



# BACKGROUND

Interoperability  
for joint operations



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# Interoperability for joint operations

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An Alliance of 26 nations can only effectively work together in joint operations if provisions are in place to ensure smooth cooperation. NATO has been developing this capability, known as interoperability, since the Alliance was founded in 1949. The ability of NATO militaries to work together has become even more important since the Alliance has begun mounting out-of-area expeditionary operations.

Interoperability refers to the ability of different military organisations to conduct joint operations. These organisations can be of different nationalities or different armed services (ground, naval and air forces) or both.

Interoperability allows forces, units or systems to operate together. It requires them to share common doctrine and procedures, each others' infrastructure and bases, and to be able to communicate with each other. It reduces duplication in an Alliance of 26 members, allow pooling of resources, and even produces synergies among members.

Interoperability does not necessarily require common military equipment. What is important is that this equipment can share common facilities and is able to communicate with other equipment.

NATO militaries achieved interoperability through decades of joint planning, training and exercises during the Cold War. More recently, Alliance members put this interoperability into practice and developed it further during joint operations in the Balkans and Afghanistan. These operations helped the members of Partnership for Peace, NATO's military cooperation programme with former Warsaw Pact countries and members of the Organization for Security and Co-operation in Europe, to develop interoperability with the Alliance which some of them eventually joined or may join in the future.

## NATO standardization policy

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The emergence of new threats and measures taken by NATO to adapt its capabilities accordingly have led to changes in operational requirements for armed forces. These changes have significantly enhanced the importance of interoperability with respect to material, doctrine, tactics, training, communication, and many other areas in which interoperability is a major factor for military forces and the systems that support them. The objective of standardization is to achieve the required critical level of interoperability with regard to all these aspects.

Standardization makes a vital contribution to the combined operational effectiveness of the military forces of the Alliance and promotes opportunities for the better use of economic resources. Extensive efforts are made to improve cooperation and to eliminate duplication in the research, development, production, procurement and logistic support of defence systems, primarily through the promulgation of NATO Standardization Agreements, known as STANAGs. Implementation of STANAGs helps nations to achieve the required levels of interoperability and to better accomplish their common strategic, operational and tactical tasks, to understand and execute command procedures, and to employ techniques, material and equipment more efficiently.

The principal forum for the elaboration of standardization policy is the NATO Standardization Organisation (NSO), which aims to incorporate standardization as an integral part of Alliance planning and acts as a coordinator between senior NATO bodies addressing standardization requirements. The NSO comprises the NATO Committee for Standardization; the NATO Standardization Staff Group; and the NATO Standardization Agency.

The role of the NSO is to enhance interoperability in order to contribute to the ability of Alliance forces to train, exercise and operate effectively, both together and with forces of Partner countries and other non-NATO countries, in the execution of their assigned tasks. It undertakes this by initiating, harmonising and coordinating standardization efforts throughout the Alliance and by providing support for standardization activities. It also acts on behalf of the NATO Military Committee in developing, coordinating and assessing operational standardization matters.

National and NATO authorities are encouraged to develop, agree and implement concepts, doctrines, procedures and designs which will enable them to achieve and maintain interoperability. This requires the establishment of the necessary levels of compatibility, interchangeability or commonality in operational, procedural, materiel, technical and administrative fields.

## Standardization Agreements

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STANAGs establish processes, procedures, terms and conditions for common military or technical procedures or equipment between NATO member nations. They provide common operational and administrative procedures and logistics so one Alliance member's military can use the support and supplies of another member's military.

Each Alliance member ratifies a STANAG and implements it within its own military. They are published in English and French by the NATO Standardization Agency. There are hundreds of STANAGs covering everything from language proficiency to control of unmanned aerial vehicles (UAVs).

The first STANAGs established common standards for English and French language proficiency levels. English is the military *lingua franca* of NATO, and is one of the two official languages of the Alliance, along with French. Being able to communicate in a common language is a prerequisite for interoperability.

One key area where standardization efforts have been necessary is refuelling. While that would appear to be a straightforward task, there are dozens of STANAGs covering various aspects, depending on the vehicle or aircraft involved and where it is being refuelled. Refuelling can be done on the ground, at sea or in the air (see box on latter). There are also different types of fuel. Fuel-related STANAGs therefore set standards for refuelling at airfields and ports, storage, different types of fuel and lubricants, filters and fuel caps.

Another standardization agreement, STANAG 4586, sets out the specifications of a common ground station for unmanned aerial vehicles (UAVs) used by NATO forces. Implementation of the agreement will allow information between different national UAVs to be collated and shared via common ground stations, which in turn will mean that NATO and national commanders will have far greater control over the use of UAVs in military operations.

The 250-page document sets out five levels of interoperability:

- transfer of filtered UAV data to a third party;
- direct transfer of live UAV data via a ground station to a remote command system;
- control of the onboard systems by commanders in the command system;
- in-flight control by the command system; and
- full flight control by the command system, including take-off and landing.



## Aerial refuelling

There are two types of aerial refueling methods: boom and receiver and probe and drogue. A boom is a long, rigid hollow shaft with a telescoping extension and small V-shaped wings at the end which can be flown into the receiver on top of the aircraft being refuelled. A drogue is a basket attached to the end of a hose which is extended to meet with a probe, a receiver usually installed in the nose of the aircraft being refuelled.

Aerial refuelling methods vary even within air forces. The US Air Force uses the boom system, while the US Navy and Marine Corps use the probe and drogue system. Other NATO nations also use the probe and drogue system. This means for example that British Royal Air Force tankers can refuel US Navy aircraft. To be completely interoperable at the national and NATO levels, aerial tankers must be capable of refueling using both methods.

Aerial refuelling is one of the activities of the NATO-Russia Council (NRC). The NRC Ad Hoc Working Group on Logistics is planning an air-to-air refuelling exercise.



## Multinational forces

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NATO multinational forces, which are composed of units from several nations, are a practical demonstration of interoperability. The first of these forces set up by NATO was the Allied Command Europe Mobile Force (Land) (AMF(L)), which was created in 1960.

AMF(L) was initially composed of forces from four nations - Belgium, Germany, the United Kingdom and the United States – growing to 19 nations by 1999. AMF(L) was disbanded in 2002 and its capabilities replaced by High Readiness Force (Land) headquarters able to command rapid response missions from the size of the AMF(L) to a much larger multinational corps.

The AMF(L) had an equivalent for air forces made up of aircraft of different Allied nations. NATO created the first of several multinational naval forces, Standing Naval Force Atlantic (STANAVFORLANT), composed of ships of different Alliance members, in 1967, followed by Standing Naval Forces Mediterranean, and Mine Countermeasures Force North and South.

These multinational land, air and naval forces were made up of national battalions, companies, squadrons, and ships. It was only with the creation of the NATO Airborne Early Warning Force in 1980 that military personnel from different Alliance members were integrated into the same military unit down to the individual level. The E-3A Airborne Warning and Control System (AWACS) squadrons of what has since become the NATO Airborne Early Warning and Control Force are manned by integrated international crews from 12 nations: Belgium, Canada, Denmark, Germany, Greece, Italy, the Netherlands, Norway, Portugal, Spain, Turkey and the United States. They will be joined by Hungary, the latest country to join the NATO AWACS programme.

The NATO Response Force (NRF) combines land, air, sea and special forces into one package (see box). These components are not only multinational, with various nations contributing forces which can work together, they are also interoperable with each other.

The NRF is supported by another multinational force, the NATO Chemical, Biological, Radiological and Nuclear Defence Battalion (see box). The Alliance is considering setting up more multinational units specialized in other areas, like explosive ordnance disposal.



## Combined Joint NATO Response Force

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The NATO Response Force (NRF) is a rapidly deployable multinational unit made up of land, air, maritime and special forces components. Numbering 24,000 troops when it reaches its full operational capability in October 2006, it will be able to start to deploy after five days' notice and sustain itself for operations lasting 30 days or longer if resupplied.

The NRF will be able to deploy worldwide, as and when decided by the North Atlantic Council. Possible missions range from non-combatant evacuation missions to combat operations. In addition to evacuation, these include humanitarian and crisis response missions, including peacekeeping, counterterrorism, and embargo operations.

NATO Secretary General Jaap de Hoop Scheffer explains: "The NRF will not only give us a highly capable quick reaction force that is ready for operational deployment wherever required; it is also meant as a catalyst for continuing improvements in Allied forces – and sustaining interoperability across the Atlantic."

When it reaches its full operational capability, the NRF will consist of a brigade-size land component of several thousand troops with a forced-entry capability, a naval task force composed of one carrier battle group, an amphibious task group and a surface action group, an air component capable of 200 combat sorties a day, and a special forces component.

The NRF, which is driven by the underlying principle: "first force in, first force out", has different missions:

- As a stand-alone force for Article 5 collective defence or non-Article 5 crisis response operations, such as evacuation operations, disaster consequence management (including chemical, biological, radiological and nuclear events), and support in a humanitarian crisis situation and counterterrorism operations;
- An initial entry force facilitating the arrival of larger follow-on forces;
- To show NATO determination and solidarity to deter crises (quick response operations to support diplomacy as required).

Combat support and combat service support capabilities will be integral parts of the NRF. These include nuclear, biological and chemical defence and medical units, as well as supporting air and naval units, logistics, communications, intelligence and whatever else is required to make it a credible and capable fighting force.

Elements of the NRF have already been deployed. A multinational special forces unit helped protect the 2004 Summer Olympics and Paralympics in Athens, Greece. An Italian battalion assigned to the NRF was deployed to support the Afghan presidential elections in September 2004.

Elements of the NRF were sent to Pakistan following the October 2005 earthquake in Pakistan to help with the reconstruction effort. This included a multinational engineer battalion comprising Spanish and Polish light engineer companies, an Italian heavy engineer company with heavy construction equipment, and a British engineer squadron, as well as a multinational medical unit led by the Netherlands and three Lithuanian and one Spanish water purification teams.



## Multinational Chemical, Biological, Radiological and Nuclear Defence Battalion

The multinational NATO Chemical, Biological, Radiological and Nuclear Defence Battalion is designed to respond to and manage the consequences of the use of weapons of mass destruction and the release of any chemical, biological, radiological or nuclear agent both inside and beyond NATO's area of responsibility. Under normal circumstances, it will operate within the NRF, but it may also be committed to other tasks, including helping Allied civilian authorities.

The battalion achieved its initial operational capability in December 2003. Thirteen NATO member states contributed forces to the first rotation of the battalion between December 2003 and December 2004, which was led by the Czech Republic: Belgium, Canada, Hungary, Italy, Norway, Poland, Portugal, Romania, Spain, Turkey, the United Kingdom, and the United States. Other countries will contribute to or lead subsequent 12-month rotations. Germany led the one-year rotation in 2005, followed in 2006 by Spain.

NATO provided chemical, biological, radiological and nuclear assistance to the Greek government during the 2004 Olympic and Paralympic Games. This included the deployment of a task force from the Chemical, Biological, Radiological and Nuclear Defence Battalion to Halkida, Greece.



## Operating with Partners

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Interoperability is an important aspect of NATO's various partnerships. The main task of Partnership for Peace (PfP) is to increase participants' ability to act in concert. The programme helps Partner countries prepare to operate jointly with NATO forces.

One of the aims of the NATO-Russian relationship is to promote interoperability. The NATO-Russia Council (NRC) is running a programme to develop interoperability between NATO and Russian forces. Potential areas of cooperation in this field include training and exercises, logistics cooperation, and search and rescue at sea. A framework agreement on cooperation in search and rescue at sea was signed in February 2003.

A joint NATO-Russian theatre missile defence (TMD) initiative aims to create the conditions for NATO and Russia to conduct joint TMD operations to protect deployed forces. This includes a NRC TMD Ad Hoc Working Group study aimed at developing interoperability concepts and a series of exercises to test and validate joint tactics and procedures. Considering the vital importance of clear communication and understanding, NATO-Russian work in this area began with the definition of terms in a common glossary.

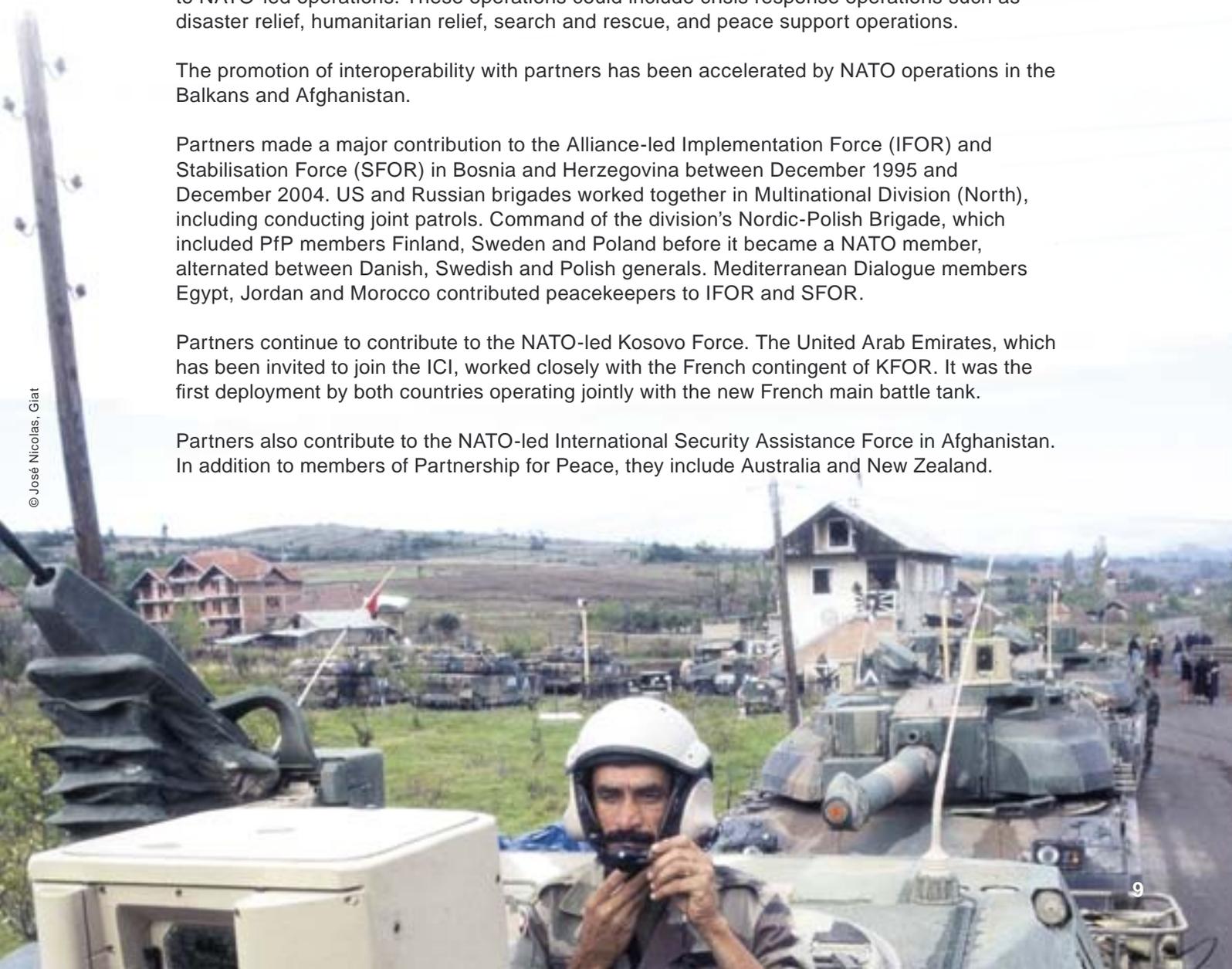
One of the aims of the enhanced Mediterranean Dialogue and Istanbul Cooperation Initiative is to promote military-to-military cooperation to achieve interoperability through participation in selected military exercises and related education and training activities that could improve the ability of Mediterranean partners' forces to operate with those of the Alliance in contributing to NATO-led operations. These operations could include crisis response operations such as disaster relief, humanitarian relief, search and rescue, and peace support operations.

The promotion of interoperability with partners has been accelerated by NATO operations in the Balkans and Afghanistan.

Partners made a major contribution to the Alliance-led Implementation Force (IFOR) and Stabilisation Force (SFOR) in Bosnia and Herzegovina between December 1995 and December 2004. US and Russian brigades worked together in Multinational Division (North), including conducting joint patrols. Command of the division's Nordic-Polish Brigade, which included PfP members Finland, Sweden and Poland before it became a NATO member, alternated between Danish, Swedish and Polish generals. Mediterranean Dialogue members Egypt, Jordan and Morocco contributed peacekeepers to IFOR and SFOR.

Partners continue to contribute to the NATO-led Kosovo Force. The United Arab Emirates, which has been invited to join the ICI, worked closely with the French contingent of KFOR. It was the first deployment by both countries operating jointly with the new French main battle tank.

Partners also contribute to the NATO-led International Security Assistance Force in Afghanistan. In addition to members of Partnership for Peace, they include Australia and New Zealand.





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