



# INTRUDERS

## Vietnam Air War

Beginning with recon missions in 1962, America's involvement in the Vietnam conflict expanded quickly. After the Gulf of Tonkin incident, the President authorized air strikes against North Vietnamese naval bases.

By 1965 U.S. aircraft were flying ground support and interdiction missions. Rolling Thunder, which was proposed to be a massive operation that would end the conflict quickly, instead ended up as a series of half-hearted measures that would go on for three years.

The first air to air combat was between F-105 Thuds and Mig-17s. These two aircraft would have almost a one to one kill ratio over the Thud's involvement in the Vietnam conflict. As the conflict grew, F-4C/Ds and F-8s became more heavily engaged, with the F-8 achieving the best kill ratio of any U.S. fighter during the war.

During the first few years fighter-bombers made most of the deep strikes into enemy territory. North Vietnam responded by building one of the most dense and formidable air

defense systems seen in modern warfare. As Rolling thunder came to an end in 1968, there was a lull which led to the second phase of U.S. involvement.

By 1969 and 1970 new aircraft began to appear.

The A-6 Intruder, A-7 Corsair and the F-4E/J began to make their presence felt. In huge operations such as Linebacker and Linebacker II, the intensive air campaign brought the North Vietnamese to the negotiating table.

By 1973 the U.S. forces had left South Vietnam and in 1975 the NVA finally overran the country, ending the war.

The Vietnam air war produced several weapons and concepts that changed the face of modern air combat. Laser guided bombs, cluster bombs, air to air missiles, ECM, Decoy Dispenser Systems (DDS), and terrain following radar all made their initial appearances. The war also saw the use of surface to air missiles, Wild Weasels, Anti-Radiation Missiles (ARMs), and electronic

jamming as the defenses and suppression aircraft played a deadly game of cat and mouse. The U.S. also gained vital experience at conducting large air operations and in the area of weapons research.



In air combat the U.S. had several aces, most notably Cunningham and Driscoll in their F-4J and Steve Ritchie, who got all of his with Sparrows. The North Vietnamese had several aces, including a few pilots who became aces while flying Mig-17s.

The conflict was also notable in that it resulted in the creation of the Navy's Top Gun program which improved the kill ratio from a little over 1:1 to 10:1. This would set the stage for the U.S. becoming the leader in future air to air combat.

### Inside this supplement

Anti-Aircraft/SAMs	2
Air to Ground	5
Aircraft Weapon Load Outs/ECM	12
Air to Ground Mission Generator	10
Wild Weasels/Vietnam Specific Rules	13
Solitaire Rules	14
Examples of Play	15

### Intruders Features:

- Extensive anti-aircraft and SAM rules
- A wide variety of air to ground weapons
- A mission generator to create Phantoms scenarios for air to ground operations.
- A solitaire system to resolve air to air or air to ground missions.

# Anti-Aircraft/Surface to Air Missiles

North Vietnam had a massive air defense system and the area around Hanoi was one of the most dense anti-air environments in modern warfare.



The proceeding rules are designed to portray anti-aircraft fire for Phantoms during the Vietnam era.

- Unless supported by a radar unit, the anti-aircraft unit must have successfully spotted an aircraft to success-

- fully engage it with the listed flak value. If the aircraft is not spotted the flak unit may use Barrage Fire (trying to fill the sky with lead) at a -2 modifier.
- AA units with a supporting radar can attempt to achieve a radar lock on to an enemy aircraft. Successful lock-ons get the +2 firing modifier.
  - Light and Medium weapons can fire every impulse, but heavy weapons can only fire every other impulse.
  - An enemy aircraft can be fired at in each impulse that it MOVES. This will prevent those odd situations where an aircraft sits over an AAA unit for several impulses without moving.
  - Heavy AAA affects ALL aircraft in the target hex.. Conduct a separate attack on each aircraft in the target hex.
  - Aircraft flying at Level 0 can only be targeted by AAA out to 1 hex. Aircraft flying at level 1 can only be targeted out to 2 hexes.

## AAA Firing Procedure:

Add the flak value plus or minus any modifiers, then add it to a die roll. The aircraft that is fired upon rolls a die and adds that number to its defense value. The results are then applied exactly like the air to air gunnery system in Mustangs/Phantoms. Resolve the damage the same way as in the regular Phantoms rules.

AAA Weapon	Flak Value	Max Range	Altitude ranges	Optimal Altitude	Comments
Small Arms	1	Same Hex	0-1	0	Light
ZPU-1 14.5mm	2	1	0-2	1	Light
ZPU-4 14.5mm	3	1	0-2	1	Light
ZU-23 23mm	5	2	0-3	1	Light
M-38 37mm	5	2	0-3	2	Medium
S-60 57mm	4	3	1-4	2	Medium
KS-12 85mm	4	4	2-5	3	Heavy
KS-19 100mm	4	4	2-5	4	Heavy

## AAA Firing Modifiers

Radar Directed AAA Fire	+2	Firing directly at the front or rear of the aircraft	+1
Barrage Fire (non-spotted aircraft)	-2	Flak unit is damaged	-2
Each altitude level above or under optimal	-2	Aircraft at level 1 or 2 performing turns or sideslip (Jinking-Evasive maneuvers)	-1



# Anti-Aircraft/Surface to Air Missiles (cont.)

**DAMAGE TABLE**

<b>Weapon</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>Small Arms</b>	1	1	1	2	2	2	2	3	3	4
<b>ZPU-1</b>	2	2	2	3	3	3	3	4	4	5
<b>ZPU-4</b>	2	2	3	3	3	4	4	4	5	6
<b>ZU-23</b>	2	3	3	3	4	4	5	5	6	7
<b>M-38</b>	3	3	3	4	4	5	5	6	6	7
<b>S-60</b>	3	3	4	4	5	5	6	6	7	8
<b>KS-12</b>	4	4	4	5	5	6	6	6	7	8
<b>KS-19</b>	4	4	5	5	6	6	7	7	8	9

## Surface to Air Missiles

Surface to air missiles are handled the same way as regular air to air missile attacks in Phantoms. For the Vietnam War, there were only two SAMs involved and their stats are listed below. The following rules are for using SAMs in the Vietnam era for Phantoms.

1. Each SA-2 battery consists of 4-6 missiles and a radar unit. The radar unit must have a lock on to an enemy aircraft to fire. The battery can fire up to two SA-2s at an enemy aircraft.
2. Each SAM radar gets two attempts per impulse to lock on to an enemy aircraft.
3. If the radar unit gets knocked out, the SA-2 battery cannot fire.

4. A SA-7 must have a visual lock on to fire a missile. Treat this as a normal spotting attempt. +4 if the target aircraft used after burners this impulse (HS only)
5. The SAM radar unit has a 60 degree radar cone that extends to two hexes after the first hex, three after two hexes, etc.... The radar cone may change it's facing each impulse. -3 Firing from target's front aspect.  
-2 Firing from target's side aspect.
- Defender Adds:**  
IR/Radar Countermeasures value  
Aircraft is at Level 0
- SAM Radar Lock On Modifiers**  
SAM Radar =5 +3 If the aircraft just completed or is in the process of completing a tight turn or loop.
- Target at altitude 0 -4
- Target  $\geq$  5 hexes away +2 +? Pilot ability (Green or Inexp. 0, Avg. 1, Exper. 2, Ace 3)
- SAM To Hit Modifiers**  
Attacker Adds: +3 Aircraft successfully completed Break Contact and is fired on by a missile.
- +? Missile's Attack rating

Missile	Type	Altitude Range	Max Range	Attack Factor	Launch Roll	Comments
SA-2	RA	1-6	32	2	7	Large missile/ Inflicts 2 critical hits
SA-7	HS	0-2	2	2	7	

# Air to Ground Combat

Ground targets may be attacked by a variety of air to ground weapons. Aircraft may conduct different types of attacks, depending upon the weapon and flight profile. There are several types of air to ground attack profiles:

## 1. Low Level

Aircraft must be flying at Level 0 or 1 to conduct a Low Level attack. This profile has the advantage of not being in AAA/SAM fields of fire for a long time and is very accurate with high drag weapons. Aircraft flying at Level 0 or 1 should use high drag weapons and these are noted on the weapons chart. If an aircraft does not use high drag weapons, then roll a D10. On a 8,9, or 10 the aircraft is caught by the blast and suffers 1D6 worth of damage points.

## 2. Stand Off

This is used for laser guided bombs, air to surface missiles, and rocket attacks. They can be conducted from altitude levels 1-7. Rocket pods may be fired from 1 to 3 hexes from the target up to an altitude of Level 2. Laser guided and glide bombs cannot be dropped at any altitude lower than Level 3. Laser guided bombs can also only be dropped by or with the aid of an aircraft in the flight element who has a laser designator pod. Air to surface missiles may be fired from any altitude level.

## 3. Dive Bombing

Aircraft release their weapons while diving towards the target. The aircraft must have dived in the impulse that the weapons are released. This tactic does help with accuracy and increases your speed to egress from the defended areas.

## 4. Toss Bombing

This tactic is used to literally “toss” your weapons towards the target. Not very accurate, but helps to avoid heavily defended targets.

For a vertical toss the aircraft must have climbed or completed a loop on the impulse the weapons are released. The higher the altitude level, the further the weapons can be tossed. If the final altitude level is 1, then the weapons are tossed 1 hex out from the target. If from

Level 2 or 3, then 2 hexes out. From Level 4 or 5 the weapons may be tossed from 3 hexes out. No toss bombing is allowed from higher than Level 5.

Lateral toss bombing is similar to vertical toss bombing, but there is no altitude change involved. The aircraft must have completed a Hard/Tight turn maneuver in the hex where the weapons will be released. From Level 1 the weapons can be laterally tossed 1 hex from the target and from Level 2 or 3 up to two hexes away from the target.

## 5. Level Bombing

This is the normal method to release an aircraft's weapons, particularly dumb bombs. However, the higher up the aircraft is, the less accurate the weapons released will be. Aircraft must have completed a Straight maneuver on the impulse that they release weapons.

By reviewing the weapons and air to ground combat modifiers, you can see which weapons work best with different flight profiles.



## Release Point/Weapon Movement

Bombs that are dropped do not automatically reach the target in the same impulse that they were dropped in. The exception to this is rockets, which when fired are resolved in that impulse. Aircraft must drop their weapons at a **Release Point** depending upon their current altitude level. Once the weapons are dropped, they will continue to move towards the target one hex every time the aircraft moves in an impulse. This means that you may have a situation where an aircraft is shot down, but it's weapons still move towards the target and cause damage.

<u>Altitude Level</u>	<u>Release Point</u>
0-2	1 Hex From Target
3-5	2 Hexes From Target
6-7	3 Hexes From Target

Each level diving towards the target drops the release point by one hex.

Released weapons cannot be shot down by AAA or SAM fire. When the weapons reach the target hex the attack is resolved.

## Weapons Release

For reasons of simplicity, most weapons should be released in groups, although single weapons can be released by a player's aircraft. You will need to do some research as to how the weapons were carried by each aircraft. An F-4E for example, could have well over 20 different configurations. Factors such as triple ejector racks, multiple ejector racks, etc...., can influence how weapons are deployed in combat. Rocket pods are always assumed to have expended the entire pod.



## Bombsights/Targeting

Depending upon the type of bombsight available for a particular aircraft, the attacking aircraft needs to fly straight towards the release point a number of hexes before releasing weapons. Each altitude level dived can also count towards the requirement. If the minimum number is not met, then there is a negative modifier applied to the bombing to hit die roll.

Manual	3 Hexes
Advanced	2 Hexes
Computer	1 Hex

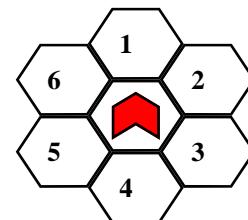
# Air to Ground Combat (cont.)

**Standard Bombing Table**

Altitude	Direct Hit	On Target	Near Miss	Scatter
0	$\geq 10$	6-9	3-5	$\leq 2$
1	$\geq 10$	5-9	3-4	$\leq 2$
2	$\geq 11$	7-10	3-6	$\leq 2$
3	$\geq 11$	8-10	4-7	$\leq 3$
4	$\geq 12$	9-11	4-8	$\leq 3$
5	$\geq 13$	10-12	5-9	$\leq 4$
6,7	$\geq 13$	10-12	6-9	$\leq 5$

## Air to Ground Combat Modifiers/Notes

Aircrew		Toss Bombing		Air to Ground Combat Notes	
Ace/Exper. Crew	+1	Toss 1 Hex	-2	1.	If the bombing roll ends up as a Scatter result, roll to see which adjacent hex the weapons land in.
Average Crew	+0	Toss 2 Hexes	-3		
Inexp/ Green Crew	-2	Toss 3 Hexes	-4		
Pilot wounded	-1	Low Level Bombing			
Weapons Officer wounded (Two Seat Aircraft)	-1	Aircraft at Level 0 or 1 and using high-drag weapons	+1		
Bombsights		Weapons			
Manual Bombsight	+0	Laser guided/TV Bomb	+4		
Advanced Bombsight	+1	Rocket pods/1 Hex range	+0		
Computer Bombsight	+2	Rocket pods/2 Hex range	-1	2.	The Walleye TV bomb can only be dropped from altitude Level 4 or higher and has a range of 5 hexes.
Aiming Requirements Not Met	-3	Rocket pods/3 Hex range	-2		
<b>Aircraft</b>		Napalm dropped from Level 2 or higher	-2		
Aircraft Damaged	-1	Strafing			
Each Critical Hit	-2	Aircraft can strafe from Level 0 or 1, but not in the target hex. Conduct a normal air to air gun attack using a defense rating of 3 for soft targets and 6 for hard targets.			
<b>Dive Bombing</b>					
Dive 1-2 Levels	+1				
Dive 3-4 Levels	+2				



## Air to Ground Combat (cont.)

Weapon	Type	Weight	Load Points	AS Hard	As Soft	Hi-Drag?	Points Value
M117	HE	750	1.5	4	8	Y	8
M118	HE	3000	4	14	20	N	30
Mk81	HE	250	0.5	2	4	Y	2
Mk82	HE	500	1	3	6	Y	5
Mk83	HE	1000	2	6	10	Y	10
Mk84	HE	2000	3	8	15	N	20
BLU-10	Napalm	250	0.5	1	3	Y	10
BLU-11	Napalm	500	1	2	5	Y	15
CBU-20	AT Cluster	500	1	6	3	Y	10
CBU-41	Napalm	850	1.5	3	6	Y	20
CBU-58	AP Cluster	800	1.5	1	12	N	25
CBU-59	Mixed Cluster	750	1.5	5	8	Y	25
CBU-71	AP Cluster	800	1.5	1	12	Y	25
KMU-388	HE/MK.82 Laser Guided	550	1	4	6	N	30
KMU-342	HE/M117 Laser Guided	800	1.5	5	8	N	35
KMU-421	HE/MK83 Laser Guided	1050	2	7	10	N	40
KMU-351	HE/MK84 Laser Guided	2100	3	9	15	N	50
Walleye I	HE/TV	1200	2.5	10	10	N	50
LAU-68	Rocket pod	250	0.5	2	4	NA	2
LAU-33	Rocket Pod	300	1	2	4	NA	2
LAU-3A	Rocket Pod	450	1	4	6	NA	5
LAU-10	Rocket Pod	550	1	6	8	NA	10
LAU-37	Rocket Pod	850	1.5	10	10	NA	20

## Air to Ground Combat (cont.)

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Ground Target	Defense Value	Hard/Soft	Comments
Tank	4	Hard	3-5 Average tanks/APCs
Non-Armored vehicle	2	Soft	4-6 Trucks, cars, jeeps
Gun/AAA in open	3	Soft	Guns not in positions
Gun/AAA/SAM fortified	4	Hard	SAM sites, sandbagged positions
Infantry Platoon	4(6 if entrenched)	Soft	30-40 infantry
Small Building	5	Hard	Average house
Large Building	8	Hard	Factory/Warehouse
Bridge	9	Hard	Normal bridge
Large Bridge	15	Hard	Rail Bridge/Large Bridge
Airplane	Aircraft's Defense Value -1	Soft	Parked aircraft
Barge, junk, river boat	3	Hard	Common river boat

## Air to Ground Combat Procedure

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**1**

Modify the Attack Value of the weapon by the number of weapons dropped or rocket salvos fired at the target.

$$\mathbf{2 \text{ Bombs} = (AV) \times 1.5} \quad \mathbf{3-4 \text{ Bombs} = (AV) \times 2} \quad \mathbf{\geq 5 \text{ Bombs} = (AV) \times 3}$$

**2**

Roll on the Bombing Table. Add or subtract any modifiers from the list below the table.

**3**

After determining the Attack Value, then rolling on the Bombing Table, the Attack Value is modified according to the bombing accuracy.

$$\mathbf{Direct \ Hit = (AV) \times 2} \quad \mathbf{On \ Target = (AV) \times 1} \quad \mathbf{Near \ Miss = (AV) \times 0.75} \quad \mathbf{Scatter = (AV) \times 0.5}$$

**4**

Check for target damage. If the target was previously damaged, then modify the Defense value by the following: **Light Damage = Defense Value x 0.8**    **Heavy Damage = Defense Value x 0.5**

Result	Target Damage	Comments
Attack total < Defense total	No Damage	No Effect
Attack total > Defense total	Light Damage	Target is still usable
Attack total > 2 x Defense total	Heavy Damage	Target is not destroyed, but may not be used.
Attack total > 3 x Defense total	Target Destroyed	Target is knocked out

# Air to Ground Mission Generator

The Air to Ground Mission Generator will let gamers randomly create scenarios with missions, victory objectives, choice of aircraft, defenses, etc.... Simply choose a defense level suited to the number of players in your group. Then roll to see what the mission is and the number of points that are available to purchase aircraft and weapons. The defenders will also purchase anti-aircraft defenses and interceptors. This will let small groups run several aircraft in a strict air to ground role or if a larger group, multiple packages of air to ground aircraft with escorts. Very large groups can fly AAA/ SAM suppression missions, then air strikes with escorts. These would be massive games involving 12-20 aircraft on the U.S. side alone.

- 1** Decide upon a threat level according to the number of players.
  - 2** Roll on the Mission Table. This will help both sides determine what type of aircraft, weapons, and defenses they will need.
  - 3** Both sides purchase aircraft, defenses, and weapons with their points allowed for the mission.
  - 4** The North Vietnamese player (s) roll to see what percentage of the defenses are known by the attacker, then deploy them on the board. The remaining defenses are hidden.
  - 5** The U.S. player (s) choose their ingress and egress routes.
  - 6** Play begins.

## Point Values

## AIRCRAFT

The points cost format is expressed in three numbers for U.S. aircraft. The first number is the actual points cost for selecting the aircraft. The second number is the amount of air to air weapons load points. The third number is the amount of air to ground weapons load points the aircraft can carry in addition to air to air weapons.

A-4 Skyhawk	80/0/12
A-6 Intruder	150/0/30
A-7 Corsair	120/2/24
A-1 Skyraider	70/0/13
F-100 Super Sabre	90/2/12
F-101 Voodoo	90/2/2
F-104 Starfighter	90/4/8
F-4B/C/D Phantom	200/8/20
F-4E/J Phantom	225/8/20
F-8 Crusader	120/2/0
F-105 Thud	140/2/18
F-105 Wild Weasel	200/0/18
B-52 Stratofortress	350/0/106
B-57 Canberra	225/0/20



DEFENSES

Mig-17	50
Mig-19	65
Mig-21	100
SA-2	15
SA-7 (w/ 1 reload)	5
SAM Radar Unit	50

## WEAPONS

Use the point values on the air to ground weapons chart. The North Vietnamese aircraft get their air to air missiles for free, while the U.S. side must pay for theirs. This helps to reflect that many of the fighters did not go out with full air to air loads.

Use the point values on the air to ground weapons chart. The North Vietnamese aircraft get their air to air missiles for free, while the U.S. side must pay for theirs. This helps to reflect that many of the fighters did not go out with full air to air loads.	AAA Radar Unit	15	
	ZPU-1	5	
	ZPU-4	8	
	ZU-23	10	
AIM-9B	5	M-38	10
AIM-7F	5	S-60	15
Air to air missiles must be bought in pairs.	KS-12	20	
	KS-19	25	

# Mission Table

**Threat Level**  
?? Attacker/Defender point totals

Die Roll	Mission	Low	Medium	High	Set Up Notes	Objective
1	Recon	650/250	1000/500	1500/800	1	Recon aircraft must fly over target hex.
2	Ground Support	700/300	1100/600	1700/850	2	Destroy enemy ground forces.
3	SAM Suppression	650/250	1000/400	1500/750	3	Knock out SAM sites.
4	Ho Chin Minh Trail	700/300	1100/600	1800/900	4	Destroy enemy forces/supplies
5	Railroad Busting	650/300	1000/500	1500/750	5	Destroy the railroad/train
6	River Crossing	700/350	1100/550	1700/800	6	Prevent enemy forces from crossing a major river.
7	Ground Support	750/350	1150/600	1700/850	7	Destroy enemy ground forces.
8	SAR	600/250	1000/500	1500/700	8	Rescue a downed aircrew
9	Supply Interdiction	700/300	1200/600	1800/900	9	Air strike on a port, road hub, or convoy
0	Bridge Destruction	800/450	1250/700	2000/1000	0	Attack on a major bridge

Low Threat Level scenarios are good for 1-2 players flying the attackers and 1-2 players playing the ground defenses, although a one on one situation would be best. Medium Threat Level scenarios are good for 2-3 players flying aircraft and at least two players as the NVA defenders. The attackers will get anywhere between 4-6 aircraft while the defenders will have at least one SA-2 site with six SAMs and numerous AAA sites all over the board, or they can opt for a mix of AAA and aircraft. High Threat Level scenarios are designed for 3-4 players flying the attacking aircraft and 3-4 players as the defenders. The attackers will usually get 6-8 aircraft and the defenders can have a wide variety of AAA, SAMs, and aircraft.

**Limits:** To prevent non-historical situations such as the defenders purchasing 100 ZU-23s, no more than **10** of any one kind of AAA weapon may be purchased by the defenders.

**Known Defenses:** Before the game begins, the NVA player (s) rolls a D10 to determine the percentage of the defenses that are known to the U.S. player (s). These are placed on the board before the U.S. side plans it's mission. The remainder are hidden until they either fire, are spotted, or try for a radar lock.

**Die Roll:**      **1,2,3** 50%      **4,5** 60%      **6,7** 75%      **8,9** 80%      **0** 90%

# Mission Generator Set Up Notes

**General Mission Notes:** Because of the large size of the game mats, the North Vietnamese (Defenders) should place the objectives near the center of the board. The U.S. player (s) then informs the North Vietnamese player (s) which 3 sides they might enter from. This simulates the fuel restrictions on U.S. aircraft and not being able to fly completely around the defenses. The North Vietnamese player (s) then roll a D10 to see what percentage of the defenses (AAA or SAM) are known and deployed on the board. SA-2 batteries are placed in a circle with the missiles facing out. All of the batteries missiles and radars must be in the same hex.. Migs are deployed by a D10 roll; **1,2** Deployed on board-any height, speed and facing      **3,4** On board, over the scenario objective-any height, speed, and facing.      **5,6** Roll 1D6 for altitude, 1D6 +1 for speed, and 1D6 for facing, then roll 1D10 for number of hexes from the objective.      **7,8,9,10** Designate an airfield on the board at least 15 hexes from any objectives. Migs start speed 2, altitude 0.

## Mission # 1: Recon

**NVA Set Up:** Choose three objectives (bridge, port, supply facility, factory, etc..) not closer than three hexes to each other. Deploy defenses normally.

**U.S. Set Up:** Purchase escort for the recon aircraft. Determine by die roll which objective the recon aircraft will fly over.

**Special:** The U.S. side gets one free recon aircraft (choose F-100, F-105, etc...) that is unarmed.

**Victory Conditions:** The recon aircraft must fly over the objective at altitude Level 3 or lower, then exit the board. If the recon aircraft is unable to accomplish it's mission the U.S. side loses.

## Mission # 2: Ground Support

**NVA Set Up:** Roll 1D10 for armor units, 1D10 for infantry, 1D10 for trucks, then position them in 1D6+1 adjacent hexes. For larger group scenarios, multiply the numbers rolled by 2. AAA defenses may be positioned near the ground force, but not forward of their positions (the front line). SA-2s cannot be purchased for this scenario.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** none

**Victory Conditions:** The U.S. side must heavily damage or destroy at least 50% of the NVA ground force.

## Mission # 3: SAM Suppression

**NVA Set Up:** A radar unit and 6 SA-2 missiles must be purchased and deployed.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** none

**Victory Conditions:** Either the SAM radar unit or three SA-2 missiles need to be destroyed or heavily damaged for a victory.

## Mission # 4: Ho Chi Minh Trail

**NVA Set Up:** Roll 1D10 for armor units, 1D10 for artillery units, 1D10 for infantry units, and 1D10 for trucks. For large group scenarios, multiply the numbers rolled by 2. Designate a three hex wide strip that runs across the center of the board as the trail. All ground forces and AAA defenses must be set up in that three hex wide strip.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes and if they are unable to spot the enemy ground forces they must take a -2 on their bombing attack.

**Special:** none

**Victory Conditions:** The U.S. side must heavily damage or destroy at least 50% of the NVA ground forces.

## Mission # 5: Railroad Busting

**NVA Set Up:** Designate a row of hexes that are the railroad tracks. Using counters or miniatures place a train near the middle of the board. Defenses can now be purchased and deployed.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** The train moves at speed 2 and has a defense value of 4. The tracks have a defense value of 5 with a -1 to hit modifier (hard to target).

**Victory Conditions:** The US side achieves a marginal victory by destroying at least two railroad hexes in front of the advancing train. A total victory is achieved if the train is destroyed.

# Mission Generator Notes (cont.)

## Mission # 6: River Crossing

**NVA Set Up:** Place 4 pontoon bridges in adjacent hexes along a river. Roll 1D10 of armor units, 1D10 of infantry units, 1D10 of trucks, and 1D10 of artillery units. Place the ground forces in any of the hexes where the pontoon bridges are deployed with all on one side of the river. No SA-2s may be purchased for this scenario.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** On turns 2, 5, and 8 one ground unit may cross to the other side of the river on each pontoon bridge.

**Victory Conditions:** The U.S. side achieves a tactical victory by destroying at least 3 of the bridges. A total victory is if all 4 bridges are destroyed.

## Mission # 7: Ground Support

**NVA Set Up:** Roll 1D10 for armor units, 1D10 for infantry, 1D10 for trucks, then position them in 1D6+1 adjacent hexes. For larger group scenarios, multiply the numbers rolled by 2. AAA defenses may be positioned near the ground force, but not forward of their positions (the front line). SA-2s cannot be purchased for this scenario.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** none

**Victory Conditions:** The U.S. side must heavily damage or destroy at least 50% of the NVA ground force.

## Mission # 8: SAR

**NVA Set Up:** Set the defenses as per the normal set up. After the U.S. player puts down a counter to represent the downed air crew, the NVA sets up 5 infantry units within 3 hexes of the air crew.

**U.S. Set Up:** 1/2 of the U.S. aircraft are deployed on board at any altitude and facing, within 10 hexes of the downed air crew. The remaining 1/2 appear as normal. The rescue chopper is 12 hexes away and moves at speed 3. If it is shot down or damaged another rescue chopper appears at a board edge. On turns 2, 5, and 8 the NVA infantry may move one hex. If they reach the hex where the downed air crew are then they roll a D10 each turn. On a 6 or less the air crew is captured and the game is over.

**Special:** On turns 2, 5, and 8 one ground unit may cross to the other side of the river on each pontoon bridge.

**Victory Conditions:** The U.S. side achieves a victory by rescuing the downed air crew.

## Mission # 9: Supply Interdiction

**NVA Set Up:** Select five objectives (factory, port facility, railroad yard, motor pool, etc....) and deploy them on the board. Each objective must be within 2 hexes of another objective. Then deploy your defenses as normal.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** none

**Victory Conditions:** The U.S. side must heavily damage or destroy at least 2 objectives for a tactical victory. If more than 2 are destroyed it is a major victory.

## Mission # 10: Bridge Destruction

**NVA Set Up:** Place a railroad or major bridge on a river hex. Defenses can then be deployed as normal.

**U.S. Set Up:** U.S. aircraft enter as described in the general mission notes.

**Special:** none

**Victory Conditions:** The U.S. side must heavily damage or destroy the bridge.

# U.S. Aircraft Weapon Load-Outs/Bombsights

These are typical weapon load outs for U.S. aircraft during the Vietnam War. While there could be hundreds of variations, these examples are the most common. There is also a point value given to make it easier to use with the Mission Generator. On most missions the U.S. aircraft needed to carry fuel tanks, so the full load capabilities were rarely used.

<b>F-4E / J MIGCAP</b>	265 points
(4) AIM-7F, (4) AIM-9B	
<b>F-4E/J Ground Support</b>	285 points
(2) Aim-7F, (4) AIM-9B, (6) Mk82	
<b>F-4E/J Bridge Busting</b>	360 points
(2) Walleye I, (2) Aim-7F, (1) laser designator pod	
<b>F-100 Ground Support</b>	140 points
(2) Aim-9B, (4) Mk. 82, (2) Mk. 83	
<b>A-6 Deep Strike</b>	270 points
(12) Mk. 83	
<b>A-6 Deep Strike</b>	375 points
(9) CBU-71	
<b>B-52 Arclight</b>	880 points
(106)Mk. 82	
<b>A-4 Ground Support</b>	114 points
(2) LAU-68, (6) Mk. 82	

<b>F-111 Interdiction</b>	575 points
(12) CBU-58	
<b>F-111 Deep Strike</b>	435 points
(24) Mk. 82, (4) Mk. 83	
<b>F-105 Ground Support</b>	198 points
(6) M117, (2) Lau-3	
<b>F-105 Bunker Buster</b>	210 points
(2) AIM-9B, (2) M118	
<b>F-105 Deep Strike</b>	180 points
(2) AIM-9B, (6) Mk. 82	
<b>A-37 Ground Support</b>	105 points
(2) LAU-3A, (4) Mk. 82, (1) BLU-11	
<b>A-1 Ground Support</b>	144 points
(2) LAU-68, (10) Mk. 82, (2) Mk. 83	
<b>A-1 Ground Support</b>	178 points
(4) CBU-58, (4) LAU-68	
<b>A-7 Ground Support</b>	200 points
(2) LAU-3A, (12) Mk. 82, (2) AIM-9	
<b>A-7 Deep Strike</b>	190 points
(6) Mk. 83, (2) AIM-9B	
<b>F-104 Ground Support</b>	120 points
(2) AIM-9B, (4) Mk. 82	

Players may need to do some research to find out how weapon loads were balanced when fuel tanks and ECM pods were added on.



## Aircraft Bombsights

A-1	Manual
A-4	Manual
A-6	Computer
A-7	Advanced
F-4	Advanced
F-8	Manual
F-100	Manual
F-101	Manual
F-104	Manual
F-105	Advanced
F-111	Computer
A-37	Manual
B-57	Advanced
B-52	Advanced

# Electronic Counter-Measures (ECM)

Electronic Counter-Measures (ECM) was in its infancy when the Vietnam War first began. By 1970, however, no less than 10 different ECM pods were available, along with various decoy systems. The Intruders gamers have two options for using ECM. The first is to use the generic ratings for particular years and the second is to use aircraft specific ratings.

**Generic Ratings**  
(vs. radar/ vs. heatseekers)

1966-1969	2/1
1969-1975	3/3

Aircraft Specific	
A-1	0/0
A-37	0/0
F-104	0/0
F-101	1/0
F-100	1/0
F-8 (1966-69)	1/0 (after '69) 3/0
A-7B	2/1
A-7E	3/2
A-6A	3/2
A-6E	4/3
A-4 (1966-69)	1/1 (after '69) 3/2
F-4 (1966-69)	1/0 (after '69) 3/2
F-105 (1966-'69)	1/0 (after '69) 2/1
F-105F/G	4/3
B-57B	0/0
B-57G	2/1
B-52D	3/1

B-52G 4/2

Players can also purchase extra ECM pods for 15 points each using the purchase system. For complexity reasons, the various kinds of pods have been classified into two items.

ECM pod	1/0
IR Jammer pod	0/1

Aircraft would generally only carry one pod, although Wild Weasels and Iron Hand aircraft would often carry two pods of each type.

# Wild Weasel/Iron Hand Operations

Wild Weasel and Iron Hand operations usually involved hunting down SAM and radar sites, as well as protecting strike packages. There are three aircraft that are allowed to fulfill this function in Intruders. These are the F-105F/G, A-6B/E, and the A-7E. These aircraft were usually fitted with extra electronic gear to detect radar signals, find enemy radar installations, and launch Anti-Radiation Missiles (ARMs).

The procedure to launch an ARM is as follows:

- 1) The aircraft attempts a radar lock on to all operating enemy radars. Treat this as a normal radar lock on attempt.
- 2) The aircraft needs to get a targeting fix on the enemy radar. Roll 1D10 and on a 6 or less the radar is able to be targeted. Add +1 to every im-

pulse the aircraft has a radar lock on to the target radar.

- 3) Perform a launch roll and the ARM is then moved at a speed of 5 hexes per impulse towards the target.
- 4) When the ARM reaches the target hex, roll 1D10 for the combat result.
  - 1,2,3 Direct Hit-Radar is destroyed
  - 4,5,6 Heavy Damage-Radar can only attempt one lock on per turn and control one SAM in flight. Add a -3 to all radar lock on attempts.
  - 7,8,9 Light Damage-Add -1 to all radar lock on attempts.
  - 0 No damage

AGM-78s add a -1 to the damage roll.

Each impulse that an ARM moves allows the target radar to possibly detect the

ARM launch and shut the radar down. After an ARM has moved in the movement phase, a targeted radar can attempt to detect the ARM and shut down. Roll 1D10 and on a 4 or less the radar detects the ARM and can shut down. If it shuts down it loses all radar locks and any SAMs that it is guiding are lost. The only modifier is a +1 if there has already been an ARM attack on any other radar.



Sample Weapons Load Out:

<b>F-105F/G</b>	400 points
(2) AGM-45, (6) CBU-59	
<b>A-6E</b>	290 points
(2) AGM-45, (1) ECM pod, (3) CBU-59	

## Vietnam Specific Rules/Optional Rules

### 1. Rules of Engagement

U.S. aircraft are not allowed to fire at enemy units that have not been spotted. This does include enemy units that have been locked up by radar.

### 2. Launch Rolls

Early air to air missiles were notorious for failing on launch. Whenever a missile is fired a D10 is rolled. After modifiers are applied, if the number is higher than the missile's launch number, the launch has failed and that missile is lost.

AIM-7F/AIM-9B	8
SA-2	8
SA-7	8
AA-2 Atoll	6

### Modifiers

Firing aircraft in tight turn or loop	+1
Firing aircraft at Level 2 or higher, firing at enemy at Level 0 or 1	+1
Heatseeker fired at enemy aircraft in sun arc	+1

### 3. Altitude 0/1 Flight

Aircraft flying at altitude Level 0 or 1 may not fly faster than speed 6.

### 4. Radar/Spotting

Both the U.S. and NVA had long range radar assets. When a scenario starts roll a D10 for each aircraft. If the result is  $\leq 8$ , then the aircraft has been picked up by long range radar and has the +3 modifier added for spotting purposes.

### 5. Emergency Maneuvers

When an aircraft has a missile fired at it, there is a chance the target aircraft can spot the missile and begin emergency maneuvering. The aircraft needs to roll as if for a spotting attempt, adding +3 (early missiles had a big flash and smoke trails). If the missile is spotted (this includes heatseekers which hit that turn), then the target aircraft can replace its current Maneuver Marker with a Tight Turn or Loop, which will give it the positive modifiers to defeat the missile.

# Solitaire Rules

## Solitaire Air to Ground Combat

For solitaire air to ground combat, choose a Low Threat environment from the Mission Generator table. Buy the defenses as normal, then deploy them in the following method.:

- 1) SAMs and radar units are deployed on the board by rolling 1D10 for the number of hexes from the objective (s) and 1D6 for direction.
- 2) Take the remaining AAA defenses and roll 1D10 for each of them. On a 9 or 10 they are set aside and used as "hidden" defenses.
- 3) Divide equally the remaining AAA units. For the first half, roll 1D6 for direction from the objective (s), then roll 1D10 for distance. Take the second half of the units and roll 1D6 for direction and 3D6 for distance. These are the known air defenses and this should give a pretty random, spread out deployment. It is up to you to then find an ingress and egress path to the objective (s).
- 4) Use the standard Mig deployment from the Mission Generator notes if you chose aircraft for the defenses.
- 5) Each time you move one of your strike aircraft towards the objective you need to check to see if any of the hidden AAA units reveal themselves. Check the three forward arc hexes by rolling 1D10. If a 0 is rolled, then randomly place an AAA unit in that hex.
- 6) AAA and SAM units will fire at any opportunity they have.
- 7) Conduct bombing attacks as normal.

## Air to Air Solitaire Combat

Simulating air to air combat for solitaire play is very difficult. This system should at least give you a reasonably good game and an active defense against your strike packages.

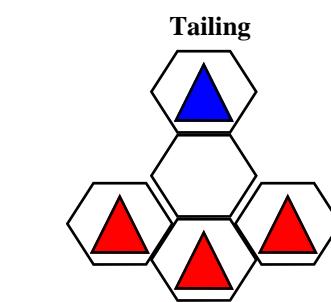
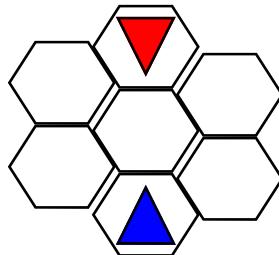
### Mandatory Guidelines

- 1) Enemy aircraft will always attempt to close with your aircraft. If they start more than 5 hexes away from you, move them at the fastest speed

possible and climb/dive to your aircraft's altitude level.

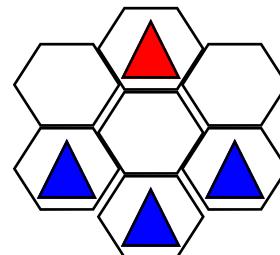
- 2) If they are head on or trailing your aircraft they will move directly towards your aircraft. If they are in a side arc they will move to intercept your aircraft.
- 3) Once the enemy force loses an aircraft and if they are outnumbered, there is a chance that they will break off. Roll 1D10 at the start of each turn and add +1 if they are outnumbered 2:1, +2 if 3:1, and +3 if 4:1 or greater. On an 8 or higher they break off. Choose a random table edge and move them at best possible speed towards it, diving to at least Level 2.
- 4) Enemy aircraft will always fire at any opportunity that presents itself.
- 5) Once the range closes to under 5 hexes roll on the following tables, depending upon their arc, each time a maneuver is finished.

### Head On



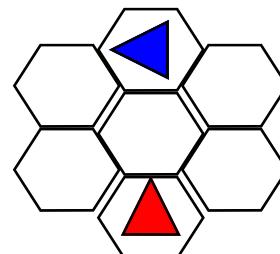
If an enemy aircraft is tailing any of your aircraft it will always maneuver for the best shot.

### Being Tailed



<b>Die Roll</b>	<b>Result</b>
1,2	Straight
3	Left Turn
4	Right Turn
5	Sideslip or Roll
6,7	1-5 left 6-10 right
8,9	Tight turn-left
0	Tight turn-right
	Loop

### Side Arc



<b>Die Roll</b>	<b>Result</b>
1,2,3	Straight
4,5	Left Turn
5,6	Right Turn
7	Sideslip or Roll
8	1-5 left 6-10 right
9	Tight turn-left
0	Tight turn-right
	Loop

You will need to make some decisions for the enemy aircraft at times, but they should always press for the advantage. If because of speed considerations, they cannot make hard or tight turns, then use normal turns.

<b>Die Roll</b>	<b>Result</b>
1,2,3,4	Straight
5	Left Turn
6	Right Turn
7,8	Sideslip or Roll
9,0	1-5 left 6-10 right Loop

# Examples of Play

1. **Anti-Aircraft Fire #1:** A U.S. aircraft is at altitude level 2 on a bombing run and has a defense value of 4.

A ZPU-4 with a radar unit is 1 hex away and decides to fire. The radar had successfully locked on to the aircraft last impulse. The ZPU-4 has

a Flak value of 3, radar directed modifier of +2, but since level 2 is 1 level above optimum there is a -2 modifier. The ZPU-4 rolls a 6 for a modified roll of 9. The aircraft rolls a modified 6 and is hit. Checking the ZPU-4 damage table shows 3 points of damage for being 3 over on the die roll. The aircraft takes three points of damage and a critical hit.

2. **Anti-Aircraft Fire #2:** A U.S. aircraft with a defense value of 4 is at altitude level 1 and is performing a sideslip/roll (evasive). A ZU-23 is firing directly at the front of the aircraft since it is heading towards the gun. The ZU-23 is not radar directed, but has spotted the aircraft, so now Barrage die roll modifier is applied. The ZU-23 rolls a 4, with +1 for firing directly at the aircraft, but it is doing evasive maneuvers, so the modified roll is still a 4. The aircraft rolls a modified 6 and the ZU-23 misses.

3. **Anti-Aircraft Fire #3:** A U.S. aircraft is flying at altitude level 4 with a defense value of 3. An S-60 two hexes away fires at it, without spotting the aircraft. The S-60 rolls a 2, modified by Barrage fire -2 and two levels above optimum -4, for a modified die roll of 2. The aircraft rolls a modified 8 and the S-60 misses.

4. **SAM Lock On/Firing:** A U.S. aircraft is 20 hexes away from a SAM radar unit. The radar unit has a value of 5, plus the +2 for being over 5 hexes away. The radar rolls a 6, giving a modified score of 13. The



U.S. aircraft rolls a modified 10, so the radar unit locks on to the aircraft. An SA-2 is fired and rolls a 4 on its

launch roll, so the launch is successful. It reaches the aircraft in a few impulses and an attack is conducted. The SA-2 has an attack rating of 2, firing from the side -2, and rolls a 9, giving a modified total of 9. The aircraft after adding on modifiers for an ECM

pod and evasive maneuvering (performing a hard turn) rolls a modified 8. The SA-2 inflicts 1 point of damage, but two critical hits which destroys the aircraft.

5. **Toss Bombing:** A target has three ZPU-1s defending it in the same hex. An A-7E at Altitude Level 1 approaches the target and zooms up to level 3, then releases two Mk. 82 bombs from two hexes out, which avoids fire from the ZPU-1s. The A-7 rolls a 5, modified by +1 for having an advanced bombsight and -3 for toss bombing two hexes away, giving a modified die roll of 3. From altitude 3 the result is a Scatter, so there is no effect on the target.

6. **Level Bombing:** An A-6E drops six Mk. 82 bombs on a small building from level 4. The A-6 rolls a 7, modified by +2 for having a computer bombsight, giving a roll of 9, which is an On target result. The Attack value is 9 (Attack value of a Mk. 82 x 3 for  $\geq 5$  weapons at the same target) x 1 for being On target, giving a final, modified Attack Value of 9. Checking the Damage table, 9 vs. a Defense Value of 5 equals Light Damage.

7. **Dive Bombing:** An A-4 drops to altitude level 2 from 4, and drops three Mk. 82 bombs at a tank. The A-4 rolls a 8, modified by +0 for Manual bombsight and +1 for diving two levels, giving a modified result of 9. At level 2, this results in an On Target result. 3 Mk. 82s are modified to an Attack value of 6 vs. hard targets. Tanks have a Defense value

of 4, so the tank suffers Light Damage.

8. **Low Level Attack:** A F-105 is at Level 1, dropping six Mk. 82 high drag bombs on a river barge. The F-105 rolls a 8, modified by +1 for Advanced bombsight and +1, giving a modified die roll of 10. A 10 at Level 1 is a Direct Hit. Six Mk. 82s are modified to 9, then x2 for a Direct Hit, giving a final Attack Value of 18. The barge has a defense strength of 3 and is sunk.

9. **Mission Generator:** A four player group rolls a D10 to create a mission for a game. Using the Medium threat environment, which is suitable for 4-6 players, a 5 is rolled which is a Railroad Busting mission. The NVA players decide to spend their points on a SAM radar unit, six SA-2s, 2 AAA radar units, 5 ZPU-4, 4 ZU-23, 2 M-38, 2 S-60, and 2 Mig-21s for 500 points. The U.S. players inform the NVA players that they will be entering anywhere from board edge 2,3, or 4. The NVA players roll a D10 and roll a 6, so 60% of the AAA must be put out on the board along with any SA-2 batteries. The remaining 40% are hidden and the positions are written



down by the NVA players. The Migs roll a 7 and start at an airfield on the board. The U.S. players then analyze what they will need to accomplish their mission. They decide to take two F-105s with full loads and two F-4s for escort with small loads. The NVA players set up the train and the U.S. players then choose a table edge, place their aircraft, and play begins.

# Designer Notes

What makes the Mustangs/Phantoms system work so well is it's playability. Most air to air combat simulations are complex by nature, namely due to the application of physics, thrust, aerodynamics, sensors, and a bewildering array of weapons. I tried to keep the concepts in Intruders at the same level of complexity as Phantoms. Here's a look at some of the main topics:

- 1) AAA Effectiveness: Yes, it is difficult to try to shoot down jet aircraft with AAA fire. Even with radar directed weapons it is difficult at best. The Argentines had numerous radar directed sites around Port Stanley and while achieving some success, they were easily avoided. The incredible amount of AAA fired at Coalition aircraft during Desert Storm was fairly ineffective. Every so often, though, a shell will hit a jet and the chances that it goes down are pretty good.
- 2) Further AAA Notes: Barrage fire was put in to reflect how the NVA would often just point weapons at the general location of an aircraft and fire a ton of lead into the sky. Not very accurate, but every so often you will hit someone. The rule where AAA can only fire out to 1 or 2 hexes against aircraft at Level 0 or 1 is to simulate aircraft at low level using terrain features to shield themselves, plus the horizon and line of sight create problems for the AAA crews.
- 3) SAMs: I lumped all of the versions of the SA-2 into one missile type. In reality there were numerous versions of the SA-2, including an optically guided version. Again, I didn't want to add on too many layers of complexity. The ability of SAM radars to lock on to two targets represents the fact that they are larger radar systems than air radars and with bigger crews. They can track more than one target or at least try to.
- 4) Toss bombing: Yes, it adds a little more complexity, but it is a modern tactic that has had a lot of use. If you know that there are short range AAA weapons defending a target, then toss bombing is the best way to

avoid them. Not as accurate, but at least you're plane will return in one piece.

- 5) Aircraft point costs: Why does the F-4 cost so much? Well, it can function as both a fighter and bomber, has incredible power, and is probably the best aircraft in the Vietnam War. The B-52 and the B-57 costs so much because the player(s) need to balance firepower against risk. They can both deliver an incredible amount of bombs, but losing one is catastrophic.
- 6) Mission generator: This is just a simple way to create scenarios of varying sizes. The points values are so that each side can "purchase" what it thinks it needs to win the game. There are many options for defense, ranging from a combination of SAMs, AAA, and aircraft, to just using strictly aircraft. The most challenging aspect is neither side will know what the other has until deployment. If you choose some B-57s and the other side chooses MiG-21s, the bombers could be in for a long day. Each side will need to balance out its forces to win.
- 7) Load Outs/Weapons: Most U.S. Air Force aircraft had to refuel up to three times when going on missions in North Vietnam. Naturally, this alters the amount of ordnance you can carry since fuel tanks take up some of your pylons. I tried to factor that in when figuring out the weapon point values and what each aircraft could carry. On a short mission an A-6 could carry 30 Mk-82s, but with fuel tanks it would usually carry 6–12.
- 8) Vietnam Specific Rules: Yes, the need to visually I.D. everything cuts down on the F-4 gamers' chance to become an ace. Also, on the outside the MiG-17 isn't very good. However, for chasing down attack aircraft and for low level dogfighting it's worth its point value. For tangling with F-4s I heartily recommend the MiG-19 or 21. The missile

launch rolls were designed to simulate the reliability and randomness of



missile success. Sometimes the missile fell off the rail and ignited, sometimes it just fell off!

Hopefully, this supplement will have everything that you need to simulate Vietnam era air to ground combat. While there is a lot here, it certainly isn't the final say on the subject. If you or your gaming group has any comments, suggestions, ideas, scenarios, or would like to see some rules changes, please email me.



## WASATCH FRONT HISTORICAL GAMING SOCIETY

Salt Lake City, Utah USA

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