Tips

Create new Waypoint -- Press and hold Ctrl key, select and drag existing waypoint.
 Create new Reference Point -- Press and hold Ctrl key, select and drag existing reference point.
 End 'Plot Course' mode -- Double-click last waypoint.