Strategic Arms Control After START: Issues and Options

Originally published in December 07, 2009 by:
Congressional Research Service,
The Library of Congress

Setup for printing by PublicDomainReprints.org
from a scanned version obtained from an online digital archive

2009
Strategic Arms Control After START: Issues and Options

Amy F. Woolf
Specialist in Nuclear Weapons Policy

December 7, 2009
Summary

The United States and Soviet Union signed the Strategic Arms Reduction Treaty in 1991; it entered into force in December 1994 and expired on December 5, 2009. The United States and Russia have held several meetings to discuss options for continuing their arms control relationship. They are currently negotiating a new Treaty that would replace START.

START counts each deployed ICBM, SLBM, bomber as a single delivery vehicle under the Treaty limit of 1,600 delivery vehicles and attributes an agreed number of warheads to each deployed delivery vehicle. This attribution rule provides the total number of warheads that count under the 6,000 warhead limit in the Treaty. To verify compliance with START, each side monitors the numbers and locations of ballistic missiles, launchers and heavy bombers deployed by the other country. The parties use a wide variety of means to collect information—or monitor—these forces and activities. Some of these monitoring systems, such as overhead satellites, operate outside the territories of the treaty parties. They also have also been required to exchange copious amounts of data on locations, operations, and technical characteristics of the treaty-limited items. This verification regime has allowed the parties to remain confident in each other’s compliance with the Treaty.

The United States and Russia began to discuss their options for arms control after START in mid-2006. During the Bush Administration, they were unable to agree on a path forward. Neither side wanted to extend START in its current form, as some of the Treaty’s provisions have begun to interfere with some military programs on both sides. Russia wants to replace START with a new Treaty that would further reduce deployed forces while using many of the same definitions and counting rules in START. The United States initially did not want to negotiate a new treaty, but, under the Bush Administration, would have been willing to extend, informally, some of START’s monitoring provisions. In 2008, the Bush Administration agreed to conclude a new Treaty, with monitoring provisions attached, but this Treaty would resemble the far less formal Strategic Offensive Reductions Treaty that the two sides signed in 2002. In December 2008, the two sides agreed that they wanted to replace START before it expired, but acknowledged that this task would have to be left to negotiations between Russia and the Obama Administration. President Obama and President Medvedev agreed at their meeting on April 2, 2009, to pursue “new and verifiable reductions” in their strategic offensive arms. The two sides are now pursuing negotiations on the new Treaty.

The United States and Russia could have chosen from a number of options for the future of their arms control relationship. They could allow START to lapse or they could have extended it for five years. They could extend START, then amend it to ease some of the outdated provisions. They could negotiate a new Treaty, or they could pursue less formal arrangements to manage their nuclear forces. Moreover, if a new treaty includes further reductions in nuclear weapons, it could use some START definitions and counting rules or the less formal Moscow Treaty declarations.

This report will be updated as needed.
Contents

Introduction ........................................................................................................................................... 1
The START Treaty ................................................................................................................................. 3
Key Provisions .................................................................................................................................. 3
Central Limits ..................................................................................................................................... 3
Counting Rules ................................................................................................................................. 4
Collateral Constraints ....................................................................................................................... 6
Monitoring and Verification ............................................................................................................... 6
Access Measures ............................................................................................................................. 7
Information Exchanges ................................................................................................................. 8
On-site Inspections ........................................................................................................................... 8
Synergy in Monitoring and Verification ......................................................................................... 9
START Implementation .................................................................................................................. 9
The Strategic Offensive Reductions Treaty ...................................................................................... 9
Preparing for START Expiration .................................................................................................... 11
U.S.-Russian Discussions .............................................................................................................. 11
U.S. and Russian Proposals ........................................................................................................... 14
Russian Proposals .......................................................................................................................... 15
U.S. Proposals ................................................................................................................................. 17
The Emerging Framework .............................................................................................................. 19
Possible Goals for the START Process ......................................................................................... 23
Improving the U.S.-Russian Relationship .................................................................................... 23
Supporting Nuclear Nonproliferation Goals ................................................................................ 23
Restraining Weapons ..................................................................................................................... 24
Promoting Transparency and Cooperation .................................................................................. 24
Scope of a New Treaty .................................................................................................................... 25
Reductions vs. Transparency ......................................................................................................... 25
Linkages ......................................................................................................................................... 26
Participants ..................................................................................................................................... 26
Options for the Future ...................................................................................................................... 27
Replace START ............................................................................................................................... 27
Allow START to Lapse .................................................................................................................... 31
Extend START ................................................................................................................................. 32
Extend and Amend START ............................................................................................................. 32
The Path Forward ............................................................................................................................ 33

Tables

Table 1. Central Limits in START ..................................................................................................... 3

Contacts

Author Contact Information ........................................................................................................... 33
Introduction

The United States and Soviet Union signed the Strategic Arms Reduction Treaty (START) on July 31, 1991. After the demise of the Soviet Union in December 1991, the parties signed a Protocol that named the four former Soviet Republics with nuclear weapons on their territory—Ukraine, Belarus, Kazakhstan, and Russia—parties to the Treaty.\(^1\) START entered into force on December 4, 1994. The Treaty was to remain in force for 15 years, unless replaced by a subsequent agreement, and, therefore, expired on December 5, 2009.\(^2\) According to Article XVII of the Treaty, the parties must meet “no later than one year” before this date to consider whether the Treaty should be extended or allowed to lapse.\(^3\) If the parties agree to extend the Treaty, the extension would last five years, unless START were replaced by a subsequent agreement during that time.

The United States and Russia held several meetings in the latter years of the Bush Administration to discuss the options for continuing their bilateral arms control relationship after START, but did not reach an agreement on whether to extend START or on how to replace it. The Obama Administration has resumed the discussions, and is seeking an agreement, in the near term, to replace START after it expires. The Administration has also pledged to negotiate another Treaty, after the new START Treaty, that will impose deeper reductions on U.S. and Russian nuclear weapons. The discussions thus far, along with the statements from Members of Congress and others following the process, reflect not only on the specific issues that may be addressed in a possible follow-on Treaty, but, also on the broader question of what, if any, role arms control should play in future U.S.-Russian relations.

The United States and Soviet Union negotiated START between 1984 and 1991. It contains many detailed definitions and restrictions that not only limit the permitted number of nuclear warheads but also restrain the locations and movement of delivery vehicles carrying nuclear warheads and require extensive exchanges of data about them. Many of these provisions reflect the competitive relationship between the United States and Soviet Union evident at the time, and the concerns that drove their inclusion in the Treaty may no longer seem as important to the U.S.-Russian relationship. For example, some officials in the Bush Administration and analysts in the broader foreign policy community argued that, because the United States no longer structures its nuclear forces in response to a Russian threat, it no longer needs a treaty that restrains and reduces the weapons that make up that threat. They, therefore, questioned whether the START Treaty, or U.S.-Russian nuclear arms control in general, remained important as tools in the political relationship between the United States and Russia.

Some U.S. critics of arms control have, therefore, argued that the bilateral arms control process should fade away after START expires. They note that START may have served its purpose by

---

\(^1\) The leaders in Belarus, Ukraine, and Kazakhstan agreed to eliminate all of the nuclear weapons on their territories and to sign the Nuclear Non-Proliferation Treaty (NPT) as non-nuclear weapons states. These three states have been nuclear free since the late 1990s; all remaining Soviet-era nuclear warheads are deployed in Russia.

\(^2\) The United States and Russia signed the Strategic Offensive Reductions Treaty (also known as the Moscow Treaty) on May 24, 2002. They do not, however, consider this Treaty to be a successor to START. Article II of the Moscow Treaty specifically states that the START Treaty remains in force. See CRS Report RL31448, Nuclear Arms Control: The Strategic Offensive Reductions Treaty, by Amy F. Woolf.

\(^3\) The Parties did not need to make a decision about the future of START in December 2008, they just needed to meet to consider the question.
helping to reduce the size of the Russian arsenal after the demise of the Soviet Union and by restraining the permitted operations of the remaining forces, but its reductions have been overtaken by deeper cuts mandated by the Moscow Treaty. Moreover, they note that a treaty that restrict Russian forces will also serve to restrict the flexibility of U.S. forces. In the current environment, they contend, the United States may be better served by maintaining its own freedom of action in deploying and operating its nuclear forces than by retaining START’s or similar restraints on U.S. and Russian forces.

Others, however, argue that START remains relevant to the U.S.-Russian relationship and deserves to be either extended or replaced with a similar treaty. In this view, the predictability and transparency created by START’s well-defined restrictions on Russian and U.S. nuclear forces can enhance the security of both parties. Moreover, continuing this cooperation can help to restore some trust in the relationship between the two nations. In addition, some in Russia still feel threatened by U.S. nuclear weapons and continue to value the restraints provided by arms control treaties.

Some Members of Congress have joined this debate, with several endorsing the view that extending START, and its monitoring and verification provisions, would help improve the relationship between the United States and Russia. For example, Senator Richard Lugar stated that “the current U.S.-Russian relationship is complicated enough without introducing more elements of uncertainty. Failure to preserve the START Treaty would increase the potential for distrust between the two sides.” Some also believe, as Senator Lugar has noted, that the “failure to renew START will be seen worldwide as weakening the international nuclear nonproliferation regime and a further sign to many foreign leaders and experts that U.S. nonproliferation policy is adrift.” Others in Congress, however, feel that a rush to complete a new START Treaty could undermine U.S. security by leading to restrictions and compromises that interfere with the U.S. ability to maintain a credible nuclear deterrent.

Congress has limited influence on the process of seeking a replacement for START. If the United States and Russia amend START, or negotiate a new treaty to replace it, the Senate will have to provide its advice and consent before the parties ratify the Treaty. However, if the two parties do not reach any agreement and START lapses, or if they had chosen simply to extend START for five years, according to the provision in Article XVII, the Senate would not have to approve or reject the outcome. Nevertheless, Congress can, through resolutions, hearings, and consultations, offer the Administration its views on the future of the START Treaty and the U.S.-Russian arms control process.

This report provides background information about the START Treaty and reviews the discussions about a possible successor to START. It also presents a range of alternatives that the United States and Russia might consider if they follow START with a new framework for the arms control process.
The START Treaty

Key Provisions

Central Limits

START limits long-range nuclear-capable delivery systems—land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and heavy bombers—in the United States and the four states of the former Soviet Union. The Treaty limits both the number of delivery systems and the number of warheads carried on these systems. As Table 1 below indicates, each side can deploy 6,000 “attributed” warheads on no more than 1,600 ballistic missiles and heavy bombers, with no more than 4,900 attributed warheads on land-based and submarine-based ballistic missiles.

Table 1. Central Limits in START

| Deployed Strategic Nuclear Delivery Vehicles | 1,600 |
| Heavy ICBMs | 154 |
| Accountable Warheads on Deployed Delivery Vehicles | 6,000 |
| Ballistic Missile Warheads | 4,900 |
| Warheads on Heavy ICBMs | 1,540 |
| Warheads on Mobile ICBMs | 1,100 |
| Total Ballistic Missile Throwweight | 3,600 metric tonsa |


a. This is around 54% of the amount of throwweight deployed on Soviet missiles when the treaty was signed.

Within the aggregate limits on ballistic missile warheads, START also limits each side to no more than 1,540 warheads on heavy ICBMs, which are defined as those with a throwweight greater than 4,350 kilograms, and 1,100 warheads on mobile ICBMs. These two limits are an added effort to restrain forces that the United States feared would provide the Soviet Union with an avenue to exceed the warhead limit. The United States had long sought to use the arms control process to limit, or eliminate, the Soviet monopoly on heavy ICBMs because it believed that the Soviet Union could expand the capabilities of these missiles by deploying them with more or higher yield. The United States did not have any ballistic missiles of this size, and had no plans to develop or deploy them. The Soviet Union initially resisted U.S. pressures to limit these missiles, but eventually agreed to halve their force of 304 SS-18 ICBMs, each of which was deployed with 10 warheads, under START.

The full text of the Treaty and its many annexes is available at the U.S. State Department website: http://www.state.gov/t/ac/trt/18535.htm.
As the START negotiations proceeded through the 1980s, the United States also grew concerned about the Soviet deployment of ballistic missiles on mobile launchers. The Soviet Union had begun to deploy single-warhead SS-25 missiles on road-mobile launchers and 10-warhead SS-24 missiles on rail-mobile launchers. The United States considered these missiles both a military and an arms control problem. Because the United States did not think it could locate and track these missiles all the time, it believed it would be difficult to target them during a conflict. Moreover, because the Soviet Union had large land areas where it could operate and conceal these missiles, U.S. negotiators argued that the United States would not be able to monitor mobile ICBM deployments well enough to count the missiles and verify Soviet compliance with the limits in START.

The United States initially proposed that START ban mobile ICBMs, even though it was considering the possible use of mobile launchers for its new 10-warhead Peacekeeper (MX) ICBM and for a prospective small, single-warhead ICBM. But, after the United States and Soviet Union began to consider options for a monitoring and verification regime that might track the numbers of mobile ICBMs, they agreed to limit, rather than ban, these systems. The limited numbers, when combined with location restrictions, notifications prior to movement, data exchanges that identified the numbers of missiles and warheads based at approved locations, and a continuous monitoring regime outside the final assembly facility for one type of mobile ICBM, would help each side count the number of acknowledged mobile ICBMs and complicate efforts to conceal extra missiles or warheads. Even though the United States eventually dropped its plans to deploy mobile ICBMs, it agreed to apply these limits and restrictions to the Peacekeeper (MX) missiles that were deployed in silos.

START also limits the total amount of throwweight on each side’s ballistic missiles, to an amount equal to around 54% of the amount of throwweight on Soviet missiles before the Treaty entered into force. Throwweight is the combined weight of the post-boost vehicle, warheads, guidance system, penetration aids, and other equipment found on the front end of a missile. It is considered to be a measure of a missile’s destructive capacity because larger missiles with greater throwweight can carry larger or greater numbers of warheads. Hence, this limit was a further effort by the United States to limit the potential for the Soviet Union to add warheads to its missiles in violation of the Treaty’s limits. Because Soviet forces deployed when START was signed carried had than three times as much throwweight as U.S. missiles, the United States did not have to reduce its forces to comply with this limit. However, the United States could have exceeded the limit on throwweight if it had deployed new, larger missiles while START remained in force.

**Counting Rules**

START counts each deployed ICBM and its associated launcher, each deployed SLBM and its associated launcher, and each deployed heavy bomber as a single delivery vehicle under the Treaty limit of 1,600 delivery vehicles. They count regardless of whether they are equipped with nuclear or conventional warheads. They also continue to count under the Treaty limits until the launchers or bombers are eliminated according to the Treaty’s detailed elimination procedures. For example, a bomber, such as the B-1, that has been converted to carry conventional weapons continues to count under the Treaty limits. Moreover, an empty missile launcher, either on land or on a ballistic missile submarine, continues to count as if it still holds a missile and the missile still carries the attributed number of warheads, even if the missile system is deactivated or the launcher is converted to another purpose.
The number of warheads attributed to each type of missile or bomber is listed in an agreed data base.\(^7\) For the most part, the number of warheads attributed to each type of missile equals the maximum number of warheads that the missile had been tested with and could be equipped to carry when the treaty entered into force. In some cases, however, such as for the U.S. Trident II (D-5) missile, the number of warheads attributed to the missile (8) fell below the maximum number the missile could carry (12). The Soviet SS-18 missile had also been tested with 12 or 14 warheads, but the data base counted it as carrying only 10. The parties adopted this formula of counting delivery vehicles and attributing warheads to each type of delivery vehicle, because, although they sought to reduce warheads, they could not monitor the actual numbers of warheads deployed on the delivery vehicles but could identify and count the large delivery vehicles with their monitoring systems.

The number of warheads attributed to heavy bombers falls far below the maximum number that could be carried on those aircraft. Heavy bombers that are not equipped to carry long-range nuclear-armed air-launched cruise missiles (ALCMs)\(^8\)—such as the U.S. B-1 and B-2 bombers—count as only one warhead under the START limits. This number applies even though these bombers can carry at least 16 bombs and short-range missiles. Further, heavy bombers that are equipped to carry ALCMs count as half of the maximum number of weapons they are permitted to carry. START states that U.S. bombers can be equipped to carry up to 20 ALCMs, but they only count as 10 warheads under the Treaty limit of 6,000 warheads. Russian bombers can be equipped to carry up to 16 ALCMs, and count as only 8 warheads under the Treaty limit.

START allows the United States and Soviet Union to reduce the number of warheads attributed to a particular type of ballistic missile through a process known as “downloading.” According to the Treaty, each party can reduce the “attributed number” listed in the data base for up to three types of missiles. If they do this, they must then reduce the number of warheads carried on each missile, and if the number declines by more than 2 warheads, they must replace the platform on the missile that holds the warheads, so that it does not have space for the larger number of warheads. This “downloading” process would allow each country to spread its 4,900 ballistic missile warheads among a greater number of missiles. The countries use short-notice on-site inspections to confirm that the number of warheads actually deployed on a particular missile does not exceed the number of warheads attributed to that type of missile in the data base. The United States has taken advantage of this provision with its Minuteman III and Trident II missiles.

Existing types of missiles cannot be deployed with more warheads than the number attributed to that type of missile in the data base. The number in the data base could only increase if the missile were altered to meet the definition of a “new type” of missile. START bans new types of heavy ICBMs. For smaller missiles, it contains an elaborate definition that is designed to allow the parties to distinguish between modified versions of existing ballistic missiles, which would be subject to the warhead attribution numbers already in the data base, and new types, which would receive a new warhead attribution number. During the negotiations, the parties agreed that the definition would reflect changes in missile characteristics such as the propellant used, the number of stages, its length and diameter, and its throwweight, but they differed on the magnitude of the changes that would define a “new type.” The United States feared that, with smaller changes, the

---

\(^7\) The most recent data base exchanged among the parties to the Treaty can be found at U.S. State Department, Bureau of Verification, Compliance, and Implementation. START Aggregate Numbers of Strategic Offensive Arms. http://www.state.gov/t/vci/rls/prsrl/2008/110337.htm.

\(^8\) Long-range nuclear-armed air-launched cruise missiles are those with a range of more than 600 kilometers.
Soviet Union would be able to have a missile that was virtually identical to an existing missile declared a new type with a greater number of warheads, and then might secretly backfit the older version with more warheads, as well. This was one of the last issues resolved in the START negotiations.  

Collateral Constraints

START contains detailed definitions of the items and activities limited by the treaty. The parties have also been required to exchange copious amounts of detailed data on the technical characteristics of the treaty-limited items. The Treaty mandates that the parties locate all strategic forces limited by the Treaty at “declared facilities” which include production, assembly, testing, storage, maintenance, deployment, and elimination facilities. It outlines detailed notifications that must be provided and procedures that must be followed when items move from one location to another. It further defines detailed procedures that the countries must follow when they eliminate weapons limited by the Treaty, or close down facilities that had once housed these items. Designed to reduce ambiguities and minimize the opportunities for dispute, these details provide the “foundation” for the Treaty’s verification regime by drawing sharp distinctions between permitted and prohibited forces and activities.

Monitoring and Verification

Verification is the process that one country uses to assess whether another country is complying with an arms control agreement. To verify compliance, a country must determine whether the forces and activities of another country are within the bounds established by the limits and obligations in the agreement. Treaty language forms the core of the verification regime: it describes the limits and obligations the countries must observe and allows them to identify the forces and activities that comply with the terms of the Treaty. The identification of compliant activities also helps a country focus on what it should look for when it collects information about the other country’s forces and activities. No verification regime can ensure the detection of all violations, but the START regime is designed to ensure that parties would have a high probability of detecting militarily significant violations.

The parties to a treaty use a wide variety of means to collect information—or monitor—the forces and activities of the other parties. Some of these monitoring systems, such as overhead satellites, operate outside the territories of the treaty parties. But the parties can also cooperate in providing information by exchanging data, displaying treaty-limited items, and allowing on-site inspections. Once they have collected this information, the parties analyze and refine the raw data to help develop a meaningful picture of each other’s forces and activities. They then evaluate the results of the monitoring process, compare the observed forces and activities with the expected forces and activities, and determine whether the other party has complied with its obligations under the terms of the Treaty.

9 The Soviet Union suggested that a 15% change in throwweight would be enough to distinguish a new type of missile, while the United States wanted a throwweight change of 30% and a change in one other missile characteristic. They eventually agreed to essentially split their differences and defined a new types of missile as one with a 21% change in throwweight and at least a 5% change in the length of the first stage. This would make new types of missiles significantly different from existing types.
To verify compliance with START, each side monitors the numbers and locations of ballistic missiles, launchers and heavy bombers deployed by the other country. To achieve this goal, the countries have had to

- establish the number and location of deployed and stored ballistic missiles and deployed bombers when the Treaty entered into force;
- confirm the technical characteristics of existing types of weapons and establish the measurements for new types of weapons;
- add the number of ballistic missiles and heavy bombers deployed after the treaty entered into force;
- subtract the number of ballistic missiles and heavy bombers eliminated, according to treaty rules, during the life of the treaty;
- track treaty-limited items when they move between declared facilities;
- monitor the armament on permitted systems, to confirm that missiles and bombers are deployed with the numbers and types of warheads permitted by the START data base; and
- monitor ballistic missile flight tests to determine the characteristics of different types of ballistic missiles.

START contains a complex verification regime that is designed to allow the parties to achieve these objectives. Both sides use their own satellites and remote sensing equipment—their National Technical Means of Verification (NTM)—to gather the vast majority of the information each needs to monitor the other country’s forces and activities and to determine whether the other country has complied with the limits in START. But the Treaty also contains a number of specific verification provisions that are designed to help the parties gather and confirm the needed information. For example, it bans measures that would interfere with the parties’ ability to collect information with their NTM, and requires that they use data exchanges, notifications, and on-site inspections to gather information about forces and activities limited by the Treaty. These measures do not replace monitoring with NTM, but they can add detail to information collected by NTM, enhance a country’s confidence in the meaning and reliability of the information, and help deter violations. The Treaty also established the Joint Compliance and Inspection Commission (JCIC), where the parties meet to discuss treaty implementation issues and compliance questions.

Access Measures

START contains several verification measures that allow the countries’ NTM to gain access to information about the other country’s treaty-limited forces. These measures include a ban on interference with NTM—for example, the parties cannot interfere with the launch or operation of the other side’s satellites—and a requirement that they broadcast telemetry, the technical data generated during missile flight tests, over open channels. START also bans efforts to conceal forces and activities from NTM and mandates that the parties display treaty limited items under certain circumstances, so that NTM can confirm their locations and some characteristics.

The ban on data denial during missile flight tests was a particularly important feature of START for the United States. Each nation transmits data, known as telemetry, during its flight tests of ballistic missiles. Even without START, each nation monitored the other’s missile flight tests to
gain information about characteristics such as missile throwweight, launch weight, and the number of reentry vehicles releases tested during the flight. The nations could deny each other access to this data by encrypting it and transmitting it in coded form, recording it during the flight and storing it aboard the missile for recovery after the test, or by jamming and otherwise interfering with the other side’s receiving instruments. Because the United States believed that this information would be critical to its efforts to monitor Soviet compliance with START, it insisted that the Treaty contain a complete ban on the denial of data generated during flight tests. Not only must the parties broadcast unencrypted data during the tests, they also agreed to exchange the tapes of data recorded during the flight tests.

Information Exchanges

START mandates that the parties exchange detailed information about the numbers, locations, and characteristics of treaty-limited ballistic missiles and heavy bombers. For the most part, this information confirms information that each country collects with its own NTM. It can provide additional details and help the countries interpret ambiguous or incomplete data. The countries have also had to notify each other when they move ballistic missiles or bombers that are limited by the treaty. These notifications help each country monitor the locations of the other side’s permitted systems and detect the possible presence of excess or illegal systems.

On-site Inspections

Under START, the United States and Russia have conducted several different types of on-site inspections. They use these inspections to collect information about permitted systems and activities at declared facilities, but they are not permitted to go “anywhere, anytime” in search of treaty violations. These inspections may not provide much new information that is needed to verify compliance with the Treaty, but can confirm and add detail to information collected by NTM and data exchanges. Further, with the short notice available before many of these inspections, a country would find it difficult to hide evidence of a violation at a declared facility.

START has permitted inspections at all the declared facilities that produce, house, and support ballistic missiles and heavy bombers. The countries use these inspections to confirm information about the number of systems located at each facility. They have also viewed treaty-limited items to confirm information about their characteristics; for example, they can use short-notice inspections to confirm that the number of warheads on a missile does not exceed the number attributed to that type of missile in the data base. Each country has also established permanent monitoring systems around a final assembly facility for one of the other country’s mobile ICBMs to help them count mobile ICBMs as they enter the force.

Each of the inspections permitted by the START Treaty is governed by complex and detailed procedures that address everything about the inspection process. These procedures outline, among other things, the airports the inspectors can use when they arrive in the country, the amount of notice they need to give before the start of the inspection, the amount of time the host country has to transport the inspectors to the selected site, the types of equipment the inspectors can use, the amount of time that can transpire during the inspection, and the procedures the inspectors and hosts would use to resolve questions that came up during the visit. These procedures and rules are designed to outline the rights and responsibilities of both parties, and minimize any potential conflict that might occur during inspections, but they also can create conflicts and of their own if
questions about procedures come up during the process. Most analysts agree, however, that the START inspection process has had few significant problems over the years.

Synergy in Monitoring and Verification

Each verification provision in START is designed to provide the parties with a distinct source of information about the forces and activities of the other side. They also mesh together in a way that is designed to deter violations and increase confidence in the parties’ compliance with the Treaty. For example, much of the data collected during on-site inspections can also be collected by NTM or shared during data exchanges. The inspections essentially confirm expected information. Nevertheless, this redundancy can detect inconsistencies and thereby complicate efforts to hide information and evade Treaty limits. For example, if one party did not notify the other before it moved a treaty-limited item to a different facility, but the other party’s NTM detected the movement, the inconsistency might raise questions about whether the first party were trying to hide or conceal an item limited by the treaty. Over time, the START regime has also allowed the parties to collect information that may not be central to the goals of the Treaty but could still add to their understanding of the forces and operations of the other side. Many of the Treaty’s supporters argue that this adds confidence and predictability to assessments of the other side’s strategic forces.

START Implementation

In September 1990, before START entered into force, the United States had more than 10,500 accountable warheads deployed on nearly 2,250 delivery vehicles. By July 2009, this number had declined to 5,916 accountable warheads on 1,188 delivery vehicles. Soviet forces had declined from more than 10,000 accountable warheads on 2,500 delivery vehicles in September 1990 to 3,897 accountable warheads on 809 delivery vehicles in July 2009. All the nuclear warheads from the SS-18 ICBMs and heavy bombers in Kazakhstan had been returned to Russia by May 1995. All the nuclear weapons had been removed from Ukraine’s territory by June 1996, and all 81 SS-25 mobile ICBMs had been moved from Belarus to Russia by late November 1996. Ukraine has eliminated all the ICBM silos and heavy bombers that were deployed on its territory. All the parties have also participated in the on-site inspections permitted under the Treaty. They continued to meet, twice each year, in the JCIC, until START expired. While both the United States and Russia have raised some questions about compliance with the Treaty, both agree that there have been few significant compliance disputes.

The Strategic Offensive Reductions Treaty

In 2001, during its first year in office, the Bush Administration conducted a Nuclear Posture Review to evaluate the size, structure, and role of the U.S. nuclear arsenal. As a part of that review, the Administration determined that the United States could reduce its strategic forces to

---

10 U.S. Arms Control and Disarmament Agency Archives. START Data Base, exchanged September 1, 1990.
between 1,700 and 2,200 “operationally deployed nuclear warheads.” During a summit meeting with Russia’s President Vladimir Putin in November 2001, President Bush announced that the United States would pursue these reductions unilaterally in the next decade, without signing a formal arms control agreement. President Putin indicated that Russia wanted to use the formal arms control process to achieve deeper reductions in nuclear arsenals, and emphasized that the two sides should focus on “reaching a reliable and verifiable agreement.”

Within the Bush Administration, Secretary of State Colin Powell supported the conclusion of a “legally binding” arms control agreement. He apparently prevailed over the objections of officials in the Pentagon who reportedly wanted the United States to maintain the flexibility to size and structure its nuclear forces in response to its own needs. Consequently, the United States and Russia signed the Strategic Offensive Reductions Treaty (also known as the Moscow Treaty) on May 24, 2002. It received the advice and consent of the Senate on March 6, 2003 and the approval of the Russian parliament on May 14, 2003; it entered into force on June 1, 2003.

The Moscow Treaty states that the United States and Russia will reduce their “strategic nuclear warheads” to between 1,700 and 2,200 warheads by December 31, 2012. The text does not define “strategic nuclear warheads” and, therefore, does not indicate whether the parties will count only those warheads that are “operationally deployed,” all warheads that would count under the START counting rules, or some other quantity. The text does refer to statements made by Presidents Bush and Putin in November and December 2001, when each outlined their own reduction plans. As a result, the United States and Russia each use their own definition when counting strategic nuclear warheads, and neither uses the START counting rules. The Treaty does not limit delivery vehicles or impose sublimits on specific types of weapons systems. Each party shall determine its own “composition and structure of its strategic offensive arms.” In addition, the Treaty does not contain any definitions or descriptions of the types missiles and bombers whose warheads count under the Treaty limits.

In addition, the Moscow Treaty does not contain any monitoring or verification provisions. During the hearings on the resolution of ratification, the Bush Administration noted that the United States and Russia already collect information about strategic nuclear forces under START and during implementation of the Nunn-Lugar Cooperative Threat Reduction Program. At the time, some in Congress questioned whether this information would be sufficient for the duration of the Treaty, since START expires three years ahead of the Moscow Treaty. According to Senator Richard Lugar, the Bush Administration assured the Senate that it would have plenty of time, before START expired, to negotiate a new treaty or extend the monitoring provisions to the Moscow Treaty. This break in the time lines is one of the primary reasons why many analysts and Members of Congress argued that the two sides should at least extend the monitoring and verification provisions in START through the end of the Moscow Treaty.

15 For details on the substance of the Treaty, see CRS Report RL31448, Nuclear Arms Control: The Strategic Offensive Reductions Treaty, by Amy F. Woolf.
Preparing for START Expiration

U.S.-Russian Discussions

In September 2006, U.S. Undersecretary of State Robert Joseph and Russian Deputy Foreign
Minister Sergei Kislyak met to initiate a new strategic security dialogue. This dialogue evolved
into a series of meetings that addressed a range of issues. START was included, but was not high
on the agenda of the meetings. During the first meeting, and at a second one in December 2006,
the two sides outlined their goals for the talks. Russia indicated that it wanted to follow START
with a new formal treaty that would be “similar in size and complexity to START” and would use
many of the same definitions and counting rules as START. Russia also suggested that the two
sides establish a regular working group, with meetings chaired at the Assistant Secretary level, to
work out the details of this new Treaty. According to a Bush Administration official, the United
States had “no appetite for those big, giant documents that try to script every single element of
strategic forces.”

The Administration emphasized that the United States and Russia no longer
needed arms control agreements to manage their strategic relationship. The United States also did
not want to set up a working group or negotiate a new Treaty to follow START, and preferred to
pursue broader “strategic discussions” within a political framework.

In spite of their differences, the United States and Russia agreed that they should continue to
implement some of the monitoring and verification provisions in START after the Treaty expired.
Russia proposed that they include these verification provisions in a new, legally binding Treaty
that would also limit the number of warheads permitted on each side. According to one Russian
official, these measures would have to be a part of a legally binding agreement to be permitted by
domestic Russian law. The United States, however, argued for a less formal arrangement of
transparency and confidence-building measures. These could include voluntary notifications and
site visits, but would not contain the detailed procedures and provisions included in START.

Although Undersecretary of State Joseph initially rejected the idea, the two sides did hold a series
of meetings chaired at the Assistant Secretary level in search of a possible monitoring and
verification agreement. They continued to disagree, however, on whether the verification
measures should be voluntary or legally binding, and whether they should be attached to a formal
treaty that would also limit the numbers of deployed warheads.

In addition to the periodic meetings at the Undersecretary level (Joseph/Kislyak, then
Rood/Kislyak) and the working group meetings at the Assistant Secretary level, the United States
and Russia held several high level meetings that addressed the future of U.S.-Russian arms
control. For example, Secretary of State Condoleezza Rice met with Russia’s Foreign Minister
Sergey Lavrov in July 2007. Their formal statement after the meeting said that “The United States
and Russia reiterate their intention to carry out strategic offensive reductions to the lowest
possible level consistent with their national security requirements and alliance commitments.”

---

18 Sebastian Sprenger. “Nations to Kick off Initiative Against Nuclear Terrorism Next Week. Separate U.S.-Russian
meeting on START expected.” Inside Defense.com, October 26, 2006.
added that the “Ministers discussed development of a post-START arrangement to provide continuity and predictability regarding strategic offensive forces.” But the United States still did not accept Russia’s proposal to pursue a formal Treaty.

The U.S. position began to shift later in 2007. Secretary Rice and Secretary of Defense Robert Gates held joint meetings in Moscow with their counterparts in October, and concluded that, although the United States was still seeking something “far less formal than a major treaty” it might accept, according to Secretary Gates, “a binding agreement” preserving some of START, as long as it was “narrowly focused.” Nevertheless, the United States continued to reject a formal treaty that would limit the number of nuclear weapons. When Secretary Gates and Secretary Rice traveled to Moscow to discuss START again in March 2008, Secretary Rice argued the current U.S.-Russian relationship does not require “the kind of highly articulated, expensive limitations and verification procedures that attended the strategic arms relationship with the Soviet Union.” Russian officials, however, continued to reject the U.S. proposals for an informal “notification” regime.

Presidents Bush and Putin failed to break this stalemate when they met in Sochi, Russia in April 2008. Although they signed a new Strategic Framework that contained a pledge to enact nuclear weapons reductions “to the lowest possible level consistent with our national security requirements and alliance commitments,” they failed to agree on the way forward in their arms control relationship. Russia still wanted to negotiate a Treaty based on the START framework; the United States was only willing to codify some verification measures.

The talks continued through the spring and summer of 2008, although, according to some news reports they were “irregular and unproductive.” Some reports suggested that the United States might suspend the talks in response to the Russian incursion into Georgia in August, 2008, but both sides agreed the talks were important enough to continue in September and October. Nevertheless, the two sides remained far apart. Russia was unwilling to recede from its call for a formal Treaty with detailed definitions and counting rules; the United States still preferred a less formal agreement that outlined transparency and confidence-building measures. The United States did, however, recognize that Russia would not permit on-site visits without a formal Treaty, so Washington proposed in October 2008 that the two sides attach an informal transparency regime to a legally binding Treaty that essentially reiterated the limits and declarations outlined in the Moscow Treaty. This transparency regime would have relied on occasional visits to some facilities, and would not have included some of the more intrusive inspections permitted under START, like the continuous perimeter and portal monitoring system outside the Votkinsk missile assembly facility in Russia. Russia rejected this proposal. In a speech delivered on October 10, Russian President Dmitry Medvedev said that Russia attaches “exceptional importance to concluding a new, legally binding Russian-American agreement on nuclear disarmament” to

---

replace START. He further noted that “what we need is a treaty and not a declaration,” which is a reference to the format used in the Moscow Treaty.  

The United States and Russia, along with representatives from Ukraine, Belarus, and Kazakhstan, met in the JCIC from November 13 through 21, 2008. This forum provided the venue for the formal meeting, mandated by START, where the parties considered whether to extend the Treaty. They did not reach any agreements during this meeting, other than to note that they were leaving the options open for the Obama Administration. The United States and Russia held one final meeting in their series of strategic security discussions on December 15, 2008; bi-lateral arms control was one of many issues on the agenda. They held extensive discussions about the U.S. draft treaty, but they failed to reach agreement on any of the outstanding issues.

The talks resumed, and gained momentum, during the first few months of the Obama Administration. In early March 2009, Secretary of State, Hillary Clinton, met with Russia’s Foreign Minister Sergey Lavrov in Geneva. They agreed that the two nations would seek to reach an agreement that would replace START by the end of 2009. They said they would develop a plan with “a very specific set of objectives and responsibilities” that they could present to the nations’ presidents before their meeting in early April.  

In April, after their meeting in London prior to the G-20 summit, Presidents Obama and Medvedev endorsed these negotiations and their goal of reaching an agreement by the end of 2009. In a statement issued after their meeting, they said they were instructing their negotiators to begin talks immediately and to report their results before the presidents met again in July 2009. They indicated that the subject of new agreement “will be the reduction and limitation of strategic offensive arms”; that they would seek to reduce their forces to levels below those in the 2002 Moscow Treaty; and that the new agreement would “mutually enhance the security of the Parties and predictability and stability in strategic offensive forces, and will include effective verification measures drawn from the experience of the Parties in implementing the START Treaty.”

Assistant Secretary of State Rose Gottemoeller and the security and disarmament chief from the Russian Foreign Ministry, Anatoly Antonov, began these negotiations with a meeting in Rome on April 24, 2009. Both representatives noted that the talks had gotten off to a good start, and they expected to have a good report for the presidents in July. At this meeting, the two sides focused on procedural and scheduling issues; they have held eight rounds of formal negotiations since that
time. The first three rounds of talks produced the framework that the presidents wanted to review at their summit in Moscow in early July. They held another round of talks in late July, and reportedly made enough progress to conclude the talks a day earlier than planned, and continued to hold meetings in August and September, and October. They began the eighth, and possibly last, round of talks in Geneva in mid-November 2009. In addition, in late October, General James Jones, President Obama’s national security advisor, traveled to Moscow with new proposals that were designed to resolve the outstanding issues in the discussions. Reports indicate Russia responded with a counterproposal, and that the two sides have moved forward on some of the issues addressed at the time.

When Presidents Obama and Medvedev met in Moscow on July 6-7, 2009, they signed a Joint Understanding for the START follow-on Treaty. This statement contains the possible range for the numerical limits that will be in the Treaty—between 500 and 1,100 of strategic delivery vehicles and between 1,500 and 1,675 for their associated warheads. It also includes a list of other issues—such as provisions for calculating the limits, provisions on definitions, and a provision on the relationship between strategic offensive and strategic defensive weapons—that will be addressed in the Treaty. They reportedly discussed the new START Treaty during other meetings and phone conversations in the past few months.

START expired on December 5, 2009. At the time, the negotiating teams continued to meet in Geneva, and statements from both governments indicated that they still hoped to conclude a new treaty before the end of the year. On December 4, Presidents Obama and Medvedev released a Joint Statement on the expiration of START. They stated that they recognized “our mutual determination to support strategic stability between the United States of America and the Russian Federation.” They also expressed “our commitment, as a matter of principle, to continue to work together in the spirit of the START Treaty following its expiration, as well as our firm intention to ensure that a new treaty on strategic arms enter into force at the earliest possible date.” This statement did not indicate what steps they would take to work together “in the spirit of START,” but most observers expect the two sides will continue to implement at least some of START’s monitoring provisions while the complete the negotiations on a new treaty.

U.S. and Russian Proposals

Neither the United States nor Russia believed the two parties should extend the START Treaty in its current form. Neither wanted to continue to implement all the monitoring and verification provisions included in START; the lengthy and highly detailed lists of procedures and requirements have proven costly and complicated. In some cases, these details were designed to address concerns about the potential for cheating and evasion that no longer exist in the current environment. Moreover, as is noted below, some of the limits and restrictions have begun to interfere with ongoing weapons programs for both nations. A simple extension of START would

---

not reduce these pressures, and, unless the parties could agree on a new Treaty, could remain in force for five years.

**Russian Proposals**

In a speech to Russian diplomats in June 2006, then-President Vladimir Putin proposed that the United States and Russia begin negotiations to replace START with a new Treaty.\(^{40}\) Since then, Russia has consistently and repeatedly insisted that the two sides replace START with a treaty that would not only reduce each side’s strategic offensive forces to 1,500 warheads, but would count the warheads on all deployed delivery vehicles, as START has done.\(^{41}\) Such an agreement would maintain the predictability and the stability afforded by START, an outcome that would not be possible in the absence of a detailed, legally binding Treaty.\(^{42}\) The new treaty would not need to keep all the provisions of START, but should preserve “the main systematic structure of the agreement,” including limitations on delivery vehicles and warhead deployments.\(^{43}\)

Reports indicate that Russia would like the new treaty to relax or eliminate START’s requirements for new types of ballistic missiles. As was noted above, START contains a precise definition of the changes needed to have a new missile counted as a “new type.” These provisions were designed to prevent Russia from deploying its SS-25 missile with more than one warhead. But Russia has developed the RS-24 missile, a new variant of its single-warhead SS-27 missile, which is, itself, a variant of the SS-25, and it plans to deploy this new missile with three warheads on each missile.\(^{44}\) Because the missile does not satisfy the Treaty’s “new types” definition, it would be limited to a single warhead under START, and a three-warhead version would violate the Treaty. This missile had its third successful test launch in late November 2008, and recent press reports indicate that Russia now plans to deploy this missile in December 2009, as soon as START expires. Russian officials have indicated that this missile is critical to the future of Russia’s strategic forces, not only because it can carry up to three warheads, but also because it will incorporate technologies that would allow it to penetrate U.S. ballistic missile defenses.\(^{45}\)

Russia also would like the new Treaty to limit, as START did, both deployed delivery vehicles and their associated warheads. Many have noted that, over the next 8-10 years, the number of delivery vehicles in Russia’s nuclear arsenal will continue to decline sharply, as Russia retires many of its aging missiles and replaces them with smaller numbers of newer systems. It will, therefore, retain far fewer than the 1,600 delivery vehicles permitted by START and fewer than the 809 delivery vehicles it reported in its START data exchange in mid-2009. A lower limit on delivery vehicles in a new Treaty would not only recognize the coming changes in Russia’s arsenals, but also move the United States toward similar, lower numbers of delivery vehicles. Moreover, Russia has long expressed concerns about the U.S. ability to add warheads to its missiles quickly by restoring warheads that had been removed under START’s downloading

---


