

## US nuclear weapons capability

### [Overview]

With the U.S. there is more (though insufficient) transparency over its nuclear weapons than any other countries'. In May 2010, the U.S. Department of Defense issued a fact sheet on its nuclear stockpile, which reported 5,113 warheads as of September 2009. Ever since, it has been updated almost annually. The last update, provided in January 2017, reported a total 4,018 warheads as of September 30, 2016 (**The White House 2017**), indicating a reduction of 1,095 over a seven-year period.

A closer look at its nuclear capability shows 1,750 warheads in operational deployment (1,600 strategic warheads and 150 non-strategic). The strategic warheads are deployed with ICBMs, SLBMs and U.S. Air Force bases. The remainder (about 2,050) constitutes a reserve. This number is greater than the 1,393 strategic nuclear warheads in operational deployment registered under the New START as on September 1, 2017 (**U.S. Department of State 2018-1**). One reason for the discrepancy may be due to the New START Treaty of counting only one warhead per strategic bomber, as opposed to accounting for all other warheads stored on base where bombers are stationed. The White House's January 2017 fact sheet also revealed that some 2,800 warheads were retired and awaiting disassembly. It is estimated that, with further reductions since September 2017 to have totaled 3,800, the entire U.S. nuclear stockpile to be 6,450 including 2,650 retired and awaiting disassembly.

On February 2, 2018, the Trump administration's Nuclear Posture Review (NPR) fundamentally reversed the previous administration's NPR, which had sought to reduce the role of nuclear weapons. The policy aims to lower the threshold for nuclear retaliation in the event of conventional attack and broaden the role of nuclear weapons. More specifically, it seeks to obtain a wide range of rapid response alternatives capable of breaching enemy defenses. To do so, it plans to lower yield on SLBM warheads and, over the long term, develop new weapons systems (such as SLCMs) that would facilitate preemptive strike.

Currently, the U.S. is in the process of modernizing its nuclear weapons. The NNSA 2016 plan is to cut back on surplus warheads dramatically by integrating seven existing types of warhead into a single type and also converting two ICBM warheads and three SLCM warheads into three mutually compatible warheads. In addition, it will begin replacing strategic nuclear submarines and bombers. For these initiatives, there will be an outlay of USD 400 billion between FY2017 and FY2026 (**Congressional Budget Office 2017**) and, over the next 30 years, USD 1.2 trillion (**Arms Control Association 2018**). It is critical to monitor how the U.S. nuclear posture will evolve under Trump's NPR.

The U.S. conducted four ballistic test launches with the ICBM Minuteman III (**Space Launch Report 2017**) and four with the SLBM Trident II (**Kristensen, Hans M. & Norris, Robert S. 2018-1**).

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Type / designation	Missile /bomb	No. of warheads per weapon	No. of warheads	Types of nuclear warheads	Yield (kt)	Year first deployed	Remarks
<b>Deployed</b>			<b>1,062</b>				<b>1,750</b>
<b>Intercontinental ballistic missile (ICBM)</b>			<b>400</b>				<b>400</b>
MinutemanIII <sup>a)</sup> Mk-12A	200	1	200	W78	335	1979	
MinutemanIII Mk-21/SERV	200	1	200	W87	300	2006	
<b>Submarine-launched ballistic missile (SLBM)</b>			<b>212</b>				<b>900</b>
Trident II D5 <sup>b)</sup> Mk-4	122	3~6	516	W76-1	100	2008	Carried by the Ohio-class nuclear submarine <sup>c)</sup>
Trident II D5 Mk-5	90	3~6	384	W88	455	1990	
<b>Strategic bomber payloads</b>			<b>450</b>				<b>450</b>
Cruise missile <sup>d)</sup>	200	1	200	W80-1	5-150	1961	Carried by the B-52H <sup>f)</sup>
Strategic nuclear bomb <sup>e)</sup>	100	1	100	B61-7 B61-11 B83-1	10-360 400 low-1,200	1985 1997 1993	Carried by the B-2A <sup>g)</sup>
Non-strategic nuclear and airborne weapons <sup>h)</sup>	150	1	150	B61-3 B61-4	0.3-170 0.3-50	1979	4)
<b>Reserve / Nondeployed</b>							<b>2,050</b>
<b>ICBM</b>							<b>400</b>
<b>SLBM</b>							<b>920</b>
<b>Air-launched systems (Bombers, etc.)</b>			<b>730</b>				<b>730</b>
Strategic bomber Payload	580	1	580				7)
Non-strategic nuclear weapons	150	1	150	B61-3/-4/-10			8)
Retired warheads awaiting dismantlement, etc.							~2,650
<b>Total inventory</b>							<b>~6,450</b>

### [Notes]

- 1) Estimates of operationally deployed numbers (**Kristensen, Hans M. 2012**) show 450 missiles and 500 nuclear warheads. New START data (**U.S. Department of State 2018-1**) as of September 1, 2017, indicates that 399 ICBMs are deployed. There have been reports that the conversion to single warhead has been completed (**Global Security Newswire 2014**), so the number is taken as 400 warheads. On the other hand, the United States has announced that the number of deployed ICBMs will be 400 on completion of New START implementation (**U.S. Department of Defense 2014**).
- 2) Conventional estimates of operationally deployed numbers shows 288 missiles (12 submarines x 24 launch tubes) (**Kristensen, Hans M. 2012-1**). Toward the end of 2017, all vessels reduced their tubes from 24 to 20 (i.e., 240 missiles) (**Kristensen, Hans M. & Norris, Robert S. 2018-1**). According to the New

START data disclosed on January 1, 2018, 212 SLBMs are in deployment, with no reference to the number of warheads (**U.S. Department of State 2018-1**). Here, we are subtracting 400 ICBMs and 300 bomber-equivalent warheads from a total 1,600 strategic warheads in operational deployment to arrive at 900 SLBM warheads. With these assumptions (212 SLBMs and 900 warheads), we have calculated the number of warheads by type. The latest estimate (**Kristensen, Hans M. & Norris, Robert S. 2018-1**) puts it at 384 W88 warheads, all of which are seen to be operationally deployed. Accordingly, we have subtracted these 384 W88s from the operationally deployed 900 warheads to arrive at 516 W76-1s. As for the Mk-4A and Mk-5A figures, the 212 SLBMs were broken down by warhead on a pro rata basis. The average is 4.5 warheads per missile, meaning four or five warheads in reality. The United States announced that it would have 240 SLBMs deployed on completion of New START implementation (**U.S. Department of Defense 2014**).

- 3) An estimated 1,090-warhead reserve stockpile exists apart from 450 in operational deployment.
- 4) 150 weapons are deployed to six air force bases in five European countries (Belgium, Germany, Italy, the Netherlands, and Turkey) for use by NATO forces (**Kristensen, Hans M. & Norris, Robert S. 2015; Kristensen, Hans M. 2014**). Meanwhile, the Tomahawk missile previously carried by nuclear-powered attack submarines have been retired and it was announced that the warheads have all been disassembled. (**U.S. Department of State 2014-1**)
- 5) The ordnance of two Ohio-class nuclear submarines (48 missiles, 192 warheads) currently in overhaul, in addition to hundreds of bombs and cruise missiles are stored in central depositories. In January 2017, the White House revealed the total number of U.S. warheads both in deployment and reserve, as of September 30, 2016, to be 4,018 (**The White House 2017**). Based on this figure, we have applied a retirement rate and estimate the current stockpile to be 3,800 warheads. Subtracting 1,750 in operational deployment, we arrived at a reserve storage of 2,050 (**Kristensen, Hans M. & Norris, Robert S. 2018-2**). This breaks down, according to the latest estimates (**Kristensen, Hans M. & Norris, Robert S. 2018-1**), into 1,900 strategic and 150 non-strategic warheads. The strategic stockpile further breaks down into 400 ICBMs and 580 bombs on strategic bombers. We arrived at 920 SLBMs by subtracting any remainder from 1,900 warheads in reserve.
- 6) These include hundreds of W76-1 warheads that have replaced W76-0s.
- 7) They are stockpiled in central depositories at Kirtland Air Force Base in New Mexico and Nellis Air Force Base in Nevada (**Kristensen, Hans M. & Norris, Robert S. 2016-1**).
- 8) They are probably being stored at Kirtland Air Base in New Mexico and Nellis Air Base in Nevada. There seems to be three categories: B61-3s, B61-4s, and the entire stock of B61-10s which is now in reserve.
- 9) In addition, 20,000 plutonium pits used for primary detonation that have been removed from disassembled warheads together with 4,000 pits for secondary detonation are thought to be stockpiled at the Pantex plant (Texas) and Y-12 plant (Tennessee) (**Kristensen, Hans M. & Norris, Robert S. 2018-2**).
- 10) On May 3, 2010, the U.S. government published a fact sheet on its nuclear weapons stockpile (**U.S. Department of Defense 2010**) stating that the stockpile of nuclear weapons consisted of 5,113 warheads as of September 30, 2009. It also clarified the year-to-year changes in that figure. This was based on recognition of how important these changes were in pursuing supplemental reductions after the New START Treaty went into effect. The same data was updated to 4,804 as of September 30, 2013 (April 29, 2014, **U.S. Department of State 2014-2**), 4,717 as of September 30, 2014 (April 27, 2015, **John Kerry, Remarks at the 2015 NPT Review Conference**), and 4,571 as of September 30, 2015 (May 2016, **U.S. Department of Defense 2016**). The latest update is from January 2017. As of September 30, 2016, there existed 4,018 warheads (**The White House 2017**). In this table, those "retired warheads awaiting dismantlement" are subtracted from the entire stockpile and this equates 3,800 in storage. Given the pace of retirement following the January 2017 disclosure, it is an almost identical match.

#### [Source]

- Arms Control Association 2018**: "U.S. Nuclear Modernization Programs," March, 2018. <https://www.armscontrol.org/factsheets/USNuclearModernization> (accessed May 31, 2018)
- Congressional Budget Office 2017**: "Approaches for Managing the Costs of U.S. Nuclear Forces, 2017 to 2046," October, 2017. <https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/53211-nuclearforces.pdf>
- Global Security Newswire 2014**: "U.S. Eliminates Multi-Warheads on All Ground-Based Nuclear Missiles," <http://www.nti.org/gsn/article/us-pulls-multiple-warheads-all-nuclear-missiles/> (accessed 1, 2014)
- Kerry, John 2015** 'Remarks at the 2015 NPT Review Conference, April 27, 2015.' <http://www.state.gov/secretary/remarks/2015/04/241175.htm> (accessed April 28, 2015)
- Kristensen, Hans M. 2012**: "Trimming Nuclear Excess -Options for Further Reductions of U.S. and Russian Nuclear Forces," Federation of American Scientists, Special Report No. 5, December, 2012.
- Kristensen, Hans M. 2013**: "Capabilities of B61-12 Nuclear Bomb Increase Further," October 30, 2013. <http://blogs.fas.org/security/2013/10/b61-12hearing/> (accessed November 11, 2013)
- Kristensen, Hans M. 2014**: "B61-12: The New Guided Standoff Nuclear Bomb," [http://fas.org/programs/ssp/nukes/publications1/Brief2014\\_PREPCOM2.pdf](http://fas.org/programs/ssp/nukes/publications1/Brief2014_PREPCOM2.pdf) (accessed May 7, 2014)
- Kristensen, Hans M. 2015**: "Status of World Nuclear Forces," Federation of American Scientists, 2015. <http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/> (accessed June 2, 2015)
- Kristensen, Hans M. & Norris, Robert S. 2015**: "US nuclear forces, 2015," *Bulletin of the Atomic Scientists*, March/April, 2015.
- Kristensen, Hans M. & Norris, Robert S. 2016-1**: "US nuclear forces, 2016," *Bulletin of the Atomic Scientists*, March/April, 2016.
- Kristensen, Hans M. & Norris, Robert S. 2016-2**: "Status of World Nuclear Forces," Federation of American Scientists, May 26, 2016. <http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/> (accessed May 29, 2016)
- Kristensen, Hans M. & Norris, Robert S. 2017-1**: "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, Jan./Feb., 2017.
- Kristensen, Hans M. & Norris, Robert S. 2017-2**: "Status of World Nuclear Forces," Federation of American Scientists, April 4, 2017. <http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/> (accessed May 31, 2017)
- Kristensen, Hans M. & Norris, Robert S. 2018-1**: "US nuclear forces, 2018," *Bulletin of the Atomic Scientists*, Mar./Apr., 2018.
- Kristensen, Hans M. & Norris, Robert S. 2018-2**: "Status of World Nuclear Forces," Federation of American Scientists, May 2018. <http://fas.org/issues/nuclear-weapons/status-world-nuclear-forces/> (accessed May 31, 2018)
- NNSA 2016**: "Fiscal Year 2016 Stockpile Stewardship and Management Plan," [https://nnsa.energy.gov/sites/default/files/FY16SSMP\\_FINAL%203\\_16\\_2015\\_reducedsize.pdf](https://nnsa.energy.gov/sites/default/files/FY16SSMP_FINAL%203_16_2015_reducedsize.pdf)
- Space Launch Report 2016**: "2016 Major Suborbital Log," <http://www.spacelaunchreport.com/log2016.html#log2>
- Space Launch Report 2017**: "2017 Major Suborbital Log," <http://www.spacelaunchreport.com/log2017.html#log2>
- U.S. Department of Defense 2010**: "Fact Sheet Increasing Transparency in the U.S. Nuclear Weapons Stockpile," [https://www.defense.gov/Portals/1/features/defenseReviews/NPR/10-05-03\\_Fact\\_Sheet\\_US\\_Nuclear\\_Transparency\\_FINAL\\_w\\_Date.pdf](https://www.defense.gov/Portals/1/features/defenseReviews/NPR/10-05-03_Fact_Sheet_US_Nuclear_Transparency_FINAL_w_Date.pdf)
- U.S. Department of Defense 2014**: "Fact Sheet on U.S. Nuclear Force Structure under the New START Treaty," April 8, 2014. <http://www.defense.gov/documents/Fact-Sheet-on-US-Nuclear-Force-Structure-under-the-New-START-Treaty.pdf>
- U.S. Department of Defense 2016**: "Stockpile Numbers: End of Fiscal Years 1962-2015," [http://open.defense.gov/Portals/23/Documents/frddwg/2015\\_Tables\\_UNCLASS.pdf](http://open.defense.gov/Portals/23/Documents/frddwg/2015_Tables_UNCLASS.pdf)
- U.S. Department of State**: "New START: Fact Sheets." <https://2009-2017.state.gov/t/avc/newstart/c39906.htm>
- U.S. Department of State 2014-1**: "Report of the United States of America Pursuant to Actions 5, 20, 21 of the 2010 Nuclear Non-Proliferation Treaty Review Conference Final Document," April 29, 2014. <https://2009-2017.state.gov/documents/organization/225580.pdf>
- U.S. Department of State 2014-2**: "Fact Sheet Transparency in the U.S. Nuclear Weapons Stockpile," April 29, 2014. <https://2009-2017.state.gov/t/avc/rls/225343.htm>
- U.S. Department of State 2015-1**: "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," Jan. 1, 2015. <https://2009-2017.state.gov/t/avc/rls/235606.htm>
- U.S. Department of State 2015-2**: "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," July 1, 2015. <https://2009-2017.state.gov/t/avc/rls/240062.htm>

**U.S. Department of state 2016-1:** "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," Jan. 1, 2016. <https://2009-2017.state.gov/t/avc/rls/2016/250940.htm>

**U.S. Department of state 2016-2:** "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," April 1, 2016. <https://2009-2017.state.gov/t/avc/rls/2016/255377.htm>

**U.S. Department of State 2017-1:** "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," Jan.1, 2017. <https://2009-2017.state.gov/t/avc/rls/2016/266384.htm>

**U.S. Department of State 2017-2:** "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," April.1, 2017. <https://www.state.gov/t/avc/newstart/269406.htm>

**U.S. Department of State 2018:** "New START Treaty Aggregate Numbers of Strategic Offensive Arms, Fact Sheet," January 12, 2018. <https://www.state.gov/t/avc/newstart/277439.htm>

**The White House 2017:** Fact Sheet: The Prague Nuclear Agenda, Jan. 11, 2017. <https://obamawhitehouse.archives.gov/the-press-office/2017/01/11/fact-sheet-prague-nuclear-agenda>

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a)

### ICBM LGM-30G

Designation : MinutemanIII  
Propulsion : Three-stage solid-propellant  
Launch platform : Silo  
No. of warheads : Maximum 3 warheads  
Warhead : W78, W87  
Specifications : Length 18 m, Diameter 1.67 m, Weight 32.2 ton  
Range : Over 9,600 km  
Circular error probability : 110 m  
Where deployed : F.E. Warren Air Base (Wy)  
Malmstrom Air Base (Mont)  
Minot Air Base (N.D.)  
Remarks : A modernization program to extend the service life of the Minuteman 3 until 2030 is in progress. The LGM-30G is deployed at three U.S.AF bases. Annually each base surveils the platform by launching a missile. The latest test launches were conducted on April 25 and May 14, 2018 from Vandenberg Air Base aimed at the test site at Kwajalein Atoll in the Marshall Islands. The "Mk-" designation is the identifying mark for the heat-resistant protective capsule for the nuclear warheads. Work on conversion of the Mk-12A/W78 warheads to single warheads has been proceeding since 2002, and the Obama administration completed that work in 2014. However, the possibility of reloading them has been left open. Mk-21/W87 warheads were carried by the Peacekeeper (retired in 2005), which was developed and deployed as the Minuteman 3 successor. All the obsolete Mk-12/W62 warheads for the Minuteman 3 were exchanged for these. Meanwhile, development is also underway on IW-1 interoperable warheads, which integrate the ICBM W78 warheads and the SLBM W88 warheads. The U.S. plans to develop a new interoperable warhead, the IW-3, which will be based on the SLBM W76-1 and the IW-2, which is in turn interoperable between the W-87 (ICBM) and W88 (SLBM) warheads.

#### [Source]

**Air Force Global Strike Command 2017-1:** "Minot tests Minuteman III missile with launch from Vandenberg," February 09, 2017. <http://www.afgsc.af.mil/News/Article-Display/Article/1077316/minot-tests-minuteman-iii-missile-with-launch-from-vandenberg/> (accessed June 14, 2017)

**Air Force Global Strike Command 2017-2:** "F.E. Warren tests Minuteman III missile with launch from Vandenberg," April 26, 2017. <http://www.af.mil/News/Article-Display/Article/1163173/fe-warren-tests-minuteman-iii-missile-with-launch-from-vandenberg/> (accessed June 14, 2017)

**Air Force Global Strike Command 2017-3:** "MALMSTROM TESTS MINUTEMAN III MISSILE WITH LAUNCH FROM VANDENBERG," May 03, 2017. <http://www.afgsc.af.mil/News/Article-Display/Article/1170700/malmstrom-tests-minuteman-iii-missile-with-launch-from-vandenberg/> (accessed June 14, 2017)

**FAS 2013:** "LGM-30 Minuteman III ICBM – United States Nuclear Forces," [http://www.fas.org/nuke/guide/usa/icbm/lgm-30\\_3.htm](http://www.fas.org/nuke/guide/usa/icbm/lgm-30_3.htm) (accessed July 10, 2013)

**Global Security 2011:** "LGM-30 Minuteman III ICBM – United States Nuclear Forces," [http://www.globalsecurity.org/wmd/systems/lgm-30\\_3-specs.htm](http://www.globalsecurity.org/wmd/systems/lgm-30_3-specs.htm) (accessed July 10, 2013)

**Global Security Newswire 2014:** "U.S. Eliminates Multi-Warheads on All Ground-Based Nuclear Missiles," <http://www.nti.org/gsn/article/us-pulls-multiple-warheads-all-nuclear-missiles/> (accessed 1, 2014)

**InDepthNews 2018:** "US Launches Minuteman III Missile Test in Cloud of Secrecy," Lompoc Record, April 25, 2018. <https://www.indepthnews.net/index.php/the-world/usa-and-canada/1831-us-launches-minuteman-iii-missile-test-in-cloud-of-secrecy> (accessed May 31, 2018)

**Jacobson, Willis 2018:** "Unarmed Minuteman III missile launched from Vandenberg Air Force Base as activists question timing," Lompoc Record, May 14, 2018. <https://lompocrecord.com/news/local/unarmed-minuteman-iii-missile-launched-from->

**Kristensen, Hans M. & Norris, Robert S. 2017:** "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, Jan./Feb., 2017.

**Kristensen, Hans M. & Norris, Robert S. 2018:** "US nuclear forces, 2018," *Bulletin of the Atomic Scientists*, Mar./Apr., 2018.

**U.S. Department of Energy 2013:** "Fiscal Year 2014 Stockpile Stewardship and Management Plan," <http://nnsa.energy.gov/ourmission/managingthestockpile/ssmp> (accessed November 11, 2013)

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b)	<b>SLBM UGM-133A</b>
Designation :	Trident II D5
Propulsion :	Three-stage solid-propellant
Launch platform :	Ohio-Class strategic nuclear submarine
No. of warheads :	4~5warheads (Maximum 8 warheads)
Warhead :	W76, W76-1, W88
Specifications :	Length 13.4 m, Diameter 1.85 m, Weight 59.0 ton
Range :	6,500 km
Circular error probability :	120 m
Remarks :	<p>This is a plan to extend missile service life from 2017. The "Mk-" designation is the identifying mark for the heat-resistant protective capsule for the nuclear warheads. Mk-4A/ W76-1 warheads are modifications of Mk-4/ W76 warheads and have the same yield but with modernized armor, fusing, and firing (AF&amp;F) systems. It is this W76-1 warhead that is being supplied to the United Kingdom. Production of the W88-1 is planned to begin by the end of 2018. This is the Mk-5/W88 warhead with modernized armor, fusing, and firing (AF&amp;F) systems as well as replace neutron generators and gas (deuterium/ tritium?) storage chambers for extended service life. For this a test flight took place on February 22, 2015, in San Diego.</p> <p>Trident test launches occur four times a year. The latest test was conducted on March 26, 2018, the first such test for the D5 LE (Mk-6), which had had a lifetime extension, involving two launches. Meanwhile, development is also underway on IW-1 interoperable warheads, which integrate the ICBM W78 warheads and the SLBM W88 warheads. Furthermore, the U.S. plans to develop a new interoperable warhead, the IW-3, which will be based on the SLBM W76-1 and the IW-2, which is in turn interoperable between the W-87 (ICBM) and W88 (SLBM) warheads.</p>

**[Source]**

**FAS:** "Trident II D-5 Fleet Ballistic Missile FBM / SLBM – United States Nuclear Forces," <http://www.fas.org/nuke/guide/usa/slbm/d-5.html> (accessed July 10, 2013)

**Global Security 2011:** "Trident II D-5 Fleet Ballistic Missile FBM / SLBM – United States," <http://www.globalsecurity.org/wmd/systems/d-5-specs.htm> (accessed July 10, 2013)

**Kristensen, Hans M. & Norris, Robert S. 2014:** "US nuclear forces, 2014," *Bulletin of the Atomic Scientists*, January/February, 2014.

**Kristensen, Hans M. & Norris, Robert S. 2016:** "US nuclear forces, 2016," *Bulletin of the Atomic Scientists*, March/April, 2016.

**Lockheed Martin 2018:** "MODERNIZED LOCKHEED MARTIN TRIDENT II D5 MISSILE TEST CERTIFIES SUBMARINE FOR PATROL," March 28, 2018. <https://news.lockheedmartin.com/2018-03-28-Modernized-Lockheed-Martin-Trident-II-D5-Missile-Test-Certifies-Submarine-for-Patrol> (accessed May 31, 2018)

**U.S. Department of Energy 2013:** "Fiscal Year 2014 Stockpile Stewardship and Management Plan," <http://nnsa.energy.gov/ourmission/managingthestockpile/ssmp> (accessed November 11, 2013)

**U.S. Navy 2016:** "FCET Success: SSBN Launches Fleet Ballistic Missiles," February 16, 2017.[http://www.navy.mil/submit/display.asp?story\\_id=98934](http://www.navy.mil/submit/display.asp?story_id=98934) (accessed June 14, 2017)

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c)	<b>Ohio-Class strategic nuclear submarine</b>
No. of tubes :	24
SLBM :	Trident II D-5
Specifications :	Length 171 m, Width 13 m, Emissions 16,600 ton
Submerged speed :	25 knot (46 km/h)
Depth :	Around 250 m
Where deployed :	Kings Bay Naval Base(Ga) 6 vessels Bangor Naval Base(Wa) 8 vessels
Remarks :	Deployment started in 1981, and 18 of the vessels were built. Since these were earmarked for reduction under the 2nd Strategic Arms Reduction Treaty (START II, did not go into effect), four were converted into guided missile nuclear

submarines and 14 are presently engaged in nuclear missions. Of them, two are always being overhauled. It was announced that the number of launch tubes on each vessel would be reduced to 20 by 2018 in order to satisfy the New START Treaty's restrictions on the number of launch platforms. Plans are presently being made for 12 new-model nuclear submarines to replace the Ohio-class, and the first of them is scheduled for procurement in 2021. The submarine is expected to be commissioned around 2026.

[Source]

**Congressional Budget Office 2016:** "An Analysis of the Navy's Fiscal Year 2016 Shipbuilding Plan," October, 2016. <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/50926-Shipbuilding-2.pdf>

**FAS:** "SSBN-726 Ohio-Class FBM Submarines," <http://www.fas.org/nuke/guide/usa/slbm/ssbn-726.htm> (accessed July 10, 2013)

**Kristensen, Hans M. & Norris, Robert S. 2017:** "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, January/February, 2017.

**U.S. Department of Energy 2013:** "Fiscal Year 2014 Stockpile Stewardship and Management Plan," <http://nnsa.energy.gov/ourmission/managingthestockpile/ssmp> (accessed November 11, 2013)

**U.S. Department of Defense 2014:** "Fact Sheet on U.S. Nuclear Force Structure under the New START Treaty," <http://www.defense.gov/documents/Fact-Sheet-on-US-Nuclear-Force-Structure-under-the-New-START-Treaty.pdf>

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d) **Cruise missile AGM-86**

Type : Air-launched cruise missile  
Warhead : W80-1 (5–150kt ; Variable-yield)  
Specifications : Length 6.29 m, Diameter 0.62 m, Weight 1.4 ton  
Max. speed : 880 km/h  
Range : 2,500 km  
Carried by : B52-H Stratofortress  
Remarks : Ordinarily not carried by bombers but instead stored at Minot Air Base in North Dakota. They are said to be ready for loading onto delivery systems within several days if needed. They are planned to be kept operational by the 2020s. Meanwhile, for deployment around 2027, new-model long-range cruise missiles are in development, and it is thought that the W80-1 nuclear warheads will be used with measures to extend their service life. The U.S. Air Force plans to purchase more than 1,000 cruise missiles.

[Source]

**Arms Control Association 2015:** "Air Force Wants 1,000 New Cruise Missiles," May 5, 2015. [https://www.armscontrol.org/ACT/2015\\_05/News/Air-Force-Wants-Thousand-New-Cruise-Missiles](https://www.armscontrol.org/ACT/2015_05/News/Air-Force-Wants-Thousand-New-Cruise-Missiles) (accessed June 15, 2017)

**FAS:** "AGM-86 Air-Launched Cruise Missile [ALCM]," <http://www.fas.org/nuke/guide/usa/bomber/alc.htm> (accessed July 10, 2013)

**Kristensen, Hans M. 2014:** "W80-1 Warhead Selected For New Nuclear Cruise Missile," October 10, 2014. [https://fas.org/blogs/security/2014/10/w80-1\\_lrso/](https://fas.org/blogs/security/2014/10/w80-1_lrso/)

**Kristensen, Hans M. & Norris, Robert S. 2017:** "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, January/February, 2017.

**U.S. Department of Energy 2013:** "Fiscal Year 2014 Stockpile Stewardship and Management Plan," <http://nnsa.energy.gov/ourmission/managingthestockpile/ssmp> (accessed November 11, 2013)

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e) **Strategic nuclear bomb**

Type : Gravity bomb  
B61-7 (Variable-yield : 10–360kt)  
B61-11 (Earth-penetrating weapons : 400kt)  
B83-1 (Variable-yield : low–1,200kt)  
Specifications : B61-7/B61-11  
Length 3.56 m, Diameter 0.33 m, Weight 0.32 ton  
B83-1  
Length 3.7 m, Diameter 0.46 m, Weight 1.1 ton  
Carried by : B-2 Spirit  
Remarks : Ordinarily not carried by bombers but instead stored at Whiteman Air Base in Missouri. They are thought to be ready for loading onto delivery systems within several days if needed. The B61-12 new-model precision guided bomb is presently being developed with the B61-4 tactical nuclear bomb as a base. The plan is for it to replace the B61-7, B61-11, and B83-1.

[Source]

**Global Security 2011:** "B83 Modern Strategic Bomb," <http://www.globalsecurity.org/wmd/systems/b83.htm> (2013.7.10アクセス)

**Global Security 2011-1:** "B83 Modern Strategic Bomb," <http://www.globalsecurity.org/wmd/systems/b83.htm> (accessed July 10, 2013)

**Global Security 2011-2:** "B61-11 Earth-Penetrating Weapon," <http://www.globalsecurity.org/wmd/systems/b61-11.htm> (accessed July 10, 2013)

**Norris, Robert S., Kristensen, Hans M. & Handler, Joshua. 2003:** "The B61 Family of Bombs," *Bulletin of the Atomic Scientists*, January/February, 2003.

**Kristensen, Hans M. 2013:** "Capabilities of B61-12 Nuclear Bomb Increase Further," (October 30), <http://blogs.fas.org/security/2013/10/b61-12hearing/> (accessed November 11, 2013)

**Kristensen, Hans M. & Norris, Robert S. 2014:** "US nuclear forces, 2014," *Bulletin of the Atomic Scientists*, January/February, 2014.

**U.S. Department of Energy 2013:** "Fiscal Year 2014 Stockpile Stewardship and Management Plan," <http://nnsa.energy.gov/ourmission/managingthestockpile/ssmp> (accessed November 11, 2013)

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#### f) Strategic bomber B52-H

Designation : Stratofortress (The Stratofortress)  
Nuclear Weapons : Maximum 20 warheads (Air-launched cruise missile AGM-86)  
Specifications : Length 48.5 m, Span 56.4 m  
Max. speed : 1,000 km/h  
Range : 16,000 km  
No. of deployed : 93 (Nuclear mission : 44)  
Where deployed : Barksdale Air Base (LA)  
Minot Air Base in North Dakota  
Remarks : At present, these aircraft does not carry gravity bombs. On the other hand, Northrop Grumman is the main contractor developing the B-21 Raider, a new stealth long-range bomber to replace B-52s and B-1Bs. It is scheduled to be in operation in the late 2020s. It will carry new cruise missiles, also in development, and the B61-12 guided nuclear bomb.

#### [Source]

**FAS:** "B-52 Stratofortress," <http://www.fas.org/nuke/guide/usa/bomber/b-52.htm> (accessed July 10, 2013)

**Kristensen, Hans M. & Norris, Robert S. 2017:** "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, January/February, 2017.

**U.S. Air Force 2016-1:** "Air Force reveals B-21 Long Range Strike Bomber," February 26, 2016. <http://www.af.mil/News/Article-Display/Article/673784/air-force-reveals-b-21-long-range-strike-bomber/> (accessed June 15, 2017)

**U.S. Air Force 2016-2:** "The B-21 has a name: Raider," September 19, 2016. <http://www.af.mil/News/Article-Display/Article/948366/the-b-21-has-a-name-raider/> (accessed June 15, 2017)

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#### g) Strategic bomber B-2A

Designation : Spirit  
Nuclear Weapons : Maximum 16 warheads (Gravity bomb B61-7, B61-11, B83-1)  
Specifications : Length 21 m, Span 52 m (Stealth aircraft)  
Max. speed : 1,100 km/h  
Range : 11,100 km  
No. of deployed : 20 (Nuclear mission : 16)  
Where deployed : Whiteman Air Force Base (Missouri)  
Remarks : It is likely to be in operation by the 2050s. Plans are to carry B61-12 new-model precision guided bombs to replace the B61-7 and B61-11 from the 2020s.

#### [Source]

**FAS:** "B-2 Spirit," <http://www.fas.org/nuke/guide/usa/bomber/b-2.htm> (accessed July 10, 2013)

**Kristensen, Hans M. & Norris, Robert S. 2017:** "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, January/February, 2017.

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#### h) Air-launched, Non-strategic nuclear weapons

Type : Gravity bomb  
B61-3 (Variable-yield : 0.3, 1.5, 60, 170kt)  
B61-4 (Variable-yield : 0.3, 1.5, 10, 50kt)  
Specifications : Length 3.56 m, Diameter 0.33 m, Weight 0.32 ton  
Carried by : F-15E, F-16, PA200 Tornado  
Where deployed : Belgium : Kleine Brogel Air Base  
Germany : Büchel Air Base  
Italy : Aviano Air Base  
: Ghedi Torre Air Base

Holland : Volkel Air Base  
Turkey : Incirlik Air Base

Remarks : Shared with NATO forces. The GPS-guided, earth-penetrating B61-12 variant, based on the B61-4, is in development, set to replace the B61-3 and B61-4 bombs. It is also planned to arm the new F-35A with these.

**[Source]**

**Norris, Robert S. & Kristensen, Hans M. 2011:** "US tactical nuclear weapons in Europe, 2011," *Bulletin of the Atomic Scientists*, January/February, 2011.

**Kristensen, Hans M. 2012:** "Non-Strategic Nuclear Weapons," Federation of American Scientists, Special Report No. 3, May, 2012.

**Kristensen, Hans M. & Norris, Robert S. 2012:** "Nonstrategic nuclear weapons, 2012," *Bulletin of the Atomic Scientists*, September/October, 2012.

**Kristensen, Hans M. & Norris, Robert S. 2017:** "US nuclear forces, 2017," *Bulletin of the Atomic Scientists*, January/February, 2017.

**U.S. Department of Energy 2013:** "Fiscal Year 2014 Stockpile Stewardship and Management Plan," <http://nnsa.energy.gov/ourmission/managingthestockpile/ssmp> (accessed November 11, 2013)

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