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Federal Computer Security Program Managers' Forum
13 June 2012

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National Institute of Standards and Technology
NIST Interagency Reports (NIST IRs)

- Describe research of a technical nature of interest to a specialized audience.
- Include interim or final reports on work performed by NIST for outside sponsors (both government and nongovernment).
- May also report results of NIST projects of transitory or limited interest, including those that will be published subsequently in more comprehensive form.
Purpose

- **Guidance** and recommended practices to manage supply chain risk to a level commensurate with the criticality of information systems or networks for the acquiring federal agency only
- **High-Impact Level Systems (FIPS 199) medium-impact** dependent upon risk management approach
- **System Development Life Cycle (SDLC)** (COTS & GOTS.)
  - Design, development, acquisition, integration, operation, and disposal
- **Broad Audience**
  - System owners, acquisition staff, system security personnel, system engineers, etc.

- **FAR** - Federal Acquisition Regulations (FAR) that require supply chain practices;
- **INFO SHARING** - A means to share supplier-related threat information;
- **CONTINUOUSLY MANAGE SUPPLY CHAIN RISK** - Increased ability of Federal agencies to manage supply chain risks once an information system is in place;
- **STANDARDS** - Standards (preferably widely-used and/or international) on supply chain practices for integrators and suppliers; and, **(NIST ROLE)**
- **TOOLS AND TECHNOLOGIES** - Current and new technologies and tools incorporated into supply chain practices. **(NIST ROLE)**
HISTORY

- Initial public draft – June 2010
- Second public draft – March 23 - May 25, 2012
Changes to Second Draft

Problem

Growing sophistication of today’s ICT

Speed and scale of globalization

Complex global ICT supply chain with logically long and geographically diverse routes, including multiple tiers of outsourcing

Significant increase in the number of individuals and organizations who “touch” a product

Lack of visibility, understanding and control to enable risk management.
COTS vs. Custom

Low Cost vs. High Assurance

High

Assurance

Low

Cost

High
ICT Supply Chain Assurance

- Integrity
- Physical Security
- Resiliency
Changes to Second Draft

- **Resources – What are we asking actors to do?**
  - Many activities already practiced that address various disciplines, including logistics, security, reliability, safety, quality control, etc.

- **Description vs. Prescription**
  - What vs. How
Introduction: Purpose, scope and background

Overview: Provides a high-level discussion of ICT supply chain challenges, success factors and foundational practices.

Implementing ICT SCRM: Implementing SCRM provides information on how ICT SCRM considerations can be integrated into the Federal acquisition lifecycle.


Appendix A: Glossary

Appendix B: Acronyms

Appendix C: References

Appendix D: UMD ICT Supply Chain Study: “Assessing SCRM Capabilities and Perspectives of the IT Vendor Community”
Establish a SCRM Capability

- Ad-hoc or formal team

- Develop policy and procedures
  - Determine who performs requirement analysis, makes risk decisions, prepares procurement related documents, and specifies any specific training requirements.
# Implementing ICT SCRM: Roles & Responsibilities

<table>
<thead>
<tr>
<th>Plan Procurement</th>
<th>Oversee</th>
<th>Oversee</th>
<th>Oversee</th>
<th>Lead</th>
<th>Advise</th>
<th>Lead</th>
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<tbody>
<tr>
<td>Define/Develop Requirements</td>
<td>Oversee</td>
<td>Oversee</td>
<td>Oversee</td>
<td>Lead</td>
<td>Advise</td>
<td>Lead</td>
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<tr>
<td>Identify Potential Suppliers and/or Perform Market Analysis</td>
<td>Oversee</td>
<td>Oversee</td>
<td>Oversee</td>
<td>Advise</td>
<td>Advise</td>
<td>Lead</td>
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<tr>
<td>Complete Procurement</td>
<td>Oversee</td>
<td>Oversee</td>
<td>Lead</td>
<td>Lead</td>
<td>Advise</td>
<td>Lead</td>
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<td>Operations and Maintenance</td>
<td>Oversee</td>
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<td>Advise</td>
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<td>Lead</td>
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<tr>
<th>Risk Executive (Function)</th>
<th>Chief Information Officer (CIO)</th>
<th>Chief Information Security Officer (CISO)</th>
<th>Contracting Officer (CO)</th>
<th>Legal</th>
<th>Mission Business Owner</th>
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<td><img src="image1" alt="Risk Executive" /></td>
<td><img src="image2" alt="Chief Information Officer" /></td>
<td><img src="image3" alt="Chief Information Security Officer" /></td>
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<td><img src="image5" alt="Legal" /></td>
<td><img src="image6" alt="Mission Business Owner" /></td>
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Integrated SCRM Procurement Process

- Low
  - Not Subject to Supply Chain Practices
  - Determine FIPS 199 Impact

- Moderate
  - Conduct Initial Planning
  - Define/Develop Requirements
  - Identify Potential Suppliers and/or Perform Market Analysis
  - Complete Procurement
  - Operational Contract Execution

- High
  - Program Manager/Information System Owner and Supply Chain Risk Management Capability

Risk Based Decision
## SCRM Practices (Notional)

Practices formatted by role, activities, and requirements.

<table>
<thead>
<tr>
<th>Role</th>
<th>Type of Action</th>
<th>Description of Action</th>
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</thead>
<tbody>
<tr>
<td>Acquirer</td>
<td>Programmatic Activities</td>
<td>Practices that an acquirer will undertake within their programs, including requirements to be included in contractual documents, as well as internal policies and procedures.</td>
</tr>
<tr>
<td>Integrator</td>
<td>General Requirements</td>
<td>General practices that an integrator will implement within programs that are either in response to contractual requirements or to document existence of programmatic activities that reduce supply chain risk.</td>
</tr>
<tr>
<td>Supplier</td>
<td>General Requirements</td>
<td>General practices that a supplier will implement within programs to document existence of programmatic activities that reduce supply chain risk.</td>
</tr>
<tr>
<td>Integrator</td>
<td>Technical Implementation Requirements</td>
<td>Detailed technical practices that an integrator will implement within programs to document technical capabilities to manage supply chain risk.</td>
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<td>Detailed technical practices that a supplier will implement within programs to document technical capabilities to manage supply chain risk.</td>
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<tr>
<td>Acquirer</td>
<td>Validation and Verification Activities</td>
<td>Suggestions for how an acquirer can ascertain that integrators or suppliers have implemented ICT SCRM.</td>
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<tr>
<td>Integrator</td>
<td>Validation and Verification Requirements</td>
<td>Suggestions on how an integrator can demonstrate that they have implemented ICT SCRM.</td>
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ICT SCRM Practices (Notional)

- Uniquely Identify Supply Chain Elements, Processes, and Actors
- Limit Access and Exposure within the Supply Chain
- Create and Maintain the Provenance of Elements, Processes, Tools and Data
- Share Information within Strict Limits
- Perform SCRM Awareness and Training
- Use Defensive Design for Systems, Elements, and Processes
- Perform Continuous Integrator Review
- Strengthen Delivery Mechanisms
- Assure Sustainment Activities and Processes
- Manage Disposal and Final Disposition Activities Throughout the System or Element Lifecycle
Information Needed

➢ The practicality, feasibility, cost, challenges, and successes

➢ How to differentiate more and less critical components in addition to the information described in Draft NIST SP 800-53 Revision 4 SA-14 and SA-15

➢ Threat models or other relevant information for use in developing an ICT supply chain risk assessment matrix and threat scenarios

➢ The information described in this document that is already collected in response to other legislation, regulations, and standards.
Activities and Dates

➢ Risk Assessment Matrix and Threat Scenarios

➢ Public Workshop: July 11-12, 2012 (possible topics)
  ▪ Foundation (lexicon, scope, etc)
  ▪ Practices (Practicality/feasibility in terms of cost and implementation)
  ▪ Tools and Technology
  ▪ Research (current and needed)
Thank you

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http://scrm.nist.gov