

ADVERTISEMENT

in: [Mechanics](#), [Damage 2.0](#)

SIGN IN

 REGISTER

Critical Hit



Critical hits, also known as **crits** for short, are otherwise normal [weapon](#) strikes that randomly deal increased [damage](#) on enemies. The likelihood that an attack will be a critical hit is based on the weapon's **critical hit chance**, and the additional damage dealt by a critical hit is determined by the weapon's **critical damage multiplier**. Each attack, or each pellet in the case of most shotguns and weapons with [Multishot](#), rolls its own chance to critically hit.

When a weapon deals a critical hit, the damage is displayed as a yellow, orange or red number on the [HUD](#) instead of the usual white coloring. However, critical hits on [shields](#) are still blue, and attacks benefitting from the [stealth damage bonus](#) are always yellow even when they don't crit.

Critical Damage



Critical Chance

 Contents

Chance that any given attack will do bonus Critical Hit Damage.

Values over 100% have a chance to become Big Critical Hits (orange), and over 200% have a chance to become Super Critical Hits (red).

—In-game Description

Each weapon has a base chance to critically hit, which can be increased through [mods](#) and various [buffs](#).

- 1.1. Relative Increases
- 1.2. Absolute Increases
- 1.3. Blood Rush
- 1.4. Sources of Critical Chance Bonus
2. Critical Damage (Critical Multiplier)
 - 2.1. Sources of Critical Damage Bonus
3. Crit Tiers
4. Critical Headshots
5. Average Damage
6. Notes
7. See also
8. Patch History

Relative Increases

Most increases to crit chance are relative **to the base chance**. Multiple of these stack additively with each other:

$$\text{Total Crit Chance} = \text{Base Crit Chance} \times (1 + \text{Relative Bonus})$$

Where the **Relative Bonus** is the sum of all applicable bonuses.

$$\text{Relative Bonus} = \text{Bonus}_1 + \text{Bonus}_2 + \text{Bonus}_3 + \dots$$

As an example, a  [Braton](#) with  [Point Strike](#) and  [Argon Scope](#) has a crit chance of:

$$12\% \times (1 + \img alt="Point Strike icon" data-bbox="275 640 295 660"/> 150\% + \img alt="Argon Scope icon" data-bbox="362 640 382 660"/> 135\%) = 46.2\%$$

Absolute Increases

A few effects grant absolute amounts of crit chance which are applied after relative bonuses.

-  [Puncture's](#) status effect "Weakened"
-  [Arcane Avenger](#)
-  [Cat's Eye](#)
-  [Ballistic Bullseye](#)
-  [Shadow Haze](#)



$$\text{Total Crit Chance} = \text{Base Crit Chance} \times (1 + \text{Relative Bonus}) + \text{Absolute Bonus}$$

Where the **Absolute Bonus** is the sum of all applicable bonuses.

$$\text{Absolute Bonus} = \text{Bonus}_1 + \text{Bonus}_2 + \text{Bonus}_3 + \dots$$

As an example, a Braton with  [Point Strike](#) (*relative*) and  [Arcane Avenger](#) (*absolute*) has a crit chance of:

$$12\% \times (1 + \img alt="Point Strike icon" data-bbox="275 218 295 238"/> 150\%) + \img alt="Arcane Avenger icon" data-bbox="365 218 405 238"/> 45\% = 75\%$$

Blood Rush

 [Blood Rush](#) and the [Gladiator Set Bonus](#) are unique in that they scale off of Melee [Combo](#), stacking additively with other critical chance mods:

$$\begin{aligned} \text{Total Crit Chance} = & \text{Base Crit Chance} \\ & \times (1 + \text{Relative Bonus} + \text{Blood Rush Multi} \times (\text{Combo M} \\ & + \text{Absolute Bonus}) \end{aligned}$$

As an example, a  [Gram](#) with maxed  [True Steel](#) and  [Blood Rush](#), with a x7 combo multiplier :

$$15\% \times [1 + 120\% + 40\% \times (7 - 1)] = 69\%$$

Critical hit chance can surpass 100%, for further information read [Crit Tiers](#).

Sources of Critical Chance Bonus

[Rifle](#) [Shotgun](#) [Pistol](#) [Melee](#) [Archguns](#) [Archmelee](#) [Companions](#) >



[Point Strike](#)[Critical Delay](#)[Argon Scope](#)[Galvanized Scope](#)[Proton Jet](#)

Critical Damage (Critical Multiplier)

Critical Hit Damage is multiplied by this value.

The added Damage is doubled for Big Critical Hits (orange), and tripled for Super Critical Hits (red).

—In-game Description

When a critical hit occurs, that hit's **damage is increased** and the damage value's color is changed to yellow. The stat describing by how much a crit is strengthened is



$$\text{Modded Crit Multi} = \text{Base Crit Multi} \times (1 + \text{Bonus}_1 + \text{Bonus}_2 + \text{Bonus}_3 + \dots)$$

The base critical multiplier of a weapon is quantized.^{[1][2]} This applies before mods, but after certain effects that are additive to the base value. The quantized base critical multiplier can be calculated as:

$$\text{Quantized Base CM} = \text{Round}\left(\frac{\text{Base CM}}{32/4095}\right) \times \frac{32}{4095}$$

As an example, a [Braton](#) with [Vital Sense](#) excluding quantization for simplicity, has a crit multiplier of:

$$1.6 \times (1 + 120\%) = 3.52x$$

Another similar example, now including quantization, and now with the incarnon perk Critical Parallel yields a crit multiplier of:

$$\text{Round}\left(\frac{1.6 + 0.4}{32/4095}\right) \times \frac{32}{4095} \times (1 + 1.2) = 4.401074481x$$

Sources of Critical Damage Bonus

[Rifle](#) [Shotgun](#) [Pistol](#) [Melee](#) [Archgun](#) [Archmelee](#) [Companions](#) >



[Vital Sense](#)[Hammer Shot](#)[Bladed Rounds](#)

[Mutalist Quanta](#)'s alternative fire; shooting bullets through the Infested orb will boost the weapon's critical multiplier

Crit Tiers

When a weapon achieves a crit chance **higher than 100%**, every attack will crit but it also gains a chance to deal an even stronger crit. As the critical hit chance increases, the tier of critical damage does so as well.

Although the coloration remains red after a certain point, crit tiers continue to increase. Every tier above 3 will produce an additional exclamation mark (!) up to three times.

As an example, a [Lenz](#) with [Point Strike](#) has a crit chance of:

$$50\% \times (1 + 150\%) = 125\%$$

This means it will have a 25% chance to trigger an orange crit, while all other hits (75%) will yield a yellow crit.



Modded Crit Chance		Crit Tier & Coloration
$x \leq 0\%$	No hit can crit	Tier 0
$0\% < x < 100\%$	Chance for a yellow crit	Tier 1
$x = 100\%$	All hits yellow crit	
$100\% < x < 200\%$	Chance for an orange crit	Tier 2
$x = 200\%$	All hits orange crit	
$200\% < x < 300\%$	Chance for a red crit (tier 3)	Tier 3
$x = 300\%$	All hits red crit (tier 3)	
$300\% < x < 400\%$	Chance for a red ! crit (tier 4)	Tier 4
$x = 400\%$	All hits red crit (tier 4)	
$400\% < x < 500\%$	Chance for a red !! crit (tier 5)	Tier 5
$x = 500\%$	All hits red crit (tier 5)	
$500\% < x < 600\%$	Chance for a red !!! crit (tier 6)	...
...	...	



Three different color tiers of critical hits along with normal damage color

$$\text{Crit Tier Multi} = 1 + \text{Crit Tier} \times (\text{Modded Crit Multi} - 1)$$

As an example, a [Lenz](#) with [Point Strike](#) and [Vital Sense](#) will have an orange crit multiplier of:

$$1 + 2 \times (2.0 \times (1 + 120\%) - 1) = 7.8x$$



In addition, each mod of the [Vigilante Mod Set](#) has a **5%** chance to increase a Primary Weapon's critical hit's tier by 1. This effect stacks with other Vigilante Mods installed, up to a **30%** chance with all six Vigilante Mods equipped.

Critical Headshots

[Certain body parts](#) on enemies, most notably heads, will receive additional damage when struck. This location-based damage increase is usually a 3.0x multiplier, but if the strike is a critical hit, then it receives an additional damage bonus of **2.0x** *on top* of the location multiplier and the crit multiplier:



This picture displays a headcrit dealing 4x (old : now, it would be 6x) regular headshot damage using an unmodded

[Lex](#).

$$\text{Headshot Crit Tier Multi} = \text{Headshot Multi} \times (1 + \text{Crit Tier} \times (2 \times \text{Modded Crit}$$

As an example, a [Lanka](#) with [Vital Sense](#), and a head shot multiplier of 3.0 will have an orange crit multiplier of:

$$3.0 \times (1 + 2 \times (2 \times 2.0 \times (1 + 120\%) - 1)) = 49.8x$$

The Headshot Multiplier is 3.0x in almost all cases. The bonus damage from headshot crits is specific to heads and not generalized to all special body parts. The [MOA](#), for example, has a "[fanny pack](#)" which normally receives 3.0x damage, but does **not** receive any additional multipliers from a critical hit. The [Jordas Golem](#), however, has a 1.0x multiplier on his engines, but still receives increase damage if critically hit. Corpus humanoids do **not** receive headcrits, instead only taking the normal 3.0x headshot damage even after their helmets are removed.

Average Damage

When comparing builds it can be helpful to calculate how much damage the weapon will deal on average, which is affected by how often critical hits occur and at what critical multiplier. The following equation accounts for critical hits that are not headshots:

$$\text{Average Damage Multiplier} = 1 + \text{Total Crit Chance} \times (\text{Total Crit Multi} - 1)$$

$$\text{Average Damage on Hit} = \text{Modded Damage} \times \text{Average Damage Multiplier}$$



$$1 + 30\% \times (2.0 - 1) = 1.3x$$

[Paris](#) with [Point Strike](#) and [Vital Sense](#) has an average damage multiplier of:

$$1 + (30\% \times (1 + 150\%)) \times (2.0 \times (1 + 120\%) - 1) = 3.55x$$

So for a Paris without any critical mods, the damage is multiplied by 1.3 on average; yellow crits of 2x for 30% of the shots.

With the 2 basic critical mods, the damage is multiplied by 3.55 on average; yellow crits of 4.4x for 75% of the shots.

Notes

- Most Warframe abilities cannot inflict critical hits. Exceptions include [Exalted Weapons](#), [Voruna's](#) [Ulfrun's Descent](#), and Gyre's Passive which grants critical chance per electric proc to all of her abilities.
 - Prior to [Update 33.6](#) (2023-07-27), some abilities had 100% critical chance with a multiplier of 1x. This only served to provide visual feedback.
- As of [Hotfix 35.0.9](#) (2024-01-17), enemies cannot inflict critical hits.

See also

- [Hunter Munitions](#), a chance to apply [Slash](#) on critical hit for primary weapons.

Patch History

[Hotfix 35.0.9](#) (2024-01-17)

- Removed the ability for enemies to deal critical hits to players, Defense targets, Extractors, Rescue targets, and all other friendly targets.
 - In most cases, enemies equipped with "player" weapons (Grineer Ballista using the Vulkar for example) could land critical hits due to those weapons using the same crit setup as their player counterpart. With a lack of feedback to inform players as to why or how sudden damage spikes were occurring, these enemies could easily jeopardize a mission. Additionally, while it makes sense to reward players for landing critical*



Damage Mechanics			Edit	[Collapse]
Offense		Attack Speed • Buff & Debuff • Critical Hit • Damage (Faction Damage Bonus, Positive Type Modifier, Quantization) • Damage Falloff • Damage Reflection • Enemy Body Parts • Fire Rate • Multishot • Punch Through • Status Effect		
Defense		Armor • Damage Attenuation • Damage Reduction • Health (Healing) • Invulnerability • Negative Damage Type Modifier • Overguard • Shield		
Damage Types				
Physical (IPS)		Impact • Puncture • Slash		
Elemental	Primary (HCET)	Heat • Cold • Electricity • Toxin		
	Secondary	Blast • Corrosive • Gas • Magnetic • Radiation • Viral		
Special		Tau • True • Void		
Hidden/Internal		Cinematic • Energy Drain • Shield Drain		
Status Effects				
Physical		Knockback • Weakened • Bleed		
Elemental	Primary	Ignite • Freeze • Tesla Chain • Poison		
	Secondary	Inaccuracy • Corrosion • Gas Cloud • Disrupt • Confusion • Virus		
Special		Bullet Attractor		
Effect Only		Big Stagger • Disarmed • Impair (PvP only) • Knockdown • Lifted • Microwave • Parried • Ragdoll • Silence • Sleep • Slow • Stagger • Stun		
Shield, Armor, and Health Classes				
Tenno		Tenno Shield • Tenno Armor • Tenno Flesh		
Grineer		Grineer • Kuva Grineer		
Corpus		Corpus • Corpus Amalgam		
Infested		Infested • Infested Deimos		
Corrupted		Orokin		
Sentient		Sentient		
Narmer		Narmer		



WARFRAME Wiki

The Murmur	The Murmur
Miscellaneous	Hit Points • Object • Overguard
Calculating Bonuses	

Game System Mechanics		Edit	[Collapse]
Currencies		Credits • Orokin Ducats • Endo • Platinum • Aya • Regal Aya • Standing	
General	Basics	Arsenal • Codex • Daily Tribute • Empyrean • Foundry • Market • Mastery Rank • Nightwave • Orbiter • Player Profile • Reset • Star Chart	
	Lore	Alignment • Fragments • Leverian • Quest	
	Factions	Corpus • Grineer • Infested • Orokin • Sentient • Syndicates • Tenno	
	Social	Chat • Clan • Clan Dojo • Leaderboards • Trading	
	Squad	Host Migration • Inactivity Penalty • Matchmaking	
	Player Housing	Clan Dojo • Dormizone • Drifter's Camp • Orbiter	
Gameplay	Basics	Affinity • Buff & Debuff • Death • Hacking • Invisible • Maneuvers • One-Handed Action • Open World • Pickups • Radar • Stealth • Tile Sets • Void Relic • Waypoint	
	Damage Mechanics	Critical Hit • Damage • Damage Redirection • Damage Reduction • Damage Reflection • Damage Type Modifier • Damage Vulnerability • Health • Status Effect	
	Enemies	Bosses • Death Mark • Enemy Behavior • Eximus (Overguard) • Lich System	
	Mission	Arbitrations • Archon Hunt • Break Narmer • Empyrean • Invasion • Sortie • Tactical Alert • The Circuit • The Steel Path • Void Fissure	
	Activities	Captura • Conservation • Fishing • K-Drive Race • Ludoplex • Mining	
	PvP	Duel • Conclave (Lunaro) • Frame Fighter	

Equipment	Modding and Arcanes	Arcane Enhancements • Archon Shard • Fusion • Mods (Flawed, Riven) • Polarization • Transmutation • Valence Fusion
	Warframe	Attributes (Armor, Energy, Health, Shield, Sprint Speed) • Abilities (Augment, Casting Speed, Helminth System, Passives, Duration, Efficiency, Range, Strength)
	Weapons	Accuracy • Alternate Fire • Ammo • Area of Effect • Attack Speed • Bounce • Critical Hit • Damage Falloff • Exalted Weapon • Fire Rate • Hitscan • Holster • Incarnon • Melee • Multishot • Noise • Projectile • Projectile Speed • Punch Through • Recoil • Reload • Ricochet • Trigger Type • Zoom
	Operator	Amp • Focus (Madurai, Vazarin, Naramon, Unairu, Zenurik) • Lens
	Drifter and Duviri	Decrees • Drifter Combat • Drifter Intrinsic s • Kaithe
	Other	Archwing • Companion • K-Drive • Necramech • Parazon • Railjack
Technical	General	AI Director • Drop Tables • HUD • Key Bindings • Material Structures • PBR • Rarity • RNG • Settings • String Interpolation • Text Icons • Upgrade
	Software, Networking, and Services	Cross Platform Play • Cross Platform Save • Dedicated Servers • EE.cfg • EE.log • File Directory • Fonts • Network Architecture • Public Export • Public Test Cluster • Stress Test • Warframe Arsenal Twitch Extension • World State
	Audio	Mandachord • Music • Shawzin • Somachord • Sound
	Mathematical	Calculating Bonuses (Additive Stacking, Multiplicative Stacking) • Condition Overload (Mechanic) • Enemy Level Scaling • Maximization • User Research

Rifle	Chance	Point Strike • Critical Delay • Argon Scope (Galvanized)
	Damage	Vital Sense • Hammer Shot • Bladed Rounds
Shotgun	Chance	Blunderbuss • Critical Deceleration • Laser Sight
	Damage	Ravage (Primed) • Shrapnel Shot
Pistol	Chance	Pistol Gambit (Primed) • Creeping Bullseye • Hydraulic Crosshairs (Galvanized)
	Damage	Target Cracker (Primed) • Hollow Point • Sharpened Bullets
Melee	Chance	Blood Rush • Maiming Strike • True Steel (Sacrificial)
	Damage	Gladiator Might • Organ Shatter (Amalgam)
Arch-gun	Chance	Critical Focus • Parallax Scope
	Damage	Critical Focus • Hollowed Bullets
Arch-melee	Chance	Critical Meltdown • Tempered Blade
	Damage	Bleeding Edge
Weapon Augment		Deadly Maneuvers • Deadly Sequence • Exposing Harpoon • Hata-Satya • Amalgam Ripkas True Steel

1. BaeckerSkins (2022, January 15). *Accurate eidolon damage and a convenient spreadsheet comparing weapon builds/rivens* (https://www.reddit.com/r/Warframe/comments/s4tmbf/accurate_eidolon_damage_and_a_convenient/). Reddit. Archived (https://web.archive.org/web/https://www.reddit.com/r/Warframe/comments/s4tmbf/accurate_eidolon_damage_and_a_convenient/) from the original on 2023-12-03.

2. Anon (2023, December 3). *Critical multiplier quantization* (<https://imgur.com/a/jRuWXDq>). Imgur. Archived (<https://web.archive.org/web/https://imgur.com/a/jRuWXDq>) from the original on 2023-12-03.

Categories ▼

Languages ▼

Community content is available under [CC-BY-SA](#) unless otherwise noted.

Sci-fi	Warframe
------------------------	--------------------------