

The Nuclear Triad

The United States maintains thousands of nuclear weapons and a variety of ways to deliver warheads. Nuclear weapons are unique because of their destructive power; the explosive yield of U.S. warheads [varies](#) from 0.3 kilotons (300 tons of TNT) to 1.2 megatons (1,200,000 tons of TNT). To put this in perspective, all explosives dropped during the six years of World War II, including the two nuclear weapons, equaled three megatons.

How Many?

The U.S. arsenal currently holds approximately [6,800 nuclear weapons](#). Of these, about 1,367 are deployed in strategic weapons, less than 200 are deployed in tactical weapons, ~2,451 are in storage, and ~2,800 have been retired and are awaiting dismantlement. (For more information about the total inventory of U.S. nuclear weapons, read our [factsheet](#).)

According to [declassified information](#) from the Department of Defense, the United States had 4,018 nuclear weapons in its arsenal in 2016, not including weapons that have been retired and awaiting dismantlement.

What is the Triad?

U.S. nuclear weapons policy is generally in line with the policy of deterrence - the credible threat of retaliation if it or an ally is attacked. Thus the arsenal is designed to retain a second-strike capability, or the ability to survive devastating losses incurred during a nuclear attack, and to retaliate in kind.

The U.S. nuclear arsenal is comprised of three legs, or methods of delivery. Warheads can be launched from the air via strategic bombers carrying gravity bombs or cruise missiles, from the sea by submarines holding ballistic missiles, or from underground silos also containing ballistic missiles. Historically, each leg has been considered necessary to hedge against the failure of another. However, experts have recently [argued](#) that the land-based component of the U.S. arsenal could be eliminated without damaging American national security, and could in fact make us safer by reducing the risk of an accidental launch.

Under current plans, all three legs of the triad will be modernized at the same time - a cost estimated at [up to \\$1.2 trillion](#) including maintenance.

Air

There are two distinct nuclear weapons systems delivered by plane - nuclear air-launched cruise missiles (ALCM), which are guided and highly accurate, and gravity bombs, which require a plane to deploy them near a desired target. [B-52 bombers](#) carry nuclear-tipped ALCMs and [B-2 stealth bombers](#) have gravity bomb capabilities. Largely due to the New Strategic Arms Reduction Treaty (START) with Russia, the U.S. is committed to reducing its nuclear-capable strategic bomber force to [60 planes by 2018](#). As of July 2017, the U.S. State Department [reported](#) that 48 bombers are deployed, 12 B-2s and 36 B-52s, with 8 B-2 and 10 B-52 nuclear-capable bombers not deployed. Each plane can carry multiple nuclear weapons.

Current nuclear modernization plans include continued production of a new gravity bomb (B61-12) and a new nuclear cruise missile, known as the Long Range Standoff Weapon (LRSO). The Air Force is also

developing a replacement for the B-52 and B-2, called the [B-21 “Raider.”](#) The B-21 is planned to enter service in the mid-2020s.

Many analysts, including former [Secretary of Defense William Perry](#), are concerned about the consequences of deploying a new nuclear-tipped cruise missiles. Cruise missiles can carry both thermonuclear and conventional warheads, and this “dual-use” nature could be destabilizing, as an opposing force would be unable to determine a cruise missile’s payload in mid-flight. For [this and other reasons](#), analysts have called for the cancellation of the new cruise missile.

Sea

The sea-leg of the nuclear triad currently consists of 14 Ohio-Class ballistic missile submarines (SSBNs). These submarines are capable of firing [ballistic missiles](#) from submerged positions to hit an intended target. The sea leg of the triad is often considered the most critical, since submarines are difficult to track and destroy.

Current U.S. SSBNs can launch up to 24 nuclear-capable ballistic missiles with multiple warheads per missile. Largely due to New START, the number of launch tubes is [being reduced to 20](#) by 2018.

Nuclear modernization plans call for Ohio-Class SSBNs to be replaced, with 12 scheduled submarines slotted for production. During the production phase, the U.S. will operate 10 nuclear submarines for a decade. The upcoming class, currently known as the [Columbia Class or SSBN\(X\)](#), will reduce its number of missile tubes to 16.

Ground

The current ground-based deterrent system is composed of 400 deployed [Minuteman III](#) intercontinental ballistic missiles (ICBMs). U.S. ICBMs are housed in underground silos in Colorado, Nebraska, Montana, Wyoming, and North Dakota.

The anchored nature of ICBM silos makes them vulnerable to attack and increases the risk of miscalculation: if the United States detects an incoming attack or what looks like an incoming attack, the president will be incentivized to launch the U.S. ICBMs before they can be destroyed in their silos. ICBMs remain on [hair-trigger alert](#), and can be launched in minutes. Once they are launched, there is no way to call them back.

For these reasons, some experts have [argued](#) that the United States should get rid of its ICBMs. Nuclear modernization plans call for a new missile force known as the Ground Based Strategic Deterrent (GBSD), which will entail replacing the Minuteman III with 400 new deployed missiles.

Sources: Department of State, Department of Defense, Union of Concerned Scientists, Federation of American Scientists, Congressional Research Services.