FISMA Assessment and Authorization (A&A) Guidance

A&A Introduction

Welcome to the NCI Information System Assessment and Authorization (A&A) information and guidance page. The information provided here is intended to supplement guidance provided by the National Institute of Standards and Technology (NIST) and NIH to provide best practices for managing the A&A process (A&A was formerly called security assessment and authorization (SA&A) and certification & accreditation(C&A) before that).

Government project officers are responsible for ensuring their contractor-hosted or cloud-hosted applications are authorized to operate (ATO) in accordance with FISMA. This includes all planning, testing, and continuous monitoring activities associated with the system’s life cycle. Most importantly, this means that you are responsible for securing the resources to conduct required security testing, which for moderate impact systems means using an independent third party assessor qualified to conduct FISMA/FedRAMP audits. NCI CBIIT does not develop required FISMA/FedRAMP security documentation (except for assisting with the FIPS-199, e-Authentication, and Privacy Impact Assessment), or conduct any of the security testing for applications that are operated exclusively at contractor locations or hosted in the cloud. The extent of CBIIT’s support for exclusively contractor- and cloud-hosted systems is advisory only.

A&A is the methodology by which an organization establishes and then demonstrates sound, risk-based security posture for a specific system. We hope that the information provided on the following pages is useful to a variety of users including NCI information system owners, project officers and mangers, contracting officers, software developers, security officers, and security practitioners. It is intended to help you better understand, plan for, and execute the A&A process as it applies to your situation (i.e., based on your system’s operating location), along with the requirements and expectations for completing the A&A. We have also tried to provide you with the tools, templates, and guidance to facilitate the A&A process.

Who is this information intended for?

The following pages are intended for individuals associated with the design, development, implementation, operation, maintenance, and disposition of NCI systems hosted by a third party (e.g., hosting contractor, university, hospital, cloud service provider, etc.). This typically includes, but is not limited to: System owners, business owners, program and project managers, procurement officials, IT contractors (hosting providers), system developers, and security practitioners.

What is a "Federal Information System" (and what isn't)?

Before getting into specific A&A process and guidance, it is first helpful to review exactly what constitutes a "Federal Information System" so that you have a better understanding of when FISMA applies and when it may not. The following definitions and clarification are based on guidance provided by the Office of Management and Budget (OMB) as well as internal interpretations on the matter that have been published since 2001 when FISMA became law.

OMB initially defined an information system as: A **discrete set of information resources organized for the collection, processing, maintenance, transmission, and dissemination of information, in accordance with defined procedures, whether automated or manual.** (defined in OMB circular A-130, (6)(q)). OMB also clarified that Federal Information Systems are those that are used or operated by an agency or by a contractor of an agency or other organization on behalf of an agency (44. U.S.C. § 3544(a)(1)(A)).

Since these definitions can be somewhat vague or misinterpreted, many people often assume that a federal information system only includes those that are physically housed or operated within a federally owned or operated facility, and that any information system that is housed elsewhere (i.e., at a contractor’s location, at a hosting provider's location, or by a cloud service provider) are not federal information systems. This is not necessarily the case. In fact, a better determination can be made by examining accountability and control of a system’s information and who is directing the establishment or operation of the system. For example, if an agency of the federal government has directed or mandated (i.e., through a contractual arrangement or through other means of federal funding – sometimes to include grants) the creation or operation of an information system, or if the government owns or will likely take possession of the data that is used in the system, then FISMA would apply to that system. Contracting with a non-federal organization to host or operate your system does not exclude the system from FISMA regulations. If you are uncertain about whether yours is a federal information system, please contact the NCI ISSO’s office for clarification.

The following examples are for illustrative purposes and are not exhaustive.

<table>
<thead>
<tr>
<th>Federal Information System</th>
<th>NOT a Federal Information System</th>
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<tr>
<td>Website(s) used to collect or publish information by or on behalf of the federal government (regardless of the type or sensitivity of information collected, processed, or stored).</td>
<td>Websites operated by third parties, independent from any government organization (e.g., they do not collect, store, or process any information for or on behalf of the federal government).</td>
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<tr>
<td>Web application/N-tiered application used to collect or publish information on behalf of the federal government. This includes client-server architectures where remote access is possible.</td>
<td>Desktop productivity tools (e.g., Microsoft Office tools, WordPerfect, FileMaker Pro desktop version, MS Access)</td>
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<td>An enterprise database system (e.g., Oracle, SQL, PostgreSQL) that contains federal government records. Note that even an MS Access or FileMaker Pro database, which is normally considered a desktop tool rather than a system, could be considered an information system if it is not limited to use by a single user and if it provides a remote/web user interface that could allow multiple people to access the data.</td>
<td>A Microsoft Access database operated on a single workstation, and that does not provide a remote access user interface (i.e., it is not web enabled and is only accessible form the local workstation).</td>
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<td>A centrally managed and automated system (collection) of Adobe PDF forms that has been web-enabled to allow users remote access and modification of the forms.</td>
<td>Adobe PDF files kept on a local user's desktop computer or on a networked file share drive.</td>
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Overview of FISMA and A&A

The Federal Information Security Modernization Act (FISMA) of 2014 mandates that all federal information systems — including all NCI information systems — must be formally assessed and authorized to operate (ATO) using the National Institute of Standards and Technology’s (NIST) Risk Management Framework (RMF). The RMF is the model used to conduct federal system assessment and authorizations (A&A), so the terms RMF and A&A may be used interchangeably. NIST documented the RMF in Special Publication 800-37 rev. 2, Risk Management Framework for Information Systems and Organizations: A System Life Cycle Approach for Security and Privacy. The RMF is also supported by several additional NIST special publications (SP) that provide similar guidance for non-national security systems (CNSS Instruction 1253 provides similar guidance for national security systems). NIST documented the A&A process guidance in Special Publication 800-53, Security and Privacy Framework for Federal Information Systems and Organizations. These documents define the security baseline for the system, determine what level and type of identity and access controls are needed to protect the system, and determine if any information in the system falls under the Privacy Act (as amended) regulations.

NIST Risk Management Framework

NIST’s Risk Management Framework (RMF) is the security risk assessment model that all federal agencies (with a few exceptions) follow to ensure they comply with FISMA. The RMF is formally documented in NIST’s special publication 800-37 (SP 800-37) and describes a model for continuous security assessment and improvement throughout a system’s life cycle. The RMF comprises six (6) steps as outlined below.

Step 1 — Categorize the information system and the information processed, stored, and transmitted by that system based on an impact analysis. FIPS-199 provides security categorization guidance for non-national security systems (CNSS Instruction 1253 provides similar guidance for national security systems. NIH also requires in this step the completion of the e-Authentication Risk Assessment (eRA) and the Privacy Impact Analysis. Together, these three documents define the security baseline for the system, determine what level and type of identity and access controls are needed to protect the system, and determine if any information in the system falls under the Privacy Act (as amended) regulations.

Step 2 — Select an initial set of baseline security controls for the information system based on the security categorization; tailoring and supplementing the security control baseline as needed based on an organizational assessment of risk and local conditions. NIST Special Publication 800-53 provides security control selection guidance for non-national security systems. CNSS Instruction 1253 provides similar guidance for national security systems.

NIST 800-53 groups security controls by families (e.g., Access Control (AC), Auditing (AU), Risk Assessment (RA), etc.) as well as by impact classification (e.g., Low, Moderate, and High) to help identify the proper controls required for each system.

Many of the controls found in 800-53 can also be tailored with organization-specific guidance such as specific password policies, access control policies, and the like. In order to assist system owners with the security control identification and selection process, NIST has developed multiple security control inheritance guides based on hosting environments (i.e., CBIIIt hosted, third party hosted, other NIHnet hosted, etc.) to help owners select controls for their system.

Step 3 — Implement the security controls and describe how the controls are employed within the information system and its environment of operation.

Step 4 — Assess the security controls using appropriate assessment procedures to determine the extent to which the controls are implemented correctly, operating as intended, and producing the desired outcome with respect to meeting the security requirements for the system.

Step 5 — Authorize information system operation based on a determination of the risk to organizational operations and assets, individuals, other organizations, and the Nation resulting from the operation of the information system and the decision that this risk is acceptable.

Step 6 — Monitor the security controls in the information system on an ongoing basis including assessing control effectiveness, documenting changes to the system or its environment of operation, conducting security impact analyses of the associated changes, and reporting the security state of the system to designated organizational officials.
One of the fundamental tenets of NIST’s risk based approach to security throughout the life cycle is that system owners must balance the requirement to protect agency information and assets (i.e., its federal systems and data) against the cost/benefit of implementing and maintaining appropriate security controls when compared to not implementing such controls and strategies. In other words risk management should be cost-effective. This is an important concept to keep in mind when you are faced with tough decisions about when and how to implement certain security controls. Whenever you have a question about such choices, the NCI ISSO and the Information Resource Management (IRM) team are here to help you make the appropriate choices and provide the necessary guidance.