



RTO TECHNICAL REPORT

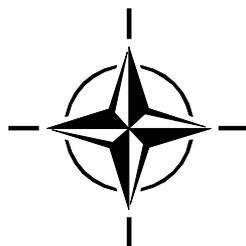
TR-MSG-048

Coalition Battle Management Language (C-BML)

(Langage de gestion du champ
de bataille (C-BML))

NMSG-048 Final Report.

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Published February 2012





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- SCI Systems Concepts and Integration Panel
- SET Sensors and Electronics Technology Panel

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List of Acronyms

AAR	After Action Review
ACO	Airspace Coordination Order
ADatP-3	Allied Data Publication-3
APLET	Aide à la Planification d'Engagement Tactique terrestre
ATO	Air Tasking Order
BML	Battle Management Language
C2	Command and Control
C2IEDM	Command and Control Information Exchange Data Model
C2IS	Command and Control Information System
C2LG	Command and Control Lexical Grammar
C2PC	Command and Control Personal Computer
CAPES	Combined Arms Planning and Execution System
C-BML	Coalition Battle Management Language
COA	Course Of Action
COAA	Course Of Action Analysis
COI	Community Of Interest
CONOPS	Concept of Operations
COP	Common Operational Picture
CROP	Common Relevant Operational Picture
DIS	Distributed Interactive Simulation
DSS	Decision Support System
eCOA	enemy Course Of Action
FOM	Federation Object Model
FRAGO	Fragmentary Order
FTRT	Faster Than Real-Time
GCS	Ground Control Station
HLA	High Level Architecture
ICC	Integrated Command and Control
IEM	Information Exchange Mechanism
ISIS	Integrated Staff Information System
JADOCS	Joint Automated Deep Operations Coordination System
J AUS	Joint Architecture for Unmanned Systems
JBML	Joint Battle Management Language
JC3IEDM	Joint Consultation Command and Control Information Exchange Data Model
JSAF	Joint Semi-Automated Forces
MIP	Multinational Interoperability Programme
MOE	Measures Of Effectiveness
MOP	Measures Of Performance
MR	Mission Rehearsal
MSDL	Military Scenario Definition Language

NORTaC-C2IS	NORwegian TaCtical-C2IS
OneSAF	One Semi-Automated Forces simulation
OOB, ORBAT	Order Of Battle
OPGEN	General Operational Message
OPORD	Operations Order
OPSTAT	Operational Statistics
OPTASK	Operational Task
POW	Programme Of Work
RECCE	Reconnaissance
ROE	Rules Of Engagement
SA	Situational Awareness
SBML	Scripted Battle Management Language
SCIPIO	Simulation de Combat Interarmes pour la Préparation Interactive des Opérations
SICF	Système d'Information pour le Commandement des Forces
SIMBAD	Command Post Simulator from Battalion to Platoon
SISO	Simulation Interoperability Standards Organization
STANAG	Standardization Agreement
TA	Technical Activity
TAP	Technical Activity Proposal
TRL	Technical Readiness Level
TTP	Techniques, Tactics, Procedures
UAS	Unmanned Air System
UAV	Unmanned Aerial Vehicle
UVS	Unmanned Vehicle System
VV&A	Verification, Validation & Accreditation
WARNO	Warning Order

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ACT
NATO Consultation, Command and Control Agency (NC3A)
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Agile Mission Group (NRF)
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National Modelling and Simulation Coordination Offices

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Human Factors and Medicine (HFM) Panel
Information Systems Technology (IST) Panel
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Warfighters at all levels, including planners, decision-makers, analysts/scientists, involved in the following:
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Acquisition, T&E, Logistics
Operations
Training and Exercises
Joint Multi-National and Inter-Agency Activities
Force Development, Force Generation, Force Employment

5) International C2 and Simulation Interoperability Standards Organizations.

MIP
SISO C-BML Product Development Group
SISO MSDL Product Development Group

Acknowledgements

The “**MSG-048 Technical Activity Final Report**” is the result of a complex and consultative process involving a large number of technical and operational Subject-Matter Experts (SME) from all MSG-048 participating Nations. In coming together to share data, information, knowledge, experiences and collective lessons learned gathered in executing common experimentations from 2006 to 2009, the contributors have strengthened the international understanding of the benefits, possible uses and required improvements for a Coalition Battle Management Language to support NATO M&S interoperability primarily with C2 and robotic systems.

Sincere gratitude for this support, consultation, and guidance is extended to all members of the MSG-048 technical activity. We came together as individual national SMEs, but we came out as one, providing what we believe will likely spark a revolutionary change in the way military operations are planned, rehearsed and conducted. We are also coming out of this effort with warm professional relationships and friendships that surely will grow under the auspice of MSG-085 that will ensure the coherence of a C-BML enabled approach in the future.

It would be improper not to further extend my gratitude to Mark Pullen from the George Mason University and Kevin Heffner from PEGASUS SIMULATION who both strongly promoted the works achieved in leading conference papers, organizing C-BML workshop and being active at the SISO body for the elaboration of the standard.

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Many thanks to all (see Official Members) for the tremendous effort and for what we accomplished together in this technical activity.

This “**MSG-048 Technical Activity Final Report**” should be read not only like a conclusion about the termination of the activity. Lessons learned and recommendations are inputs for MSG-085 activity to develop a C-BML mature capability that is consistent with an operational deployment.

Lionel Khimeche
Chair
NMSG-048

MSG-048 Technical Activity Programme Members

HEAD, MSCO

Dr. Juan RUIZ, Cdr ESP Navy
Tel: +33 1 55 61 22 90
Fax: +33 1 55 61 96 12
Email: ruizj@rta.nato.int

MSG-048 CHAIR FRANCE

Lionel KHIMECHE
Tel: + 33 1 42 31 95 46
Email: lionel.khimeche@dga.defense.gouv.fr

CANADA

Kevin HEFFNER
Tel: +1 514 655-2023
Email: k.heffner@pegasim.com

DENMARK

Karl Johan SIMONSEN
Tel: +45 72 57 16 73
Email: kjsimonsen@mil.dk

GERMANY

Ulrich SCHADE
Tel: +49 228 9435 376
Email: ulrich.schade@fkie.fraunhofer.de

NC3A

Jean-François COSSE
Tel: +31 70 374 3836
Email: jean-francois.cosse@nc3a.nato.int

NETHERLANDS

Nico DE REUS
Tel: +31 70 374 02 36
Email: nico.dereus@tno.nl

NORWAY

Ole Martin MEVASSVIK
Tel: +47 63 80 74 23
Email: ole-martin.mevassvik@ffi.no

SPAIN

Ricardo GOMEZ VEIGA
Tel: +34 91 2711362
Email: rgomvei@oc.mde.es

TURKEY

Erkan ERTUGRUL
Tel: +90 212 284 8065
Email: eertugrul@harpak.tsk.mil.tr

UNITED KINGDOM

Adam BROOK
Tel: +44 1252 396427
Email: rabrook@qinetiq.com

UNITED STATES

Mark PULLEN
Tel: +1 703 993 1538
Email: mpullen@c4i.gmu.edu



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14. Abstract	<p>This technical report describes the results and conclusions of the NATO Modelling and Simulation Group MSG-048: Coalition Battle Management Language (C-BML). C-BML is a standard for an unambiguous language that can communicate military information among command and control systems, simulation systems and autonomous systems and support a great number of military enterprise activities. The work described in this report deals primarily with the assessment of preliminary versions of the C-BML standard and initial prototype implementations of C-BML communications software to support military activities such as training and mission planning.</p> <p>This report provides a set of requirements for C-BML that have been developed during the execution of the MSG-048 Experimentation Programme. The experiments comprising the experimentation programme provided many lessons learned that form a major part of this document. Finally, this report provides recommendations concerning the future use of C-BML, including the coordination with other standardization bodies.</p>		





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Estonian Ministry of Defence
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