

NIMS *Basic*

FEMA 501-6
March 24, 2006
Revision 0

Supporting Technologies

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- I. Purpose:** This document describes the technology and technological systems that provide supporting capabilities essential to implementing and continuously refining the NIMS.
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- II. Scope:** The NIMS relies on:
- Strategic R&D to ensure the ongoing development of science and technology integral to continually improving and refining the NIMS.
 - Scientifically based technical standards that support the Nation's ability to prepare for, prevent, respond to, and recover from domestic incidents.
 - A long-term collaborative effort among NIMS partners to maintain an appropriate focus on science and technology solutions as they relate to incident management.
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- A. Technology and Technological Systems** Supporting capabilities include:
- Voice and data communications systems, information systems (i.e., record keeping and resource tracking), and display systems.
 - Specialized technologies that facilitate incident operations and incident management activities in situations that call for unique technology-based capabilities.
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- B. Extract** This document is extracted from FEMA 501, *National Incident Management System*. Refer to the NIMS in the event of conflicting information.
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IV. Definitions:

<i>DHS</i>	Department of Homeland Security
<i>NIC</i>	NIMS Integration Center
<i>NIMS</i>	National Incident Management System
<i>performance measurement</i>	Collecting hard data on how things work in the real world.
<i>R&D</i>	Research and Development
<i>SDO</i>	Standards Development Organization

V. Process:

A. Concepts and Principles	The NIMS observes five key principles to leverage science and technology to improve capabilities and lower costs.
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1. Interoperability
and Compatibility

Systems must be able to work together and should not interfere with one another if the multiple jurisdictions, organizations, and functions that come together under the NIMS are to be effective in domestic incident management.

Achieve interoperability and compatibility through the use of tools such as:

- Common communications and data standards.
- Digital data formats.
- Equipment standards.
- Design standards.

2. Technology
Support

This support:

- Permits organizations using the NIMS to enhance all aspects of incident management and emergency response.
- Facilitates incident operations.
- Sustains the R&D programs that underpin the long-term investment in the nation's future incident management capabilities.

3. Technology
Standards

Supporting systems and technologies are based on requirements developed through an appropriate preparedness organization at various jurisdictional levels (see NIC Document FEMA 501-3, *NIMS Basic - Preparedness*, Preparedness Organizations section).

National standards for key systems may be required to facilitate the interoperability and compatibility of major systems across jurisdictional, geographic, and functional lines.

4. Broad-Based
Requirements

Identify needs for new technologies, procedures, protocols, and standards to facilitate incident management at both the field and the national levels. Because these needs will most likely exceed available resources, the NIMS provides a mechanism for aggregating and prioritizing them from the local to the national level.

Meet these needs across the incident life cycle by coordinating basic, applied, developmental, and demonstration research, testing, and evaluation activities.

5. Strategic R&D
Planning

Strategic R&D planning identifies future technologies that can improve preparedness, prevention, response, and recovery capabilities or lower the cost of existing capabilities.

To ensure effective R&D, the NIC, in coordination with the Under Secretary for Science and Technology of the DHS, will integrate the incident management science and technology needs of departments, agencies, functional disciplines, private sector entities, and non-governmental organizations operating within the NIMS at the Federal, State, local, and tribal levels into the national R&D agenda.

B. Incident Management

Supporting technologies enhance incident management capabilities and lower costs through three principal support activities:

- Operational science.
 - Technology standards.
 - Research and development.
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1. Operational Scientific Support

Operational scientific support:

- Identifies and, upon request, mobilizes scientific and technical assets that can be used to support incident management activities.
 - Draws upon the scientific and technological expertise of Federal agencies and other organizations.
 - Is requisitioned and provided, via the NIMS, through various programs coordinated by the DHS, other organizations, and agencies.
 - Is planned by each level of government level through the NIMS preparedness organizations described in the Preparedness Organizations section in FEMA 501-3.
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2. Technical Standards Support

This effort enables the development and coordination of NIMS technology standards to ensure that consistent, effective, and reliable equipment performs together with personnel, organizations, communications and information systems without disrupting one another.

The NIC will use the following principles to define and coordinate the establishment of technical standards for NIMS users.

a) *Performance Measurements*

Performance measurement is the most reliable basis for standards that ensure the safety and mission effectiveness of emergency responders and incident managers.

A performance measurement infrastructure within the technology standards process develops the following to help incident management organizations use equipment systems effectively.

- Guidelines
 - Performance standards
 - Testing protocols
 - Personnel certification
 - Reassessment
 - Training procedures
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b) *Consensus-Based Performance Standards*

A consensus-based approach to standards builds upon existing approaches for interoperable equipment and systems, and takes advantage of long-standing SDO interest and expertise. The SDO include:

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- National Institute of Justice.
 - National Institute for Standards and Technology.
 - National Institute for Occupational Safety and Health.
 - American National Standards Institute.
 - American Society for Testing & Materials.
 - National Fire Protection Association.

The NIC establishes a working relationship between SDO and incident management organizations at all levels to develop performance standards for incident management technology.

c) Test and Evaluation

NIMS technology criteria will rely on objective private and public sector testing laboratories in evaluating equipment against NIMS technical standards. Select these organizations in accordance with guidelines that ensure that testing organizations are technically proficient and free from conflicting interests in their testing.

The NIC will issue appropriate guidelines as part of its standards development responsibilities.

d) Technical Guidelines

Develop scientifically based technical guidelines for training emergency responders on how to use equipment properly by using input from:

- Vulnerability analysts.
- Equipment developers.
- Users.
- Standards experts.

These training guidelines reflect threat and vulnerability information, equipment and systems capabilities, and a range of expected operating conditions based on:

- Incident management protocols.
- Instruments.
- Instrument systems.

Performance measures and testing protocols developed from these training guidelines provide a reproducible method for measuring the effectiveness of equipment and systems.

e) R&D

Base R&D planning to solve operational problems on the needs of the entire range of NIMS users. These represent key inputs as the nation formulates its R&D agenda for developing new and improved incident management capabilities.

The organizations described in the Preparedness Organizations section in FEMA 501-3 validate, integrate, and prioritize the operational needs since these usually exceed the resources available for research to

address them.

DHS is responsible for integrating user needs at all levels into the national R&D agenda.

VI. References: FEMA 501, *National Incident Management System*
FEMA 501-3, *NIMS Basic - Preparedness*

VII. Supersedure: Original
