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Reload



Reloading is the act of replenishing ammunition to a primary or secondary weapon. The length of time spent on reloading, **Reload Time**, is based on the individual weapon's reload animation speed (or **Reload Speed** for short), which can be altered by some [mods](#) and [abilities](#). Reload time functions as a period of disadvantage for the player, though actions can be taken to compensate for the inability to shoot.

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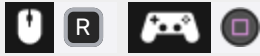


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Manual Reload



When firing a weapon until it is empty, the game does not actually immediately initiate a reload. There is a short delay equal to the reciprocal of the weapon's fire rate. This delay can be averted by pressing the reload key as soon as the weapon's magazine is about to run out, assuming the firing trigger is being held down or rapidly pressed in the case of semi-auto weapons. This penalty cannot be avoided on [Battery Weapons](#).

If the "Context Action Includes Reload" [setting](#) is enabled, reloading will occur when attempting to fire a gun with no ammunition.

While the reloading animation occurs, the player cannot attempt to fire the weapon. The animation can be cancelled by certain actions such as [rolling](#).

Calculating Reload Time

There are several mods and sources of buffs that affect reloading. Reload time is not directly modified with these, but rather reload speed changes. To calculate the resultant reload time with reload speed buffs/debuffs:

$$\text{Total Reload Time} = \frac{\text{Weapon Reload Time}}{1 + \text{Reload Speed Bonus}}$$

For example, a [Braton](#) with a 2.0 second reload time and a rank 5 [Fast Hands](#) (+30% Reload Speed) would have a new reload time of:

$$2.0 \div (1 + 0.30) = 1.54\text{s}$$

- **Weapon Reload Time:** This refers to the base amount of time indicated on the stats of an unmodified weapon.
- **Mod Reload Bonus:** This refers to the speed increase marked as percentage on mod cards, expressed as a decimal to two places.



There are some weapons that reload one shell/bullet/projectile at a time, thus increasing [Magazine Capacity](#) will also increase total reload time. However, players can interrupt the full reloading process by clicking on the reload button again or firing the partially reloaded weapon. These include the  [Corinth](#),  [Felarx](#),  [MK1-Strun](#),  [Strun](#),  [Strun Wraith](#), and  [Zarr](#).

$$\text{Total Reload Time} = \frac{\text{Reload Start and End Delay}}{1 + \text{Reload Speed Bonus}} + \left(\frac{\text{Weapon Reload Time}}{1 + \text{Reload Speed}} \right)$$

Rechargeable weapons

[Battery Weapons](#) are those that do not have a reload animation and instead has their magazine replenish over time after an initial delay between firing and reloading, thus increasing [Magazine Capacity](#) also increases total reload time. Reload speed bonuses only affect the **recharge delay** while the **recharge rate** cannot be changed. Players can interrupt the full reloading process by firing the partially reloaded weapon. Examples include  [Flux Rifle](#) and  [Plinx](#).

$$\text{Total Reload Time} = \frac{\text{Recharge Delay}}{1 + \text{Reload Speed Bonus}} + \frac{\text{Magazine Capacity}}{\text{Recharge Rate}}$$

Increasing Reload Speed

Mods

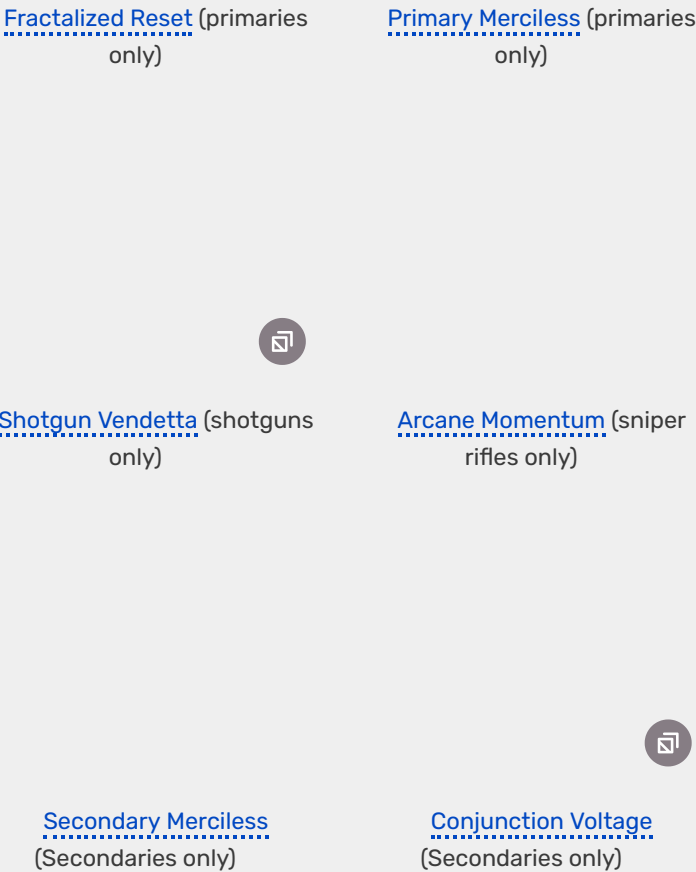
[Rifles](#)
[Shotguns](#)
[Secondary](#)
[Archgun](#)
[Augments](#)
[Mods \(negative\)](#)


[Fast Hands](#)[Primed Fast Hands](#)[Radiated Reload](#)[Depleted Reload](#)[Aero Agility](#)

Note that while you may successfully install both Quickdraw and Stunning Speed onto a single sidearm with no discrepancies, Fast Hands cannot be placed onto a weapon with Primed Fast Hands, and vice-versa. [Bows](#), [snipers](#), and [launchers](#) benefit from the Rifle-type reload mods.

Arcanes





Abilities

Chroma (Toxin)	Gauss	Harrow	Mesa	Volt
		Elemental Ward	Heat	Electricity
		Depending on		Toxin
		2 Chroma's	Strength:	Col
		50 elemental	25 / 50 / 75 / 100 (Heat damage per second)	
		alignment, an	15 / 20 / 30 / 55 % (health bonus)	
		offensive area-	Duration:	10 / 15 / 20 / 2
		of-effect is	Range:	6 / 8 / 10 / 12 m (aura rang
		created.	Misc: 2 / 5 / 7 / 10 % (Heat status chan	
		Chroma and his	5 m (burn radius)	
		nearby allies are		

defensive

energy.

Introduced in

[Update 16.0](#)

(2015-03-19)

Subsumable to Helminth

Conclave-only

In addition, there are some [Conclave](#)-exclusive mods which affect reload:

[Loose Hatch](#)

[Loose Chamber](#)

[Loose Magazine](#)

[Maximum Capacity](#)



[Loaded Capacity](#)

[Full Capacity](#)

Reloading While Holstered

Certain weapons and mods when [holstered](#) refill a portion of their magazine every second. The holster reload rate cannot be changed by reload bonus mods.

[Tactical Reload](#) - Reloads 20% of a rifle's magazine per second.

[Lock and Load](#) - Reloads 20% of a shotgun's magazine per second.

[Eject Magazine](#) - Reloads 20% of a pistol's magazine per second.

[Synth Charge](#) - Synth Set Effect reloads 5%/10%/15%/20% of primary and secondary weapon magazine per second.



[Synth Deconstruct](#)

[Synth Fiber](#)

[Synth Reflex](#)

[Afentis](#) - Reloads 33% of its magazine per second.

[Ferrox](#) - Reloads 33% of its magazine per second.

[Javlok](#) - Reloads 33% of its magazine per second.



[Scourge](#) - Reloads 33% of its magazine per second.

[Scourge Prime](#) - Reloads 33% of its magazine per second.

[Tenet Envoy](#) - Transforms into an attaché case that reloads 1 round per second.

[Tenet Diplos](#) - Transforms into an attaché case that reloads 8 rounds per second.

[Felarx](#) - Evolved Autoreloader: Reloads 50% of its magazine per second.

[Laetum](#) - Awakened Readiness: Reloads 30% of its magazine per second.

Instant Reload

Some mods and buffs allow the player to instantly reload their weapon, skipping the reload animation.



[Blood Forge](#)[Charm](#) (Instant Reload buff)

One-Handed Action

Main article: [One-Handed Action](#)

One-Handed Actions are actions that can be done while reloading or charging. They are called such because the animations to cast these abilities generally use up to one hand each, leaving the other hand free to reload weapons. This does not imply that all ability animations which show only one hand doing things are one-handed abilities; it only refers to the fact that a hand is still able to be reloading a weapon while the ability is being cast. One can take advantage of this mechanic to further increase their efficiency and flow of actions.

Sustained Damage Per Second

Players looking to achieve as high as single-target damage as possible might wish to consider the effects of reload speed modifiers on their weapons. Burst damage considers damage as an instantaneous sample of averages, relying purely on the damage dealt by each attack and how many attacks can be dealt per second. Sustained damage, on the other hand, relates to encounters that last beyond a single Magazine and therefore must include reload time into its average.

Currently, modding for reload speed is a poor choice on almost every weapon in this regard, due to the opportunity cost of using the same mod slot for elemental damage or the like. There are some conditions where reload speed can be considered valuable, however.

Reload Speed vs Fire Rate

Sustained DPS works as a function of total damage dealt over the combined period of



then an increase in either can be easily compared the other. For example:

- [Viper](#) is a pistol that spends its entire Magazine in 0.97 seconds. It then needs 1.1 seconds to be reloaded.
- For 7 mod capacity, a player can install either a rank 5 Quickdraw or a rank 3 [Gunslinger](#).
- Rank 3 Gunslinger increases the Viper's fire rate from 14.4 to 21.31, reducing time spent firing from 0.97 seconds to .66 seconds. Combined with the reload time, the viper deals 224 damage over 1.76 seconds, assuming no [crits](#) or [damage modifiers](#), for a sustained DPS of 127.27.
- Rank 5 Quickdraw decreases the Viper's reload time from 1.1 to 0.74 seconds. Combined with the firing time, the viper deals 224 damage over 1.71 seconds, for a sustained DPS of 131.99.

The Viper is a rare instance of a weapon with nearly-equal firing and reload times. The vast majority of weapons have a greater percentage of time spent firing compared to reloading. Furthermore, as players progress in the game, their limiting factor becomes mod slots, not mod capacity, and so a more apt version of the above comparison would be a rank 5 Gunslinger (at 9 capacity) where its 72% increase in fire rate far outperforms the 48% increase in reload speed. Only weapons where the reload time significantly dominates the firing time (the Tigris, for example, spends 1 second shooting and 1.8 seconds reloading) should one even consider choosing Reload Speed mods in opposition to Fire Rate mods.

Reload Speed vs Magazine Capacity

[Magazine capacity](#) increases the amount of ammo in a single Magazine while keeping [fire rate](#) constant. Therefore, if any weapon of any fire rate has its magazine of any capacity increased by 60%, it will take 60% more time to finish off its Magazine, except for rounding discrepancies, or weapons with spool-up. Because sustained DPS considers both the time spent firing and the time spent reloading, magazine size also acts nearly identical to reload speed, by reducing the percentage of total time spent reloading as opposed to firing. For example:

- [Grakata](#) spends its entire Magazine in 3 seconds, and then spends 2.4 seconds reloading. As a percentage, ~55% of sustained Grakata usage is firing time, while ~45% is reloading time.
- Max rank Fast Hands reduces the reload time to ~1.85 seconds, making firing time represent ~61% of sustained Grakata DPS.
- Max rank [Magazine Warp](#) increases firing time to 3.9 seconds, making firing time represent ~68% of sustained Grakata DPS.



Without even calculating the resulting DPS, it can be shown that a 30% increase in magazine capacity has almost the same effect as a 30% increase in reload speed. That means that, if ever in the situation to choose between the two effects, consider the other factors.

- For rifles, a maxed Fast Hands drains 2 fewer mod capacity points than a maxed Magazine Warp for the same DPS change.
- For shotguns, the [Tactical Pump](#) mod drains the same as [Ammo Stock](#) but the latter makes a 60% magazine increase while the former only makes a 30% reload speed increase.
 - However, the [Strun](#) and [Corinth](#) reload one shot at a time, meaning a larger magazine takes proportionally longer to reload. Therefore, [Tactical Pump](#) is better for these two.

References

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	Critical Hit • Damage • Damage Redirection • Damage		

			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
		Other	Gravity • Threat Level
	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,	Cross Platform Play • Cross Platform Save •

		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

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