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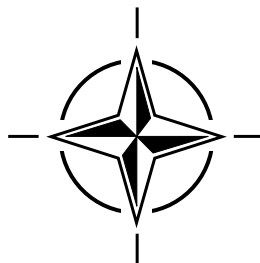
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**RTO TECHNICAL REPORT 50**

# **NATO HLA Certification**

(Certification HLA OTAN)

*Work performed by the RTO NATO Modelling and Simulation Group Task Group 008.*



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**RTO TECHNICAL REPORT 50**

## **NATO HLA Certification**

(Certification HLA OTAN)

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*Work performed by the RTO NATO Modelling and Simulation Group Task Group 008.*



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- NMSG NATO Modelling and Simulation Group
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- SCI Systems Concepts and Integration Panel
- SET Sensors and Electronics Technology Panel

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# NATO HLA Certification

(RTO TR-050 / NMSG-011)

## Executive Summary

In 1998, the North Atlantic Council (NAC) approved the creation of a new organisation tasked with co-ordinating the modelling and simulation (M&S) activities of the Alliance. This Organisation, known as the NATO Modelling and Simulation Group (NMSG), was set up inside the Research and Technology Organisation (RTO). The activities of NMSG are set out in an M&S action plan (MSAP) approved by the RTO Board. This document stresses that the HLA interoperability standard was chosen in 1998 as the basic standard on which the future common technical framework (CTF) of the Alliance for M&S activities will be established.

The need to certify the compliance of simulations with the standard was established right from the initial development stage of the HLA. At present, this capability exists only in the United States, but this country is temporarily offering its support to NATO and its allies free of charge. As part of its action plan, NMSG decided to form a working group tasked with comparing various possibilities of setting up an HLA compliance certification capability for simulations developed and used by NATO.

This working group (MSG-011) met 4 times in 2001 (in May, in July, in September and in December) and produced this report. It was chaired by the NATO M&S Co-ordination Office (MSCO) and the following nations took part in it:

- France,
- Germany,
- Poland,
- United Kingdom,
- United States.

The first chapter of the report briefly describes the HLA interoperability standard and the history of its adoption by NATO. It tries to show why it is useful and important to implement a compliance certification capability for the standard within the Alliance. The second chapter describes the certification process already in force in the US, as well as the conditions and resources required for its implementation. Chapter 3 gives the positions of the member nations of MSG 011 concerning HLA certification. Chapter 4 deals with the different conditions and constraints to be taken into account when envisaging an HLA certification capability within NATO. Chapter 5 describes and assesses three possible solutions:

- The creation of a NATO certification centre,
- The hire of the US capability by NATO,
- The setting up of a capability to be distributed among volunteer nations.

Chapter 6 provides recommendations for the establishment of this capability. The recommended solution is the third one: The setting up of an HLA certification capability to be distributed among volunteer nations. There are a number of advantages to this solution: it is simple for NATO to implement from the administrative and financial points of view. It also offers nations who express national requirements the possibility of satisfying them. The most urgent stages to be completed in order to enable implementation of this solution are, first, the decision on the part of the nations to declare themselves volunteers, and second, the creation of a users club responsible for supervising implementation of the certification process and its future developments, in line with changes in the HLA standard and the constraints imposed on the Alliance and its member countries.

# Certification HLA OTAN

(RTO TR-050 / NMSG-011)

## Synthèse

En 1998, le Conseil de l'Atlantique Nord (NAC) approuvait la création d'une nouvelle organisation chargée de coordonner les activités de l'Alliance en matière de Modèles et Simulations (M&S). Cette organisation, appelée groupe OTAN pour les M&S (NMSG), a été implantée au sein de l'organisation de recherche et technologie (RTO). Les activités du NMSG sont organisées selon un plan d'action M&S (MSAP) approuvé par le comité directeur de la RTO. Ce document rappelle, en particulier, que le standard d'interopérabilité HLA (High Level Architecture) a été choisi en 1998 comme le standard de base sur lequel sera établi la future infrastructure technique commune (CTF) de l'Alliance pour les M&S.

Dès le développement initial de la HLA, le besoin de certifier la conformité des simulations au standard a été identifié. Actuellement, cette capacité existe uniquement aux Etats-Unis qui offre provisoirement et gratuitement son soutien à l'OTAN et à ses alliés. Dans le cadre de son plan d'action, le NMSG a décidé la création d'un groupe de travail chargé de comparer différentes possibilités pour implanter une capacité de certification de conformité au standard HLA des simulations développées et utilisées par l'OTAN.

Ce groupe de travail (le MSG-011) s'est réuni à quatre reprises en 2001 (Mai, Juillet, Septembre et Décembre) et a rédigé ce rapport. Il était présidé par le bureau OTAN de coordination des M&S (le MSCO) et les nations suivantes y ont participé :

- Allemagne,
- Etats-Unis,
- France,
- Pologne,
- Royaume-Uni.

Le premier chapitre du rapport décrit brièvement le standard d'interopérabilité HLA et rappelle l'historique de son adoption par l'OTAN. Il s'efforce d'expliquer pourquoi il est utile et important d'implémenter une capacité de certification de conformité au standard dans l'Alliance. Le second chapitre décrit le processus de certification déjà en service aux Etats-Unis ainsi que les conditions et les moyens utilisés pour sa mise en œuvre. Au chapitre 3, sont exposées les positions des pays membres du MSG 011 sur la certification HLA. Le chapitre 4 traite des conditions et contraintes diverses à prendre en compte en vue d'établir une capacité de certification HLA à l'OTAN. Le chapitre 5 décrit et évalue trois solutions possibles :

- Etablissement d'un centre OTAN de certification,
- Location de la capacité des Etats-Unis par l'OTAN,
- Implantation d'une capacité distribuée parmi des nations volontaires.

Le chapitre 6 donne des recommandations pour la création de cette capacité. La solution recommandée est la troisième : la mise en place d'une capacité de certification HLA distribuée parmi des nations volontaires. Les avantages de cette solution sont nombreux : sa mise en œuvre est simple pour l'OTAN sur les plans administratif et financier. Elle offre en outre aux nations qui exprimeront des besoins nationaux la possibilité de les satisfaire. Les étapes les plus urgentes à franchir pour mettre en œuvre cette solution sont, d'abord, la décision des nations de se porter volontaires, ensuite la création d'un club d'utilisateurs chargé de superviser la mise en œuvre du processus de certification et ses évolutions futures, en cohérence avec les évolutions du standard HLA et les contraintes de l'Alliance et des pays membres.

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<b>14. Abstract</b>	<p>The Report from the NATO Modelling and Simulation Steering Group approved by the North-Atlantic Council establishes the need for a common (open standard) technical framework (CTF) to promote the interoperability and reuse of models and simulations across the Alliance. MSMP Sub-objective 1.1, "Adopt the High Level Architecture (HLA) as the NATO standard technical architecture for simulation applications," provides the best available technical architecture to satisfy this need.</p> <p>HLA is recognised as a critical and necessary enabler for the interoperability and reuse of simulations. There is a need to acquire some guarantee that so-called "HLA-based" simulations are, in fact, HLA-compliant in accordance with applicable standards in order to attain those stages of interoperability and reuse. This report compares three different solutions to implement a NATO certification capability. The recommended solution is to establish national capabilities within voluntary nations. In order to co-ordinate and supervise this distributed implementation, it is required to establish a users/testers group to be created within the NMSG organisation.</p>		

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