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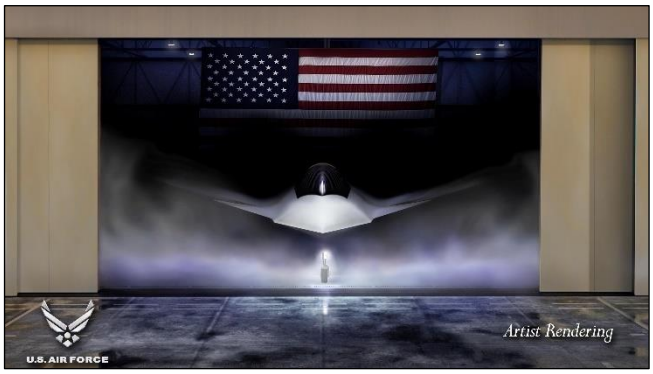
U.S. Air Force Next-Generation Air Dominance (NGAD) Fighter

Background

On March 21, 2025, President Donald Trump announced the Air Force would move forward with development of the F-47—to become the Air Force's Next-Generation Air Dominance (NGAD) fighter jet. Following the announcement, the Air Force awarded an engineering and manufacturing development contract to Boeing to develop the aircraft.

Figure 1. F-47



Source: U.S. Air Force / Artist Rendering.

NGAD is an advanced fighter jet intended to replace the stealthy F-22 Raptor. According to the Air Force, NGAD is also a "family of systems," enabling air superiority, defined as the ability to operate without threat of attack, even in highly contested environments. The NGAD family or system of systems includes the NGAD fighter program, as well as the Collaborative Combat Aircraft (CCA) program to develop variants of uncrewed, semiautonomous aircraft that could fly as "loyal wingmen" with the NGAD fighter or other fighter aircraft. The Trump Administration has requested $2.58 billion for system development and demonstration of the F-47 and $111.37 million for CCA in FY2026. Congress may decide to accept, reject, or modify this request.

F-22 Raptor

The Air Force's current air dominance fighter, the F-22 Raptor, entered service in 2005. Prime contractor Lockheed Martin designed the F-22 with a suite of advanced technologies featuring stealth, supercruise, maneuverability, and integrated avionics. The combination of new technology and advanced sensors allowed the F-22 to identify, track, shoot, and kill a threat before being detected. In 2009, then-Defense Secretary Robert Gates truncated the purchase of F-22s from 750 to 187 aircraft.

Since then, China's long-range air defense systems and electronic warfare systems have grown more sophisticated. China also has reportedly test flown a new combat aircraft. Some analysts note that in a fight against China, where islands off its coast are separated by hundreds of miles, the F-22 may be constrained by its payload capacity and range of 590 nm. For greater range, the F-22 relies on U.S. aerial refueling tankers such as the KC-46 and KC-135, which may be vulnerable to attack. For at least a decade, the Air Force has studied F-22 replacements that could confront such a threat.

The Path to NGAD

In 2014, a planned Defense Science Board (DSB) study sought information on how to maintain air dominance in 2025-2035. Air dominance, the study's executive summary said, "implies sufficient force capacity and capability to reign supreme against the defined threat." Released in 2016, the study found that dominance of an entire battlespace was not affordably achievable in an anti-access, area denial environment. The study's executive summary said the United States should pursue a strategy that creates "an integrated and resilient high-capacity battle management command, control, and communications network to address asymmetries in long-range intelligence, surveillance, and reconnaissance."

In 2016, an Air Force Air Superiority 2030 Flight Plan argued for the need for a family of integrated and networked "stand-off" (weapons launched from a distance) and "stand-in" (weapons that penetrate adversary territory and strike close to targets) forces. The plan sought a "Penetrating Counter Air" capability that would "maximize tradeoffs between range, payload, survivability, lethality, affordability, and supportability." The Air Force launched a 2017 analysis of alternatives to identify requirements.

The Congressional Budget Office estimated in 2018 that an NGAD airframe could cost up to $300 million apiece and outlined potential options, including the ones currently facing the Air Force. One option is to maintain a larger but older fleet of combat aircraft. Another is to reduce the size of the overall fleet of combat aircraft and buy newer, more costly penetrating counter-air aircraft.

In 2019, the Air Force completed the analysis and created a Program Executive Office for Advanced Aircraft to speed development of technology for digital engineering, modular open systems architecture, and agile software development. Will Roper, then the Air Force Assistant Secretary for Acquisition, Technology, and Logistics, envisioned a "digital century series" of aircraft—producing small batches of easily upgradeable aircraft with shorter service lives than typical fighters. One year later, Roper said the service had flown an NGAD demonstrator. The Air Force sought to

mature a variety of NGAD-related technologies, including CCA, advanced materials, and sensors. The Air Force also has been researching advanced propulsion systems that could power an NGAD platform under a Next Generation Adaptive Propulsion (NGAP) effort. Under NGAP, General Electric is developing a variable-cycle XA102 engine prototype and Pratt & Whitney is designing an XA103 engine prototype to support NGAD.

By 2023, it appeared that Boeing, Lockheed Martin, and Northrop Grumman had all developed NGAD demonstrators, and the Air Force released a classified request for proposals for an F-22 Raptor replacement. Northrop Grumman opted out of the competition.

In May 2024, the Air Force paused a planned contract award to allow the next Administration to decide whether and to which company to award the contract. After leaving office, former Air Force Secretary Frank Kendall wrote that he had a list of priorities that ranked higher than NGAD.

NGAD Status

The Air Force proceeded with the contract award in March 2025. In May 2025, Air Force Chief of Staff General David Allvin posted a fact sheet on the social media site X outlining planned F-47 capabilities. According to the fact sheet, the aircraft would have a combat radius of more than 1,000 nm. Like the F-22, the F-47 would be able to fly faster than Mach 2 (or twice the speed of sound) and be stealthier than other fighter aircraft. The fact sheet adds that the Air Force plans to buy more than 185 F-47s.

The Air Force's budget request states that key NGAD attributes are enhanced survivability, lethality, persistence, interoperability across a range of military operations, and crewed/uncrewed teaming.

NGAD Funding

From FY2022 through FY2025, Congress appropriated a total of $8.2 billion for NGAD fighter technologies. In FY2025, the Biden Administration requested $2.75 billion for an NGAD platform, an amount that was then-projected to rise in the outyear estimates to $5.72 billion by FY2029.

The year-long continuing resolution for FY2025 (P.L. 119-4) did not identify funding for individual programs such as the F-47 or NGAD. However, in May 2025, DOD submitted its FY2025 operating plan to Congress, which detailed DOD's intent to spend $2.4 billion for the F-47 in FY2025 and to adopt a Senate Appropriations Committee (SAC) recommendation—detailed in its report on FY2025 appropriations, S.Rept. 118-204—to transfer an additional $557.1 million from the F-47 program to an independent budget line for CCA.

Congress approved the One Big Beautiful Bill Act (P.L. 119-21) in July 2025. It provides $400 million to accelerate production of the F-47. According to the act, the funding can be obligated through September 30, 2029, and spent through FY2034. The Air Force has requested $2.58 billion for the program in FY2026.

Legislative Activity

The SAC, in its report on the FY2025 Defense Appropriations Act (S.Rept. 118-204), said the Air Force's 2024 reevaluation of NGAD raises "questions about the Air Force's commitment to fielding advanced aircraft capable of maintaining air dominance in a contested 21st century environment." The committee further expressed concerns that the Air Force had not provided enough money in its Future Years Defense Program for fighter aircraft.

S.Rept. 118-204 also states that the NGAD fighter aircraft program is critical to the success of NGAD and "notes the importance of maintaining no fewer than two viable competitors to ensure innovation and cost realism."

In its report on the FY2026 Defense Appropriations Act (H.Rept. 119-162), the House provided $3.19 billion for F-47 development and directed the Secretary of the Air Force to provide quarterly program updates to congressional defense committees.

Potential Considerations for Congress

- Members may assess whether the President's FY2026 budget request, along with supplementary funding (e.g., P.L. 119-21), aligns with the Air Force's needs, and accept, reject, or modify the request.
- Members may seek information about the F-47's planned cost and schedule, how the platform would meet future operational needs, and how much support it might require from other aircraft. Members may seek information on how the F-47 fits into the Air Force's overall budget, plans for a next-generation tanker aircraft, and plans to retire older-model aircraft.
- Some former Department of Defense officials have argued that the Air Force should return to an approach of lower-cost, shorter-lived, upgradable aircraft designed to stay relevant to changing threats. Other analysts have argued that current and future threats could require a larger aircraft capable of operating at long ranges. Still others contend that the era of manned aircraft has ended. Congress, in its oversight role, may consider studying how to transition away from a reliance on manned aircraft, perhaps considering the cultural, operational, financial, or other impacts of such a change.

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