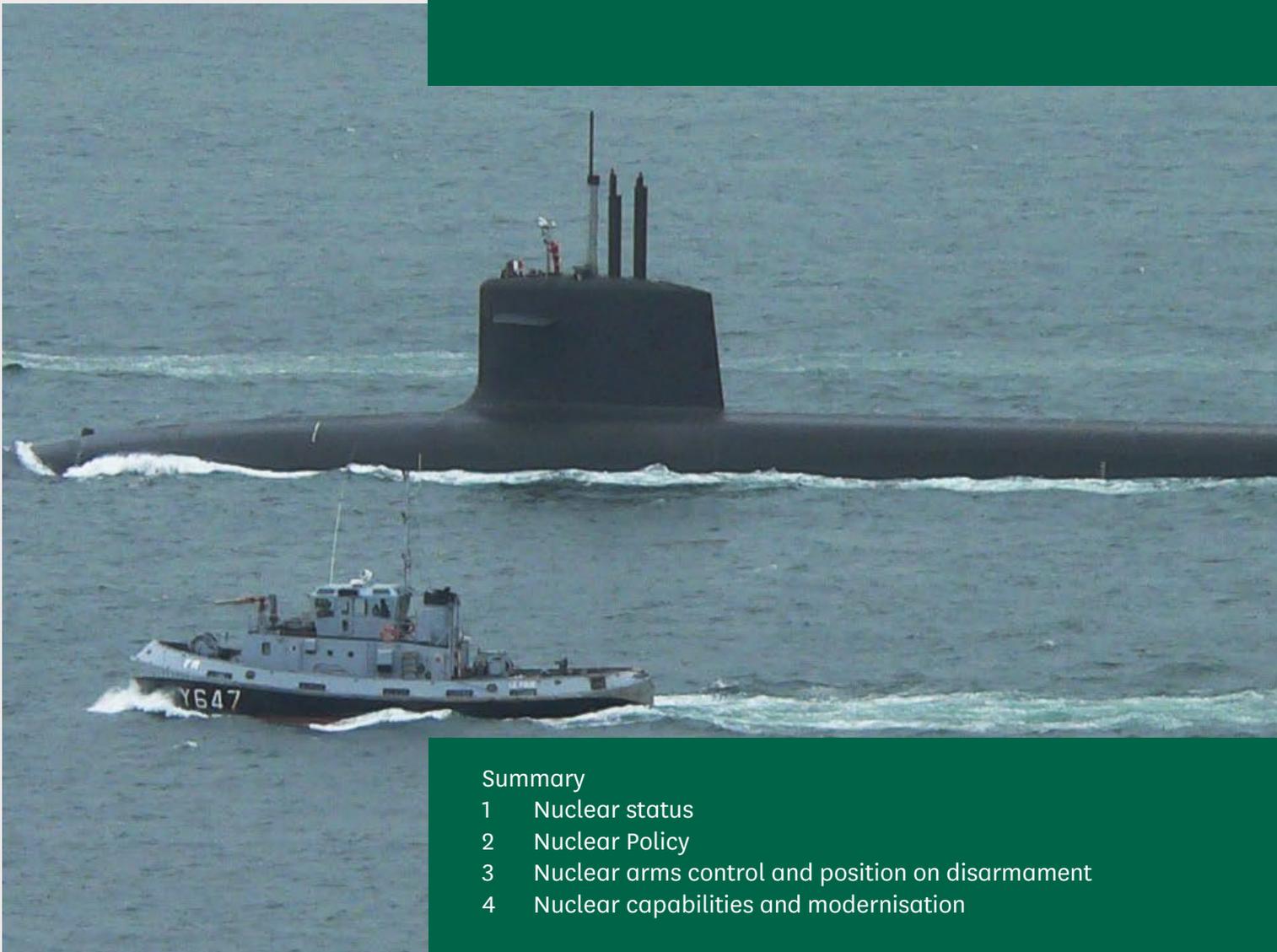


Research Briefing

23 March 2026

By Claire Mills

# Nuclear weapons profile: France



## Summary

- 1 Nuclear status
- 2 Nuclear Policy
- 3 Nuclear arms control and position on disarmament
- 4 Nuclear capabilities and modernisation

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# Contents

<b>Summary</b>	<b>4</b>
<b>1 Nuclear status</b>	<b>6</b>
<b>2 Nuclear Policy</b>	<b>7</b>
2.1 A shift in nuclear doctrine	7
Declaratory Policy	8
A role in collective European security?	8
<b>3 Nuclear arms control and position on disarmament</b>	<b>11</b>
3.1 Rolling back disarmament?	14
<b>4 Nuclear capabilities and modernisation</b>	<b>16</b>
4.1 Stockpile	16
4.2 Fissile material	17
4.3 Capabilities	17
Maritime forces	18
Air Forces	20
4.4 Procurement and support	21
Industrial Complex	21
Cooperation with the UK since 2010	22

## Summary

France first tested a nuclear weapon in 1960, eight years after the UK and four years before China. In doing so, it became the fourth nuclear weapon state after the US, Russia (formerly the Soviet Union) and the UK. It is one of the five recognised nuclear states under the Nuclear Non-Proliferation Treaty 1968.

This briefing is part of a series of nuclear profiles which are available on the [House of Commons Library website](#).

## France's nuclear policy

[France maintains a policy of "strict sufficiency"](#) (PDF), whereby it maintains its nuclear arsenal at the lowest possible level compatible with the strategic context. France's use of nuclear weapons is limited to extreme circumstances of self-defence where its national interests are threatened. France retains a first-use policy.

France does not participate in NATO's nuclear planning mechanisms, and its forces are not formally assigned to NATO.

### A shift in nuclear doctrine

In March 2026, President Macron announced that the size of [France's nuclear arsenal will increase](#) (from approximately 290 warheads) in response to the changing strategic environment. Data on the size of the French stockpile will no longer be published.

He also announced that France would move toward a concept of "forward deterrence", which would place the French nuclear deterrent at the heart of European security. Progressive implementation would see willing allies and partners engage with French nuclear deterrence exercises and contribute conventional assets to French nuclear activities. In the longer term, French nuclear forces could be, temporarily, deployed in other allied countries.

Nuclear assets will not, however, be shared, and decision-making on the use of nuclear weapons will remain the sovereign right of the French President.

## France's attitude towards disarmament

Under Article VI of the Nuclear Non-Proliferation Treaty, France has an obligation to pursue disarmament.

Since the end of the Cold War, France has scaled back its nuclear arsenal by 50%. It has reduced its overall holdings and withdrawn several weapons systems, including its land-based ballistic missile capability. France is the only nuclear weapon state to have dismantled, in its entirety, a ground-launched nuclear capability.

In 1992, and again in 1996, France reduced its alert levels, in terms of both response times and the number of weapons systems on alert. The last French nuclear tests took place in 1996, just prior to the conclusion of the Comprehensive Nuclear Test Ban Treaty, which it signed and ratified in 1998. All of France's nuclear forces have been de-targeted, so they are not targeted at a specific country.

In March 2026, the French Government said that France "[pursues a progressive and pragmatic approach to disarmament and strictly complies with its international commitments](#)" (PDF). The decision to increase the size of the French nuclear arsenal and reduce transparency on stockpile numbers has, however, drawn some [criticism from disarmament advocates](#).

## Nuclear capabilities and modernisation

France's nuclear weapons are capable of being launched by combat aircraft and submarines operating on a continuous at-sea basis.

Over the last two decades, France has been modernising its nuclear arsenal. It has deployed a new Triomphant class of ballistic missile submarines, replaced its combat aircraft in a nuclear role, upgraded its submarine-launched and air-launched nuclear-armed missile capabilities, and deployed new nuclear warheads. Next-generation capabilities are currently in development.

Since it first acquired nuclear weapons, France has maintained an entirely sovereign, independent, nuclear capability, including its nuclear-industrial complex. Ensuring nuclear independence has, however, led to higher costs. Historically, the nuclear deterrent has consumed 10% to 11% of the French defence budget every year. In the last few years, those [costs have increased](#), and in 2023 the nuclear deterrent accounted for 12.7% of the annual French defence budget.

However, there is [significant domestic support for sovereign nuclear capability](#) in France, which historically has associated the possession of nuclear weapons with national independence.

# 1

## Nuclear status

Under the Nuclear Non-Proliferation Treaty (NPT) a nuclear weapon state is defined as one that manufactured and exploded a nuclear weapon, or other nuclear explosive device, prior to 1 January 1967.

France first tested a nuclear weapon in 1960, eight years after the UK and four years before China.

Alongside the other permanent members of the UN Security Council (the P5), France is, therefore, one of the five officially recognised nuclear weapon states under the NPT.

## 2 Nuclear Policy

France's nuclear deterrent is entirely independent and, historically, France has maintained a policy of "strict sufficiency" whereby France maintains its nuclear arsenal at the lowest possible level compatible with the strategic context.<sup>1</sup>

France does not participate in NATO's nuclear planning mechanisms, and its forces are not formally assigned to NATO.<sup>2</sup>

In January 2022 the five recognised nuclear weapon states (the P5) issued a statement in which they affirmed that "a nuclear war cannot be won and must never be fought" and that nuclear weapons "should serve defensive purposes, deter aggression, and prevent war".<sup>3</sup>

### 2.1 A shift in nuclear doctrine

"The coming half-century will be an age of nuclear weapons".

President Macron, 2 March 2026

In his first speech on nuclear deterrence since February 2020, President Macron said in March 2026 that the strategic context had changed which necessitated a re-evaluation of France's nuclear posture.

Citing the expansion of adversaries' nuclear arsenals, the "possible coordination between adversaries", the "reordering" of US security priorities and the breakdown of international norms, including the "normalization of discourse on nuclear weapons", President Macron announced a strengthening of the French nuclear deterrent, and the progressive implementation of that he called "forward deterrence".

Described by several analysts as some of the most significant changes in French nuclear doctrine since the end of the Cold War, President Macron announced that the size of the French nuclear arsenal will increase (albeit without detail). Figures on the size of the nuclear stockpile will no longer be released and, in cooperation with allies, French strategic air forces will, if necessary, be "spread deep into the European continent" as an "archipelago

<sup>1</sup> Speech of the President on the [Defense and Deterrence Strategy](#), 7 February 2020. This was reiterated in March 2026 when President Macron said that France "has always defined the size of its arsenal in strict accordance with the operational effectiveness of our nuclear deterrent" (French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026). See also French Ministry of the Armed Forces, [Background Dossier: Nuclear deterrence](#) (PDF), 2 March 2026, p.6

<sup>2</sup> In 2020, President Macron said that France was committed to strengthening the "Alliance's nuclear culture" (Speech of the President on the [Defense and Deterrence Strategy](#), 7 February 2020)

<sup>3</sup> [Joint Statement of the Leaders of the Five Nuclear Weapon States](#), 3 January 2022

of forces”.<sup>4</sup> However, he rejected the idea of a role for tactical nuclear weapons, or “flexible nuclear response”, whereby nuclear forces provide a range of proportionate responses in contrast to overwhelming retaliation, and instead confirmed that French nuclear forces “are strategic and exclusively strategic”.<sup>5</sup>

## Declaratory Policy

In 2020, President Macron described the purpose of French nuclear doctrine as “limit[ing] the role of deterrence to extreme circumstances of self-defence”.<sup>6</sup> He said that France reserved the right to use nuclear weapons first in a conflict and specifically, that France reserved the right to conduct “a unique and one-time-only” limited nuclear strike to demonstrate to an aggressor that “the nature of the conflict has changed and to re-establish deterrence”.<sup>7</sup>

In his 2026 speech, President Macron reiterated that position, saying that under ‘forward deterrence’ France’s nuclear doctrine “will retain its original foundations”. He said that deterrence was intended for “when extreme circumstances arise” and to “deter any State from encroaching on our vital interests”. Those interests, he said, had deliberately never been laid out but that French interests “should not [be] merely considered as what is within our national borders”. He suggested that France’s ambition “must be greater” and that there is a “European dimension” to France’s national interests.<sup>8</sup> Grégoire Roos, Director of Chatham House’s Europe, Russia and Eurasia programme, called President Macron’s speech “a strategic clarification, rather than a doctrinal revolution”.<sup>9</sup>

France has also pledged not to use nuclear weapons against non-nuclear weapon states party to the NPT and abiding by their non-proliferation commitments.<sup>10</sup>

## A role in collective European security?

The idea that the French nuclear deterrent should play a central role in Europe’s collective security was first proposed by President Macron in 2020. In

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<sup>4</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026. See also Bruno Tertrais, [@BrunoTertrais](#), X (formerly Twitter), 2 March 2026 (accessed 20 March 2026); Politico, [“Macron starts biggest European nuclear shift since Cold War”](#), 2 March 2026 and Strategic Comments, [“The French nuclear deterrent expands eastwards”](#), March 2026

<sup>5</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026

<sup>6</sup> Speech of the President on the [Defense and Deterrence Strategy](#), 7 February 2020

<sup>7</sup> As above

<sup>8</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026

<sup>9</sup> Grégoire Roos, [“Macron’s nuclear weapons offer to Europe: Gaullist policy, updated for a more unstable world”](#), Chatham House Expert Comment, 4 March 2026

<sup>10</sup> French Ministry of the Armed Forces, [Background dossier: Address on French nuclear deterrence by the President of the Republic](#) (PDF), 2 March 2026

a speech on defence and deterrence strategy, he called for strategic dialogue with willing European partners and outlined the potential for their involvement in military exercises conducted by French deterrent forces, which he said would “naturally contribute to developing a true strategic culture among Europeans”.<sup>11</sup> He stopped short, however, of proposing the sharing of any nuclear assets.

The French proposal was greeted, at the time, with interest by some European countries notably Germany, Poland and the Baltic States. However, it was also met with scepticism from pro-disarmament states such as Austria and the then NATO Secretary General, Jens Stoltenberg, who said:

We already have a European nuclear deterrence capability, with a doctrine, and it is an active one. It is institutionalized and has existed for decades. It is the Europeans’ ultimate security guarantee and we must do nothing that could weaken or compromise it.<sup>12</sup>

### Forward deterrence

In his February 2026 speech, President Macron set out his vision for a European dimension to France’s nuclear doctrine. He said France, alongside interested allies and partners, would progressively move towards an end state of “forward deterrence”, envisaging:

- The possible participation of partners in French nuclear deterrence exercises.<sup>13</sup>
- The conventional participation of allied forces in French nuclear activities, including partners taking greater responsibility for functions that support the deterrent, including early warning, air and missile defence and conventionally armed deep strike capabilities.<sup>14</sup>
- The temporary deployment of elements of French strategic air forces to allied countries.

However, he was also clear that decision making over the use of nuclear weapons would remain sovereign to the French President, this relationship did not confer a “guarantee in the strict sense of the term” and that this effort “will come as an addition to NATO’s nuclear mission”, in which France does not participate. President Macron confirmed that the proposal for forward deterrence is a “distinct effort which has its own value and is perfectly complementary to NATO’s at both strategic and technical level” and did not represent an escalatory step.

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<sup>11</sup> Speech of the President on the [Defense and Deterrence Strategy](#), 7 February 2020

<sup>12</sup> Strategic Comments, “[Macron’s strategic vision for Europe](#)”, April 2020

<sup>13</sup> France conducts four air-based nuclear exercises (codenamed Poker) each year. At the time of writing, the [most recent exercise was in March 2026](#).

<sup>14</sup> Through programmes such as [JEWEL \(Joint Early Warning for a European Lookout\)](#), the [European Sky Shield Initiative \(ESSI\)](#) and [Long-Range Strike Approach \(ELSA\)](#)

He said that talks were already underway with a number of allies including [Germany](#), [Poland](#), the Netherlands, Belgium, Greece, Sweden and Denmark. He said that dialogue was being conducted “in full transparency with the United States of America and in close coordination with the UK”.<sup>15</sup>

President Macron’s proposals on forward deterrence have drawn criticism from the far-right party National Rally, with former leader Marine le Pen arguing that “nuclear power belongs to the French”.<sup>16</sup>

In a statement on 4 March 2026, the UK Government said that it welcomed French proposals to cooperate with allies more closely on nuclear issues.<sup>17</sup>

NATO nuclear sharing arrangements and the debate around a European nuclear relationship will be examined in more detail in forthcoming Commons Library briefing, Nuclear weapons in Europe.

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<sup>15</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026

<sup>16</sup> European Centre for Counterterrorism and Intelligence Studies, [“Macron’s final bid to extend France’s nuclear umbrella across Europe”](#), 28 February 2026. See also Deutsche Welle, [“France’s nuclear capability offers fringe benefits to allies”](#), 3 March 2026

<sup>17</sup> Cabinet Office, [Statement by the United Kingdom on UK-France nuclear policy and cooperation](#), 4 March 2026

## 3

## Nuclear arms control and position on disarmament

France is the only nuclear weapons state to have dismantled, in its entirety, a ground launched nuclear capability.

As one of the recognised nuclear weapon states under the Nuclear Non-Proliferation Treaty (NPT), France has a legal obligation to pursue disarmament under Article VI of that treaty, which states:

Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a Treaty on general and complete disarmament under strict and effective international control.<sup>18</sup>

Significantly, the treaty represents the only binding commitment in a multilateral treaty to the goal of disarmament by the five recognised nuclear weapon states.

France has repeatedly outlined its commitment to nuclear disarmament and has taken significant steps since the end of the Cold War towards reductions in its nuclear arsenal and its posture.

### 1 Disarmament achievements since the end of the Cold War

By the end of the Cold War, France had approximately 540 nuclear warheads in its stockpile. Since 1991, however, France has scaled back its nuclear arsenal by almost 50%, with a reduction in both its overall holdings but also the withdrawal of several weapons systems:

- 1991 – The AN52 free-fall bomb, carried by Jaguar and Mirage III aircraft, was decommissioned early and dismantled. The ballistic submarine fleet was reduced from six to five, following the retirement from service of the lead vessel of the Redoutable class. France's ground-launched capabilities was also reduced with the early withdrawal of its short-range Pluton missiles and the scaling down of its replacement (the Hadès missile programme) from 120 to 30 units. It also announced the elimination of the S45 surface-to-surface missile, which was due to replace the S3D missile already deployed at the Plateau d'Albion nuclear base in southeastern France.
- 1992 – The Hadès missile programme was terminated, resulting in the complete withdrawal of France's sub-strategic ground-launched nuclear

<sup>18</sup> United Nations, [Treaty on the Non-Proliferation of Nuclear Weapons](#)

capability. The alert level of France's nuclear forces was reduced, both in terms of response time and the number of weapons on alert. The next generation SSBN programme (the Triumphant class under development) was reduced to four submarines.

- 1996 – A review of France's nuclear posture was conducted as part of a wider defence review. That review called for French nuclear forces to be consolidated on fewer platforms and for a new generation of nuclear weapons to be developed. As a result, France announced the withdrawal of its remaining ground-launched strategic ballistic missile capability at Plateau d'Albion. It withdrew its Mirage IV strategic aircraft from the nuclear role, reduced its in-service SSBN fleet from five to four (with only one submarine on permanent patrol) and reduced its alert levels for the second time since the end of Cold War. The reduction in the submarine component of the nuclear deterrent marked the first significant decrease in stockpile numbers, with France possessing an estimated 450 nuclear warheads in 1996/97.<sup>19</sup> France also announced an end to the production of fissile materials for weapons purposes and the decommissioning of its production facilities.
- 1997 – France de-targeted all its nuclear forces, so they are not targeted at a specific country.
- 1998 - The dismantling of France's S3D missiles was completed, making France the only nuclear weapon state to have dismantled, in its entirety, a ground-launched nuclear capability.
- 2006- President Jacques Chirac announced an estimated stockpile of 350 warheads.
- 2008 – President Nicolas Sarkozy set out plans to reduce the French nuclear arsenal to fewer than 300 warheads and to disband one of France's land-based squadrons of nuclear capable aircraft, thereby reducing France's airborne nuclear capability by one third.

In 2015, former President François Hollande [ruled out any further reductions in France's nuclear stockpile](#) outside of any drastic reductions in other countries' nuclear arsenals that would dramatically improve the global security environment. He also committed France to not building any new types of weapon but stated that it would modernise its existing forces, while remaining within the boundaries of existing agreements.

However, France's traditional view is that disarmament cannot be an objective in itself and must be tied to improvements in international security. In his [speech on defence and nuclear deterrence](#) in February 2020, President Macron ruled out French unilateral disarmament on that basis:

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<sup>19</sup> Kristensen and Norris, [Global nuclear weapons inventories 1945-2013](#), Bulletin of the Atomic Scientists, November 2015

I cannot [...] set France the moral objective of disarming our democracies while other powers, or even dictatorships, would be maintaining or developing their nuclear weapons.

For a nuclear-weapon State like France, unilateral nuclear disarmament would be akin to exposing ourselves as well as our partners to violence and blackmail, or depending on others to keep us safe.

I refuse this prospect. And let us not be naïve: even if France, whose arsenal cannot be in any ways compared to that of the United States and Russia, were to give up its weapons, the other nuclear powers would not follow suit.<sup>20</sup>

He did express support, however, for broader discussions aimed at multilateralisation of the nuclear disarmament agenda, arguing that “this crucial debate should not take place without Europeans, and in a direct and exclusive relationship between the United States, Russia and China”.<sup>21</sup>

A background dossier to President Macron’s speech on nuclear deterrence in March 2026, said that France “pursues a progressive and pragmatic approach to disarmament and strictly complies with its international commitments”.<sup>22</sup>

## 2 Position on other nuclear arms control agreements

- France signed the [Comprehensive Test Ban Treaty](#) in 1996 and ratified it in 1998. Although the treaty is not yet in force, the last French nuclear tests took place in 1996 just prior to the treaty’s conclusion.<sup>23</sup> France has maintained its moratorium on testing and is committed to universal ratification of the CTBT as soon as possible.
- France advocates the immediate conclusion of a [Fissile Material Cut-off Treaty](#). In February 1996 France announced that it had halted the production of fissile material for weapons purposes and that it would dismantle the production facilities dedicated to its weapons programme. The decommissioning of the Pierrelatte enrichment facility has been completed. Decommissioning of the Marcoule reprocessing facility began in 1997 and is due to be completed in 2035.<sup>24</sup>
- Along with the other nuclear weapon states, France has not signed the [Treaty on the Prohibition of Nuclear Weapons](#), which entered into force in January 2021. It is the first multilateral, legally-binding, instrument for nuclear disarmament to have been negotiated in 20 years. Critics have

<sup>20</sup> Speech of the President on the [Defense and Deterrence Strategy](#), 7 February 2020

<sup>21</sup> The collapse of the INF treaty is discussed in greater detail in Library Briefing Paper, CBP8634, [Demise of the Intermediate-Range Nuclear Forces \(INF\) Treaty](#)

<sup>22</sup> French Ministry of the Armed Forces, [Background dossier: Address on French nuclear deterrence by the President of the Republic](#) (PDF), 2 March 2026

<sup>23</sup> The Treaty is still awaiting ratification by the US and China

<sup>24</sup> Report submitted by France to the NPT Review Conference, 2015 ([NPT/CONE.2015/10](#))

questioned what the treaty will achieve if the nine nuclear states do not participate.

- France is a Party to the protocols to:
  - The [Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean](#) (Treaty of Tlatelolco)
  - The [South Pacific Nuclear Free Zone Treaty](#) (Treaty of Rarotonga)
  - The [African Nuclear-Weapon-Free Zone Treaty](#) (Treaty of Pelindaba)
  - The [Treaty on a Nuclear-Weapon-Free Zone in Central Asia](#) (Treaty of Semipalatinsk).

France has given an undertaking not to test or station nuclear weapons on territories within those zones. France has not signed the protocol to the [Southeast Asian Nuclear-Weapon-Free-Zone Treaty](#) (the Bangkok treaty). France also supports plans to create a Middle East nuclear-free zone and has called on states to implement the [resolution seeking to establish this zone](#) (PDF) that was first adopted by the 1995 NPT Review and Extension Conference.

- France is a party to the [Antarctic Treaty 1959](#), which bans nuclear tests and weapons in Antarctica.

## 3.1

### Rolling back disarmament?

In his March 2026 speech, President Macron said while the strategic context necessitated a “a modernised, powerful and sovereign nuclear force, calibrated to face up to our threats”, the ultimate goal would always be a world without nuclear weapons.<sup>25</sup>

However, the decision to increase France’s nuclear stockpile and withhold future information on the size of the nuclear stockpile has been questioned by some experts.

Writing for the Bulletin of the Atomic Scientists in March 2026, H elo ise Fayet, Head of the Deterrence and Proliferation programme at the French Institute of International Relations, said that the decision to withhold warhead numbers was “debatable” and that France could “lose legitimacy from this decision” at a time when “nuclear norms and transparency are under attack”. She also

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<sup>25</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026

argued that this position would be difficult to defend at the forthcoming [Review Conference of the Nuclear Non-Proliferation Treaty](#).<sup>26</sup>

Executive Director of the International Campaign for the Abolition of Nuclear Weapons (ICAN), has been more critical, arguing that President Macron's announcement was "a direct threat to the peace and security of the region, and the world" and that this was not progress toward disarmament but "a nuclear arms race that no one can afford".<sup>27</sup>

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<sup>26</sup> Héloïse Fayet, "[France has a new nuclear doctrine of forward deterrence for Europe: What does it mean?](#)", Bulletin of the Atomic Scientists, 5 March 2026

<sup>27</sup> International Campaign for the Abolition of Nuclear Weapons, [Press release](#), 2 March 2026

## 4 Nuclear capabilities and modernisation

The French nuclear deterrent is the one that is most often compared to the UK's nuclear forces. While there are similarities in terms of policy, posture and size, there are significant differences in terms of industrial support and cost. From the outset France has maintained an entirely sovereign nuclear capability, including its nuclear industrial complex, which has historically led to higher costs (approximately 10% to 11% of the total French defence budget annually).<sup>28</sup>

In the last few years, and because of a long-term modernisation programme, the percentage of the defence budget allocated to the nuclear deterrent has increased. In 2020 the French nuclear deterrent accounted for 12.5% of the defence budget (approximately €6 billion).<sup>29</sup> In 2023, the nuclear deterrent consumed 12.7% (€5.6 billion of a €43.9 billion budget).<sup>30</sup>

All the major political parties in France support an independent nuclear deterrent, and domestic support is also high.<sup>31</sup>

Over the last two decades, France has been modernising its nuclear arsenal, through the deployment of a new class of SSBN and the continuous upgrade of its nuclear-armed missile capabilities.

### 4.1 Stockpile

Prior to 2026, France's official position was that it had "fewer than 300 nuclear warheads", all of which are deployed and operational.<sup>32</sup> It had been

<sup>28</sup> Robert S. Norris and Hans M. Kristensen, French nuclear forces, 2005 Bulletin of the Atomic Scientists Nuclear Notebook, July/August 2005. In comparison, prior to 2023 the UK nuclear deterrent typically consumed 5% to 6% of the defence budget (see Commons Library briefing, [The cost of the UK's strategic nuclear deterrent](#) for more detail). For a discussion on the differences between UK and French nuclear independence, see also Defence Committee, [The Future of the UK's Strategic Nuclear Deterrent](#), HC 986, Q.49, Q.201 and Q.224

<sup>29</sup> Bruno Tertrais, [French Nuclear Deterrence Policy, Forces and Future: A Handbook](#) (PDF), February 2020

<sup>30</sup> Ministry for the Armed Forces, [Defense Key Figures 2024](#) (PDF) and Kristensen, Korda and Johns, French nuclear weapons 2023, [Bulletin of the Atomic Scientists Nuclear Notebook](#), July 2023

<sup>31</sup> The Green Party in France is the only party calling for nuclear disarmament. French opinion polls on the nuclear issue are relatively rare. However, [a poll conducted by Ifop](#) in January 2026 found that 69% of the population supported the renewal and modernisation of French nuclear weapons.

<sup>32</sup> Report submitted by France to the NPT Review Conference, 2015 ([NPT/CONE.2015/10](#))

widely estimated among experts that there were 290 warheads in the French nuclear stockpile.<sup>33</sup>

As outlined above, in March 2026 President Macron announced that the size of the French nuclear stockpile would increase (albeit without details) and that future data on nuclear weapon numbers would be withheld.

## 4.2 Fissile material

France halted the production of fissile material for weapons purposes in 1996 and began dismantling the production facilities dedicated to its weapons programme. Like the other nuclear weapon states, however, France retains a stockpile of fissile material.

According to the [International Panel on Fissile Materials](#), France has an estimated 25 metric tons of HEU and 6 metric tons of plutonium, available for weapons purposes.<sup>34</sup>

## 4.3 Capabilities

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The nuclear deterrent comprises an airborne and submarine-launched component.

Over the last two decades France has been modernising its nuclear forces.

The French nuclear deterrent was initially developed as an air-launched capability, followed by a land-based ballistic missile force and then a submarine-based ballistic missile capability.

As outlined above, after the end of the Cold War France began scaling back its nuclear arsenal. After withdrawing its ground-based ballistic missile force from service in 1996, France's nuclear forces now comprise a submarine-launched and air-launched component. France has made clear that it remains important to retain both systems as they have different characteristics and are complementary, providing a "range of necessary and sufficient options".<sup>35</sup>

Over the last two decades, France has been modernising its nuclear arsenal, through the deployment of a new Triomphant class of SSBN, the replacement of its combat aircraft in a nuclear role, the upgrade of both its submarine and air-launched nuclear-armed missile capabilities and the deployment of new warheads.

That modernisation process is ongoing. On current plans, by 2040 France will field a modernised nuclear force consisting of four third-generation SSBN

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<sup>33</sup> SIPRI Yearbook 2025, [World Nuclear Forces](#) (PDF), June 2025

<sup>34</sup> International Panel on Fissile Materials, [Fissile Material Stocks](#) (as of 31 December 2023)

<sup>35</sup> [Speech by President Hollande](#), 19 February 2015

(Invincible class) equipped with an upgraded ballistic missile, and a next generation fighter equipped with a new nuclear cruise missile.

## Maritime forces

The majority of the French deterrent is maritime based, with the Navy having responsibility for around 80% of the arsenal.

### Submarine-based capability

Most of that capability is delivered through France's fleet of four Triomphant-class ballistic missile submarines (SSBN) which have entered service since 1997 and have a service life of approximately 35 years.<sup>36</sup>

Each SSBN is capable of carrying up to 16 M-51 submarine-launched ballistic missiles (SLBM). The Navy retains a total of 48 SLBM in its inventory.<sup>37</sup> The M-51 SLBM came into service in 2010 and provides greater range, accuracy and operational flexibility than its predecessor, the M-45. It has an approximate range of around 6,000 km when carrying a full payload of up to six warheads of variable yields and penetration aids, although that range would reportedly increase to 8,000km if only a single warhead is carried.<sup>38</sup> The process of replacing all the Navy's M-45 SLBM with the M51 was completed in August 2018.

When first deployed, the M-51 SLBM had the same payload as the M-45, in the form of the TN75 warhead. However, France has developed a new, more robust, nuclear warhead, the Tête Nucléaire Oceanique (TNO).<sup>39</sup> That warhead is carried on upgraded M-51.2 missiles, which have replaced the M-51. The M-51.2 has a greater range than the original M-51 SLBM, with some analysts suggesting that it could have a maximum range of 9,000km, dependant on payload.<sup>40</sup> The latest missile version, the M-51.3 equipped with an upgraded warhead (the TNO-2) and with a range of 9,500km, was [commissioned in October 2025](#) (PDF) and is expected to enter service in 2026 when the SSBN Le Vigilant rejoins the fleet after a two-year maintenance period.<sup>41</sup>

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<sup>36</sup> The Triomphant class submarine replaced the Redoutable class. The first of class entered service in 1997, the second in 1999, the third in 2004 and the fourth in 2010.

<sup>37</sup> [Speech by President Hollande](#), 19 February 2015

<sup>38</sup> Bruno Tertrais, "[Nuclear policy: France stands alone](#)". Bulletin of the Atomic Scientists, July/August 2004

<sup>39</sup> Robust warheads are less sensitive, for example, to the ageing of components. The concept for the TNO (and the air-launched variant, the TNA) was tested during France's 1995-1996 final nuclear testing campaign and as such represents the new generation of French nuclear weapons in a test-ban context.

<sup>40</sup> Bruno Tertrais, [French Nuclear Deterrence, Policy, Forces and Future: A Handbook](#), February 2020

<sup>41</sup> SIPRI Yearbook 2025, [World Nuclear Forces](#) (PDF), June 2025

France's SSBN have maintained a continuous at-sea deterrent posture since 1972.<sup>42</sup> One SSBN is in maintenance at any given time.

The nuclear submarine fleet is based at Île Longue near Brest.

### Air-launched capability

The French Navy also operates a single squadron of 10 Rafale MF3 aircraft, equipped with nuclear-armed, medium range, ASMP-A cruise missiles.<sup>43</sup> Those aircraft are capable of being deployed aboard the French aircraft carrier Charles de Gaulle. The ASMP-A entered service in 2009 and has improved manoeuvrability, enhanced accuracy and an increased range of 600km. It is also equipped with the new Tête Nucléaire Aero-Portée (TNA) warhead.<sup>44</sup>

A mid-life refurbishment programme for the ASMP-A will address obsolescence issues and maintain the missile in service until 2035.<sup>45</sup>

When not deployed on the carrier, the Rafale MF3 squadron is based at Landivisiau naval aviation base in northern France.

### Modernisation

The M-51.3 missile, equipped with the TNO-2 warhead, is expected to enter service in 2026.

France adopts an evolutionary approach to upgrading its missile technologies, which is also thought to exploit synergies with France's space sector.<sup>46</sup> Design work was therefore expected to start on a new M-51.4 SLBM in 2025, with a view to operational service by the mid-2030s.<sup>47</sup>

Work has also begun on a next generation SSBN to replace the Triomphant class, which is due to leave service in the 2030s.<sup>48</sup> Designated the SNLE 3G, construction on the first boat, L'Invincible, began in 2024 and it is expected in

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<sup>42</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026

<sup>43</sup> The Rafale MF3 replaced the Super-Etendard in 2015

<sup>44</sup> The air-launched equivalent of the TNO.

<sup>45</sup> Jane's Defence Weekly, "Successful flight test of upgraded ASMPA missile paves way for refurbishment", 30 March 2022

<sup>46</sup> It has been suggested that research and development work on the M-51 is closely connected with development of the Ariane satellite launch vehicle (see Jane's Defence Weekly, "Ballistic trajectory: French SLBM technology developments boost operational output", 25 September 2018)

<sup>47</sup> SIPRI Yearbook 2025, [World Nuclear Forces](#) (PDF), June 2025

<sup>48</sup> The first of the Triomphant class entered service in 1997. With a 35-year lifespan, it could be expected to be decommissioned in 2032.

service in 2036.<sup>49</sup> The production schedule for the remaining SSBN is one vessel every five years, with the final boat expected into service in 2050.<sup>50</sup>

The SNLE 3G will initially deploy with the new M-51.3 SLBM, and later upgraded with the M-51.4 SLBM.

## Air Forces

The airborne component of the nuclear deterrent comprises 20% of France's total nuclear forces.

The French Air Force has two squadrons assigned to the nuclear role, comprising approximately 40 Rafale F3 aircraft (20 apiece).<sup>51</sup> The Rafale F3 is equipped with the ASMP-A cruise missile and TNA warhead.

A mid-life refurbishment for the ASMP-A missile delivered the first upgraded missiles in 2022-2023 and will keep them in service until 2035.

Rafale F3 squadrons are based at Saint Dizier airbase, east of Paris. They can, however, be deployed from any of France's designated nuclear bases: Saint Dizier, Istres and Avord. The Luxeuil air force base lost its nuclear role in 2011, although that was reinstated in March 2025.<sup>52</sup>

## Modernisation

The Rafale F3 are intended to be replaced by the Next Generation Fighter (NGF), which is being pursued under the framework of the [Future Combat Air System](#) (FCAS) programme, alongside Spain and Germany. That aircraft is expected to be operational in 2040, although the programme has been beset with problems over industrial workshare.<sup>53</sup> In the interim, two new squadrons of next-generation Rafale F5 aircraft will enter service at Luxeuil between 2030 and 2035, which will double the number of the French Air Force's nuclear capable aircraft.<sup>54</sup>

Research on a next generation nuclear-capable missile has also begun. Designated the ASN4G (air-to-surface nuclear fourth generation), the missile will be hypersonic and have enhanced stealth and manoeuvrability to counter

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<sup>49</sup> French embassy in the United Kingdom, [Nuclear deterrence – speech by M. Emmanuel Macron, President of the Republic](#), 2 March 2026

<sup>50</sup> SIPRI Yearbook 2025, [World Nuclear Forces](#) (PDF), June 2025 and Kristensen, Korda, Johns and Knight-Boyle, [French nuclear weapons 2025](#) (PDF), Bulletin of the Atomic Scientists Nuclear Notebook, July 2025

<sup>51</sup> The Rafale F3 began taking over the nuclear strike mission from the Mirage 2000N in 2009. The last of the nuclear capable Mirage 2000N retired in 2018.

<sup>52</sup> Kristensen, Korda, Johns and Knight-Boyle, [French nuclear weapons 2025](#) (PDF), Bulletin of the Atomic Scientists Nuclear Notebook, July 2025

<sup>53</sup> Politico, [“Airbus defence chief questions FCAS fighter jet as Paris and Berlin extend talks”](#), 19 March 2026

<sup>54</sup> Kristensen, Korda, Johns and Knight-Boyle, [French nuclear weapons 2025](#) (PDF), Bulletin of the Atomic Scientists Nuclear Notebook, July 2025

potential improvements in air defence technologies.<sup>55</sup> The ASN4G, equipped with the TNA warhead, is expected to replace the ASMP-A in 2035 and will arm both the Rafale F3, F5 and the NGF once it enters service.

The overlap in development and production timelines for the next generation SSBN, the Next Generation Fighter and the ASN4G is considered likely to present “budgetary issues for Paris”.<sup>56</sup>

## 4.4 Procurement and support

A two-way technical cooperation channel exists with the United States on nuclear safety and security. Since 1992, with the establishment of the Anglo-French Joint Nuclear Commission, there has also been collaboration with the UK on the coordination of nuclear policy and doctrine.<sup>57</sup> In 2010 Anglo-French co-operation went one step further following the signing of a treaty outlining co-operative measures governing the stewardship of existing nuclear stockpiles (see below). In July 2025, France and the UK also signed the Northwood Declaration which set out measures to deepen nuclear cooperation and coordination under the political direction of a UK-France Nuclear Steering Group.

In all other respects, France has independently built and maintained all the necessary components of its nuclear arsenal.

### Industrial Complex

The aircraft and submarine platforms for the French nuclear deterrent are all designed and built by French companies.

The Rafale F3/ MF3, its predecessor the Super Étendard, and the Mirage 2000N (which recently retired from service) are all aircraft designed and manufactured by the French company Dassault.

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<sup>55</sup> Hypersonic missiles can travel five times faster than the speed of sound. There are generally two categories: cruise missiles powered by engines and glide vehicles which are launched nearly into space before diving back down to a target. Hypersonic cruise missiles are manoeuvrable and fly at lower altitudes making them more difficult to detect than a ballistic missile which flies on a more predictable trajectory. Such characteristics arguably make hypersonic missiles more destabilising as they reduce response time and make it difficult to distinguish between a nuclear and conventionally armed weapon. (See Kristensen, Korda, Johns and Knight-Boyle, [French nuclear weapons 2025](#) (PDF), Bulletin of the Atomic Scientists Nuclear Notebook, July 2025. President Macron also alluded to a new hypersonic missile in his [speech on nuclear deterrence](#) on 2 March 2026).

<sup>56</sup> Jane’s Intelligence Review, “France and Russia continue to update nuclear forces”, 3 March 2021

<sup>57</sup> A history of nuclear cooperation with the US and the UK is examined in Bruno Tertrais, [French Nuclear Deterrence, Policy, Forces and Future: A Handbook](#), February 2020

The Triomphant class ballistic missile submarines, and their associated systems, were designed and manufactured by the French naval contractor DCNS, now Naval Group at their shipyard in Cherbourg.

The ASMP-A and M-51/M-51.2 and M-51.3 missiles (and their predecessors the ASMP and M-45) are all products of another French company, Aerospatiale Matra, which is now part of the pan-European company MBDA.

The DAM (Direction des Applications Militaires) within the Nuclear Energy Commission is responsible for the research, design, manufacture, in-service maintenance and dismantlement of France's nuclear warheads.

France also has its own facilities for maintenance and support and has built several new facilities to ensure the safety and reliability of the French-designed and built warheads without resorting to full scale testing.<sup>58</sup>

Submarine support facilities are located at the Île Longue naval base near Brest where the warheads are mated with the re-entry vehicles and missiles. Long term submarine repairs and refueling takes place at the Brest naval base. The ballistic missile submarine command centre was also re-located to Brest in 2000; while communication facilities continue to operate from Rosnay.

Protection while on operations is provided by French nuclear attack submarines, maritime patrol aircraft, anti-submarine frigates and minesweepers.<sup>59</sup>

## Cooperation with the UK since 2010

In 2010 the UK and France signed two defence co-operation treaties (often referred to as the Lancaster House treaties), intended to further collaboration in terms of interoperability, procurement, logistics and support, and industrial co-operation:

- [Treaty between the United Kingdom and the French Republic for Defence and Security Cooperation](#), Cm 8174, November 2010
- [Treaty between the United Kingdom and the French Republic relating to Joint Radiographic/Hydrodynamics Facilities](#), Cm 8289, November 2010

Significantly, the latter Treaty outlined greater co-operation in the nuclear sphere, specifically with respect to the stewardship of both countries' nuclear stockpiles, including the safety and security of nuclear weapons, stockpile certification, and countering nuclear or radiological terrorism.

Both countries committed to build and jointly operate a dedicated radiographic and hydrodynamics facility at Valduc in France (the Teutates

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<sup>58</sup> Kristensen, Korda, Johns and Knight-Boyle, [French nuclear weapons 2025](#) (PDF), Bulletin of the Atomic Scientists Nuclear Notebook, July 2025

<sup>59</sup> As above

project) and co-operate in a joint radiography and diagnostics technology programme in a joint facility (Technology Development Centre) at AWE Aldermaston in the UK.

At the UK-France summit in 2014 both countries agreed to expand their technical cooperation under the treaty:

30. We are making excellent progress with the development of world class scientific facility Epure in Valduc to underwrite the safe and assured performance of our respective nuclear weapon stockpiles. Final national investment approvals were recently granted by the two Governments: a significant step that deepens our commitment in accordance with the Treaty. It was agreed today to optimize the efficiency of the Teutates project by taking benefice of the refurbishment of a facility located in Aldermaston. We also have agreed to subject more of the technical and scientific data that underpins warhead certification to peer review; to work together on developing energetic materials for the future; and to conduct joint research at the laser facilities located at AWE Orion and CEA/DAM - LMJ.

There is no greater evidence of the value we both attach to the bilateral relationship than our willingness to work together in this most sensitive area.<sup>60</sup>

### 2025 Northwood Declaration

In July 2025, Prime Minister Keir Starmer and President Emmanuel Macron agreed to deepen nuclear cooperation and coordination between the UK and France.

Under the political direction of a UK-France Nuclear Steering Group, work will focus on the coordination of nuclear policy, capabilities and operations.<sup>61</sup>

The International Institute for Strategic Studies has described the Northwood Declaration as “significant” and a positioning of the UK-French nuclear relationship as “both an additional layer of protection alongside NATO’s collective-defence guarantees and a possible backstop should the United States’ nuclear commitments to Europe be weakened or withdrawn”.<sup>62</sup>

### Box 3: Suggested reading

- French Ministry of the Armed Forces, [Background dossier: Address on French nuclear deterrence by the President of the Republic](#) (PDF), 2 March 2026

<sup>60</sup> HM Government, [France-UK Summit: Declaration on Security and Defence](#), 31 January 2014

<sup>61</sup> Prime Minister’s Office, [Northwood Declaration](#), 10 July 2025

<sup>62</sup> Strategic Comments, [The Northwood Declaration: UK-France nuclear cooperation and a new European strategic backstop](#), September 2025

- Strategic Comments, [“The French nuclear deterrent expands eastwards”](#), March 2026
- Strategic Europe, [“Taking the pulse: Is France’s new nuclear doctrine ambitious enough?”](#), 12 March 2026
- International Institute for Strategic Studies, [“French nuclear deterrence: Vive l’évolution”](#), 12 March 2026
- Héloïse Fayet, [“France has a new nuclear doctrine of forward deterrence for Europe: What does it mean?”](#), Bulletin of the Atomic Scientists, 5 March 2026
- Grégoire Roos, [“Macron’s nuclear weapons offer to Europe: Gaullist policy, updated for a more unstable world”](#), Chatham House Expert Comment, 4 March 2026
- Center for Strategic and International Studies, [Northwood Declaration: The future of European deterrence?](#), 27 February 2026
- Strategic Comments, [The Northwood Declaration: UK-France nuclear cooperation and a new European strategic backstop](#), September 2025
- Kristensen, Korda, Johns and Knight-Boyle, [French nuclear weapons 2025](#) (PDF), Bulletin of the Atomic Scientists Nuclear Notebook, July 2025
- Bruno Tertrais, [French Nuclear Deterrence Policy, Forces and Future: A Handbook](#), February 2020

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