

Centers for Medicare & Medicaid Services (CMS)

Business Partners

Systems Security Manual



CENTERS FOR MEDICARE & MEDICAID SERVICES

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CMS/ Business Partners Systems Security Manual

Record of Changes

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Revision	Major Changes	Date
12	Main Document and all Appendices (1) Updated Internet hyperlinks throughout document (2) Changed “EISG” (Enterprise Information Security Group) to “ISPG” (Information Security and Privacy Group) throughout document (3) Correct typographical errors	08/2013
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1 - Introduction

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

This manual addresses the following key Medicare Fee For Service business partner security elements:

- A business partner is a contractor involved in Medicare fee-for-service claims processing
- An overview of primary roles and responsibilities
- A program management planning table to assist System Security Officers (SSOs) and other security staff in coordinating system security programs at business partner sites
- The collection of CMS policies, procedures, standards, and guidelines can be found on the CMS Information Security Web site at:
<http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/index.html>

The Centers for Medicare & Medicaid Services (CMS) requires that its business partners implement information security controls on their information technology (IT) systems to maintain the confidentiality, integrity, and availability (CIA) of Medicare systems operations in the event of computer incidents or physical disasters.

A CMS business partner (contractor) is a corporation or organization that contracts with CMS to process or support the processing of Medicare fee-for-service claims. These business partners include Common Working File (CWF) host sites, standard system maintainers, regional laboratory carriers, claims processing data centers, Data Centers, Virtual Data Centers (VDCs), and Medicare Administrative Contractors (MACs) (including Durable Medical Equipment Medicare Administrative Contractors [DMEMAC] and Part A/Part B Medicare Administrative Contractors [ABMAC]).

The “Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA) - Section 912: Requirements for Information Security for Medicare Administrative Contractors” (Section 912 of the MMA) provided for a new type of contractor relationship, the “Medicare Administrative Contractor,” and implemented requirements for annual evaluation, testing, and reporting on security programs at both MACs and existing carrier and intermediary business partners (to include their respective data centers). In this manual, the terms “business partner” and “contractor” are used interchangeably, and all provisions that apply to business partners also apply to MACs. *In addition, the term Acceptable Risk Safeguards (ARS) is used in this manual to mean the ARS that includes the required security and privacy control baselines and tailored with the supplemental controls identified by the Business Owner and ISSO. For the MACs, this will be known as the MAC ARS.*

1.1 - Additional Requirements for MACs

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

MACs are responsible for fulfilling all existing business partner requirements. Additional requirements include the following:

- The contractor shall comply with the CMS MAC tailored list of controls found in Attachment 1. This list of controls, *known as the MAC ARS*, includes all of the CMS required controls plus optional controls *are included* specifically for the MACs. *MAC ARS controls will be tailored via the BPSSM as what is included in the BPSSM overrides the MAC ARS controls with the intent of being more restrictive.*
- The contractor shall correct weaknesses, findings, gaps, or other deficiencies within 90 days of receipt of the final audit or evaluation report, unless otherwise authorized by CMS.
- The contractor shall document system security controls in the CMS FISMA Controls Tracking System (CFACTS) tool to demonstrate compliance with *MAC ARS* controls and documentation. The contractor shall also use CFACTS to maintain documentation that supports the Authority to Operate (ATO) process, including certification of the documentation.
- The contractor shall conduct or undergo an independent security control assessment of its system security program in accordance with Section 912 of the MMA. The first test shall be completed before the contractor commences claims payment under the contract.
- The contractor shall appoint a Chief Information Officer (CIO) to oversee its compliance with the CMS information security requirements. The contractor's principal Systems Security Officer (SSO) shall be a full-time position dedicated to assisting the business partner CIO in fulfilling these requirements.
- The contractor must implement systems in a manner that is compliant with the CMS eXpedited Life Cycle (XLC) and the Technical Reference Architecture (TRA). When directed by CMS, compliance with the XLC and the TRA will be demonstrated by presenting system updates to the CMS Technical Review Board (TRB). For situations where the TRA conflicts with the *MAC ARS*, the *MAC ARS* shall take precedence.
- *The contractor shall meet all contingency planning and disaster recovery requirements included in the MAC ARS and the Business Partners Systems Security Manual (BPSSM), with the goal of restoring key claims processing and operations within 72 hours.*
- *The contractor shall review, update and approve all policies and procedures every 365 days and not every three years as stated in the MAC ARS.*

2 - IT Systems Security Roles and Responsibilities

2.1 - CMS Contracting Officer's Representative (COR)

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

CMS CORs oversee the business partners and also have Federal Acquisition Regulation (FAR) responsibilities. The COR has the following responsibilities:

- CMS point of contact for business partner information security problems
- Provider of technical assistance necessary to respond to CMS information security policies and procedures

2.2 - Principal Systems Security Officer (SSO)

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

Business partners shall designate a principal (i.e., primary) SSO qualified to manage the Medicare information security program and ensure the implementation of necessary safeguards. The SSO shall be organizationally independent of IT operations. The SSO can be within the CIO organizational domain but cannot have responsibility for operation, maintenance, or development.

See Section 1.1 for additional requirements that pertain to the Medicare Administrative Contractor SSO position.

The principal SSO position for each contractor should be full-time and fully qualified—preferably credentialed in systems security (e.g., Certified Information Systems Security Professional [CISSP]). Having an individual with appropriate education and experience to execute security administration duties will help reinforce that security must be a cultural norm that guides daily activities, and not a set of compliance directives. A qualified SSO who is available to direct security operations full-time provides the foundation for the security culture and awareness of the organization.

A sound entity-wide security program is the cornerstone of effective security control implementation and maintenance. Security controls cannot be effective without a robust entity-wide security program that is fully sponsored and practiced by senior management, and staffed by individuals with proper training and knowledge. Contractors should also encourage their systems security personnel to pursue security accreditation using available funding.

A business partner may have additional SSOs at various organizational levels, but all security actions that affect Medicare operations shall be coordinated through the principal SSO. The SSO ensures compliance with the CMS information security program and *MAC ARS* by:

- Facilitating the Medicare IT system information security program and ensuring that necessary safeguards are in place and working
- Coordinating information security system activities throughout the organization
- Ensuring that IT system information security requirements are considered during budget development and execution
- Reviewing compliance of all components with the *MAC ARS* and reporting vulnerabilities to management
- Establishing an incident response capability, investigating system security and privacy breaches, and reporting significant problems (see section 3.6) to business partner management.
- Ensuring that technical and operational information security controls are incorporated into new IT systems by participating in all business planning groups and reviewing all new systems/installations and major changes

- Ensuring that IT systems information security requirements are included in Requests for Proposal (RFP) and subcontracts involving the handling, processing, and/or analysis of Medicare data
- Maintaining information security documentation in the System Security Profile for review by CMS and external auditors and keeping all elements of the System Security Profile (see section 3.7)
- Cooperating in all official external evaluations of the business partner's information security program
- Facilitating the completion of the risk assessment (see section 3.2)
- Ensuring that an operational IT Systems Contingency Plan is in place and tested (see section 3.3)
- Documenting and updating the monthly Plan of Action and Milestones (POA&M) (see section 3.5.2). Updates may occur whenever a POA&M projected completion date passes, and/or following the issuance of new requirements, risk assessments, internal audits, and external evaluations.
- Ensuring that appropriate safety and control measures are arranged with local fire, police, and health agencies for handling emergencies (see Appendix A)

The principal SSO should earn a minimum of 40 hours in continuing professional education credits each year from a recognized national information systems security organization. The educational sessions conducted at the CMS Security Controls Oversight and Update Training (CSCOUT) can be used toward fulfilling the continuing professional education credits. The qualifying sessions and associated credit hours will be noted on the CSCOUT agenda.

2.3 - CMS Business Owners

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Business Owners of business partner systems are responsible for:

- Determining and approving the information and information system security levels of the resources for which they are responsible
- Identifying appropriate security level categorizations for their information and information systems

2.4 - CMS System Maintainers/Developers

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Business partner system maintainers/developers have the responsibility to implement the security requirements throughout the eXpedited Life Cycle (XLC).

2.5 - Personnel Security/Suitability

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

All business partner and contractor employees requiring access to CMS sensitive information shall meet minimum personnel suitability standards. These suitability standards are based on a valid need-to-know,

which cannot be assumed from position or title, and favorable results from a background check. Each position must be evaluated and assigned a risk and/or a sensitivity designation commensurate with each individual's duties and responsibilities. The background check for prospective and existing employees (if not previously completed by CMS) should include, at a minimum: Social Security Number verification, identity and address verification, national criminal database search, county criminal records search, HHS list of excluded individuals, sex offender registry, and verification of academic records.

When required by CMS, the business partner will be expected to support the implementation of Homeland Security Presidential Directive-12. HSPD-12 will require a background check performed by CMS and the ability to support the use of PIV cards, including reading and authenticating an individual with a PIV card, and the passing of PIV credentials to other CMS related networks for authentication.

3 - IT Systems Security Program Management

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Key Requirements

The Security Program consists of several fundamental components that are all designed to implement controls and to reduce risk. Key elements of controls include Policies, Procedures, Technical Implementations, Standards, and Management Reviews. Required documentation includes, but is not limited to, the security plan, the risk assessment, and the contingency plan.

Business partners shall implement an IT Systems Security Program to manage the system security risks. Risks are identified by the business partner in the Information Systems Risk Assessment (see section 3.2) and the security requirements are documented in the System Security Plan (see section 3.1). The underlying support for these documents is the controls implemented by the business partner. Controls are measures implemented to protect the CIA of sensitive information. Information security controls shall be implemented in a consistent manner everywhere within the system's accreditation boundary. Ad hoc approaches that tend to be applied on an individual or case-by-case basis are discouraged. In addition, initial testing shall be performed to ensure that information security controls are operating as intended.

3.01 - Control Components

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Business partners shall have policies and procedures, and implement controls or plans that fulfill the *MAC ARS controls*. The business partner Medicare claims related security program shall be based on the *MAC ARS (IOM 100-17, Attachment 1)*, the BPSSM (IOM 100-17) and on the collection of CMS policies, procedures, standards, and guidelines found on the CMS Information Security Web site at: <http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/index.html>.

Policies are formal, up-to-date, documented rules that are tailored to the environment, are communicated as "shall" or "will" statements and are readily available to employees. They establish a continuing cycle of assessing risk, implementing controls and monitoring for program effectiveness. Policies are written to cover all major facilities and operations corporate-wide or for a specific asset (e.g., Medicare claims processing), and they are approved by key affected parties. Policies delineate the IT security management structure, clearly assign IT security responsibilities, and lay the foundation necessary to reliably measure progress and compliance. Policies also identify specific penalties and disciplinary actions to be used in the event that the policy is not followed.

Procedures are formal, up-to-date, documented instructions that are provided to implement the security controls identified by the defined policies. They clarify where the action is to be performed, how the action is to be performed, when the action is to be performed, who is to perform the action, and on what the action is to be performed. Procedures clearly define IT security responsibilities and expected behaviors for: asset owners and users, information resources management and data processing personnel, management, and IT security administrators. Procedures also indicate appropriate individuals to be contacted for further information, guidance, and compliance. Finally, procedures document the implementation of, and the rigor with which, the control is applied.

Technical Implementations are the acquisition and installation of hardware, software, or assets to be used for the establishment of a new control, or the improvement of an existing control. The intention of a technical implementation is to automate or facilitate a control process that would otherwise be manually performed.

Standards are formal, written, mandatory actions, rules, or specifications designed to support and conform to a policy or procedure. A standard must include one or more accepted specifications for configurable items for hardware, software, or behavior. Standards are often required to successfully complete technical implementations and can be either part of policies and procedures, or can be standalone documents. Standards can result from, either exclusively by or in combination with, laws promulgated by governing bodies, obtained from known standards organization or developed by the business partner using industry best practices.

Management Review is the business partners' formal oversight activity of control implementations and should be performed at various management levels. Oversight is a regular activity to verify that the control environment for which management has responsibility is functioning properly. Management must set benchmarks or other methods to measure the success of controls. Where appropriate, management should document their review by formally approving evidence supplied.

3.02 - Reporting Requirements

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

Business partners are required to provide documentation to CMS regarding the status of their IT security program. Documentation shall be reported to CMS according to the appropriate procedures, which are summarized in Table 3.1.

Meeting requirements does not validate the quality of a program. Managers with oversight responsibility shall understand the processes and methodology behind the requirements. Table 3.1 identifies key requirements and their high-level descriptions. As appropriate, Table 3.1 refers to other parts of this document that provide details on ways to accomplish each requirement. Business partners shall perform a Federal Information Security Management Act of 2014, 44 U.S.C. §3541 (FISMA) Assessment (FA) using the CFACTS. The weaknesses, action plans, and POA&Ms shall be recorded in the CFACTS (See Risk Management Handbook [RMH] Volume II Procedure 6.2 POA&M Management). To perform the FA, business partners shall conduct a systematic review of the **MAC ARS** using the CFACTS. CFACTS provides the **MAC ARS** guidance and assessment procedures to assist in the review.

In addition, Table 3.1 indicates how often these tasks need to be performed, the disposition of output or documentation, comments, and a space to indicate completion or a "do by" date. The number accompanying each entry in the requirement column indicates the section in this document

that deals with that particular requirement. Use this table as a checklist to ensure that all required IT systems security tasks are completed on schedule. Consult the referenced sections for clarifying details.

Table 3.1. Reporting Requirements Planning Table

Requirement	Frequency	Send To	Comments	Complete (check when complete)
CMS POA&M & Annual FISMA Assessment	One third of the controls shall be tested each year so all controls are tested during a 3-year period.	<ul style="list-style-type: none"> COR with a copy to CMS CO via CFACTS System Security Profile 	<p>See RMH Volume II Procedure 4.2 for an overview of the FA.</p> <p>FA results recorded in the CFACTS are to be discussed in the Certification Package for Internal Controls (CPIC) Certification Package.</p>	
3.1 System Security Plan (SSP)	The SSP for each General Support System (GSS) and MA shall be reviewed, updated, and certified by management every 365 days, or upon significant change ¹ .	<ul style="list-style-type: none"> CMS CO via CFACTS System Security Profile 	Information system security plans are to be reviewed, updated, and certified by management and indicated as such in CFACTS, the CPIC Certification Package/Statement of Certification, and the System Security Profile ² .	
3.2 Risk Assessment	The risk assessment for each GSS and MA shall be reviewed, updated, and certified by management every 365 days, or upon significant change. ¹	<ul style="list-style-type: none"> CMS CO via CFACTS System Security Profile 	Risk assessments are to be reviewed, updated, and certified by management and indicated as such in the CFACTS, the CPIC Certification Package/Statement of Certification, and the System Security Profile. The risk assessment is submitted with the security plan ³ .	
3.3 Certification	Each federal FY	<ul style="list-style-type: none"> COR with a copy to CMS CO via CFACTS System Security Profile 	Business Partners should include a statement of certification as part of their CPIC package. Each year CMS will publish in Chapter 7 (Internal Controls) of its Financial Management Manual (Pub 100-06) information on certification requirements including where, when, and to whom these certifications shall be submitted. All other contractors should submit a statement of security certification to their CMS CORs.	
3.4 Contingency Planning	<p>CPs shall be reviewed, updated, and certified by management every 365 days, or upon significant change.¹</p> <p>CPs shall be tested annually.</p>	<ul style="list-style-type: none"> CMS CO via CFACTS System Security Profile 	<p>Business partner management and the SSO shall approve the CP.</p> <p>The CP is to be developed (in accordance with Appendix A and CMS RMH documents), reviewed, updated, and certified by management—and indicated as such in the CFACTS, the Certification Package/Statement of Certification, and the System Security Profile⁴.</p>	

¹ NIST defines “significant change” as “any change that the responsible agency official believes is likely to affect the confidentiality, integrity, or availability of the system, and thus, adversely impact agency operations (including mission, functions, image or reputation) or agency assets.”

² More information about system security planning can be found in the CMS Information Security (IS) System Security Plan (SSP) Procedures.

³ More information about Risk Assessment Reports can be found in the CMS risk assessment procedures.

⁴ More information about contingency planning can be found in NIST SP 800-12, An Introduction to Computer Security: The NIST Handbook, and NIST SP 800-34 Rev. 1, Contingency Planning Guide for Federal Information Systems.

Requirement	Frequency	Send To	Comments	Complete (check when complete)
3.5 Compliance	Each federal FY	<ul style="list-style-type: none"> • ISSO • COR • CMS CO via CFACTS • System Security Profile 	POA&M: POA&Ms address findings of internal/external audits/reviews including annual security assessments, and, as applicable: Statements on Standards for Attestation Engagements (SSAE) 18 reviews, A-123, Chief Financial Officer (CFO) controls audits, the Section 912 evaluation, and data center tests and reviews.	
3.6 Incident Reporting and Response	As necessary	<ul style="list-style-type: none"> • COR • CMS IT Service desk • Medicare Contractor Management Group (MCMG) Security Mailbox (See the latest guidance from CMS for more information) • System Security Profile 	Health Insurance Portability and Accountability Act (HIPAA) and Health Information Technology for Economic and Clinical Health Act (HITECH) also addresses Incident Reporting information.	
3.7 System Security Profile	As necessary	On file with the Principal SSO		
3.8 Authorization To Operate	As necessary to acquire and maintain a CMS CIO-granted Authorization to Operate.	On file with CMS Information Security and Privacy Group (ISPG), with a copy maintained in the CFACTS.		

LEGEND:

CFACTS	CMS FISMA Controls Tracking System
CFO	Chief Financial Officer
CO	Central Office (CMS)
COR	Contract Officer Representative
CP	Contingency Plan
CPIC	Certification Package for Internal Controls
FA	FISMA Assessment
FY	Fiscal Year
GSS	General Support System
HIPAA	Health Insurance Portability and Accountability Act
IT	Information Technology
MA	Major Application
POA&M	Plan of Action and Milestones
RA	Risk Assessment
SSAE	Statement on Standards for Attestation Engagements
SP	Special Publication (NIST)
SSO	Business Partner Systems Security Officer

NOTE: The documents listed in Table 3.1 may be stored as paper documents, electronic documents, or any combination thereof.

When submitting paper copies of documentation to the CMS CO, Registered Mail™ or its equivalent (signed receipt required) shall be used. Contact the appropriate COR or ISSO for the correct address.

3.1 - System Security Plan (SSP)

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Key Requirements

Business partners are required to update and re-certify the SSP every 365 days unless there are changes that would necessitate a more frequent update. Updates to the SSP shall be performed via CFACTS.

Defining a system boundary is a key step that must be completed before a SSP can be accurately documented.

The SSP should address how the control environment is implemented to mitigate risks identified in the risk assessment.

The objective of an information security program is to improve the protection of sensitive/critical IT resources. All business partner systems used to process, transmit, or store Medicare-related data have some level of sensitivity and require protection. The protection of a system shall be documented in a security plan. The completion of an security plan is a requirement of the Federal Information Security Management Act of 2014 (FISMA), Privacy Act of 1974, As Amended, Office of Management and Budget (OMB) Circular A-130, Management of Federal Information Resources, Appendix III, Security of Federal Automated Information Resources, and Public Law 100-235, the Computer Security Act of 1987. All Medicare claims-related applications and systems categorized as either an MA or GSS shall be covered by security plans.

The purpose of a security plan is to provide an overview of the security requirements of a system and describe the controls that are implemented to meet those requirements. The security plan also delineates responsibilities and expected behavior of all individuals who access the system. The security plan should be viewed as documentation of the structured process of planning adequate and cost-effective security protection for a system. It should reflect input from various managers with responsibilities concerning the system, including Business Owners, information owners, the system operator, and the system security manager (i.e., SSO).

All business partners are required to maintain current security plans for their Medicare claims-related GSSs and MAs in both the CFACTS and their System Security Profiles. The security plan documents the current level of security within the system or application; that is, actual implemented controls, not planned controls. In addition, the security plan serves as the primary documentation reference for testing and evaluation, whether by CMS, the General Accounting Office (GAO), or other oversight bodies. The security plan is a sensitive document, as it may discuss uncorrected vulnerabilities and may mention risks that have been accepted. Therefore, security plans should be distributed only on a need-to-know basis.

The security plans shall be available to the SSO and business partner certifying official (normally the Vice President [VP] for Medicare Operations), and authorized external auditors as required. The SSO and Business Owner are responsible for reviewing the security plan on an annual basis to ensure that it is up-to-date. The objective of these annual reviews is to verify that the controls selected or installed remain adequate to provide a level of protection to reach an acceptable level of risk to operate the system.

All business partner Medicare claims-related security plans shall be developed and documented in accordance with the latest instruction from CMS.

Security plans shall be re-certified within 365 days from the previous certification date. The security plan shall also be reviewed prior to re-certification (within the original certification timeframe) to determine whether an update is required. The security plan shall be updated if there has been a significant change or the security posture has changed. Examples of significant change include, but are not limited to: transition from one standard system to another, replacement of major computer equipment, change in operating system used, change in system boundaries, or any significant system modifications that may impact the system's security posture. Documentation of the review or the updated security plan, if applicable, shall be recorded in the CFACTS, placed in the System Security Profile.

Contractors updating their current security plan(s) or developing new security plan(s) shall take into account Medicare claims processing front-end, back-end, and/or other claims processing related systems.

Front-end systems are those systems Medicare contractors develop and maintain for use in their operations areas and data centers to enter claims and claims-related data into the standard/shared claims processing system. These front-end systems include, but are not limited to: electronic data interchange, imaging systems, optical character recognition, manual claims entry, claims control, provider, beneficiary, other payer databases, and other pre-claims processing business functions.

Back-end systems are those systems that Medicare contractors develop and maintain for use in their operations areas and data centers to output claims processing information (i.e., checks, Medicare summary notices, letters, etc.). These back-end systems include, but are not limited to: print mail, 1099 forms, post-payment medical reviews, customer service, appeals, overpayment written/phone inquiries and separate claims reconciliation systems.

Within 10 days of updating, developing or re-certifying an SSP, CFACTS must be updated.

3.2 - Risk Assessment

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Key Requirements

Business partners are required to perform an annual risk assessment in accordance with the most current versions of the CMS risk assessment procedures available on the CMS Web site at: <http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/index.html>. The identified risks will aid in the design of controls to satisfy the *MACARS*.

Documentation of the risks needs to be completed before a control is designed and implemented. Controls should be designed to be cost effective based on the risk to the operating environment.

Risks never go away, but can increase as new vulnerabilities are found and decrease as new or enhanced controls are implemented.

The CMS risk assessment procedures present a systematic approach for the RA process of Medicare information computer systems within the CMS and business partner environments. The procedure describes the steps required to produce a risk assessment for systems and applications.

All business and information owners shall develop, implement, and maintain risk management programs to ensure that appropriate safeguards are taken to protect all CMS resources. A risk-based approach shall be used to determine adequate security and shall include a consideration of the major factors in management, such as the value of the system or application, all threats, all vulnerabilities, and the effectiveness of current or proposed safeguards. The CMS risk assessment procedures shall be used to prepare an annual risk assessment.

Risk assessments shall be re-certified within 365 days from the previous certification date. The risk assessment shall also be reviewed prior to re-certification (within the original certification timeframe) to determine whether an update is required. The risk assessment shall be updated if there has been a significant change or the security posture has changed. Examples of significant change include, but are not limited to: transition from one standard system to another, replacement of major computer equipment, change in operating system used, change in system boundaries, or any significant system modifications that may impact the system's security posture. Documentation of the review or the updated risk assessment, if applicable, shall be placed in the System Security Profile, and a copy shall be submitted to the CMS CO. Note that the risk assessment used to support a security plan cannot be dated more than 365 days earlier than the security plan certification date.

Contractors that must update their current risk assessment(s) shall use the most current versions of the CMS risk assessment procedures.

A newly developed or updated risk assessment that is submitted with the security plan shall be maintained in the CFACTS and must be received within 10 working days after they have been developed and/or updated.

The risk assessment shall be updated every 365 days unless there are changes (as discussed above) that would necessitate a more frequent update. Should risk assessment technical assistance be required, direct all questions to the CMS Information Security and Privacy Group (ISPG) at <mailto:CISO@cms.hhs.gov>.

3.3 - Contingency Planning

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Key Requirements

Business partners are required to document and test an IT Systems Contingency Plan in accordance with the most current versions of the CMS Information Security Contingency Planning standards and procedures available on the CMS Web site at: <http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/index.html>, and with BPSSM Appendix A.

All business partners are required to develop and document a Contingency Plan (CP) that describes the arrangements that have been implemented and the steps that shall be taken to continue IT and system operations in the event of a natural or human-caused disaster. Contingency plans shall be included in management planning and shall be:

- Reviewed whenever new systems are planned or new safeguards contemplated
- Reviewed within 365 days to ensure that they remain feasible
- Tested within 365 days. If backup facility testing is done by Medicare contract type (i.e., when multiple contract types are involved [e.g., Data Center, Part A/B, DME]), each individual Medicare contract type shall be tested every 365 days.

Appendix A to this manual provides information on IT systems contingency planning and testing methods. Also, see Table 3.1 for additional information.

Each contractor shall review its CP within 365 days from the date it was last reviewed and/or updated to determine if changes to the CP are needed. A CP shall be updated if a significant change has occurred. The CP shall also be tested within 365 days from the last test performed. Updated plans and test reports (results) shall be maintained in CFACTS, and placed in the contractor's System Security Profile. Business partner management and the SSO shall approve newly developed and/or updated IT Systems CP. Information on Medicare IT systems contingency planning can be found in Appendix A.

A newly developed and/or updated IT Systems CP shall be updated in CFACTS and submitted to CMS within 10 working days after the business partner's management and SSO have approved it. A copy of the IT Systems CP shall be submitted via CD-ROM to the CMS CO along with a paper copy of the statement of certification. This information shall not be submitted via e-mail—Registered Mail™ or its equivalent (signed receipt required) shall be used.

3.4 - Certification

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

All business partners are required to certify their system security compliance. Certification is the formal process by which a contractor official verifies, initially and then by annual reassessments, that a system's security features meet the *MAC ARS controls*. Business partners shall self-certify that their organization successfully completed an annual, independent FA of their Medicare IT systems and associated software in accordance with the terms of their Medicare agreement/contract.

Each contractor is required to self-certify to CMS its information security compliance within each federal FY. This security certification shall be included in the CPIC package or, for contracts not required to submit CPICs, send the security certification to their appropriate CMS CORs. CMS shall continue to require annual, formal re-certifications within each FY no later than September 30, including validation at all levels of security as described in this manual.

Systems security certification shall be fully documented and maintained in the System Security Profile. The security certification validates that the following items have been developed (i.e., updated and/or reviewed, as required) and are available for review in the System Security Profile:

- Certification
- FISMA Annual Security Control Assessment
- System Security Plan for each GSS and MA (see section 3.1)
- Risk Assessment (see section 3.2)
- IT Systems Contingency Plan (see section 3.3 and Appendix A)
- Plan of Action and Milestones (see section 3.5.2)

3.5 - Compliance

(Rev. 8, Issued: 04-06-07; Effective Date: 10-01-06; Implementation Date: 05-01-07)

Compliance refers to the contractual obligations of business partners to CMS. The components to electronic data processing (EDP) security reporting compliance are described in detail in the following subsections

3.5.1 - Annual FISMA Assessment (FA)

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

At least 1/3 of controls must be tested each year, and all controls shall be tested over a 3 year period.

CMS reserves the right to identify which control families must be tested each year.

A critical factor for maintaining on-going compliance with FISMA and the Federal Managers' Financial Integrity Act of 1982 (FMFIA) is for Business Owners in coordination with developers/maintainers, to annually test their internal controls and dedicate sufficient resources to accomplish this test. These resources include budget (if external resources are to be used to support the testing) and person-hours (if internal personnel are to be engaged in this activity). They are required to schedule and perform the test; and oversee the development and completion of applicable POA&Ms for vulnerabilities noted during the annual testing.

The annual FA is documented, tracked, and reported in the CFACTS. The purpose of annual FA testing (i.e., validation) is to examine and analyze implemented security safeguards in order to provide evidence of compliance with applicable laws, directives, policies, and requirements regarding information security. The annual FA is intended to validate the *MAC ARS controls* to determine the extent to which the controls are:

- implemented correctly
- operating as intended
- producing the desired outcome with respect to meeting the security requirements for the system

The annual FA testing requirement has been interpreted by OMB as being within 365 calendar days of the prior test. Over a 3-year period, all *MAC ARS controls* applicable to a system or application shall be tested. This means a subset (no less than one-third [$\frac{1}{3}$]) of the *MAC ARS controls* shall be tested each year so that all security controls are tested during a 3-year period. In an effort to standardize testing and results summarization, a 3-year rotation of *MAC ARS* control families was established by CMS. *After the 3-year rotation is completed, the testing rotation shall be repeated until notification from CMS is received.* As control families are added or removed, CMS CO reserves the right to change the controls that must be tested each year.

To fulfill the annual FA validation obligation, the FA shall be conducted by an independent agent or team. This can be any internal/external agent or team that is capable of conducting an impartial assessment of an organizational information system. Impartiality implies that the assessors are free from any perceived or actual conflicts of interest with respect to the development, operation, and/or management chain of command associated with the information system or to the determination of *MAC ARS* effectiveness. All management-directed and independent testing conducted within 365 days of the attestation due date may be used to meet the requirement for the annual security controls (i.e., FA) testing.

3.5.2 - Plan of Action and Milestones (POA&M)

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

Business partners are required to prepare a monthly POA&M update which is due by the 1st of each month. The POA&M update consists of updating all active POA&M items in the CFACTS and, if required by CMS, uploading any additional supporting documentation.

All security and privacy related findings shall be entered into CFACTS. This includes findings from FISMA, Chief Financial Officer, Security Control Assessments, penetration tests, Statement on Standards for Attestation Engagement No. 18 (SSAE-18) and other reviews and audits.

3.5.2.1 - Background

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

FISMA requires that federal agencies provide annual reporting of the state of security programs for all IT systems associated with the agency. Additionally, periodic POA&Ms reporting the status of known security weaknesses for all federal agency systems shall also be submitted to the OMB. This reporting requirement applies to a broader scope of security weaknesses, as it is not limited to weaknesses identified by specific audits and reviews (such as those covered under FMFIA). In the case of FISMA, any security weakness identified for any covered system shall be reported and included in a periodic POA&M report.

Section 912 of the MMA implemented requirements for annual evaluation, testing, and reporting on security programs for MAC business partners (to include their respective data centers). These Section 912 evaluations and reports necessitate an annual on-site review of business partner security programs to ensure that they meet the information security requirements imposed by FISMA and CMS. CMS, as part of its overall FISMA reporting obligations, requires that corrective actions for identified deficiencies (i.e., weaknesses) be addressed in a report to be submitted shortly after the evaluation results are finalized, as well as periodically thereafter to track updated progress towards completion of the identified action plans.

The CFACTS enables contractors to satisfy reporting requirements for security and privacy related findings. Security and privacy related findings and approved action plan data is promptly entered into the CFACTS following all audits/reviews.

3.5.2.2 - POA&M Package Components/Submission Format

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

In addition to the initial POA&M reporting that follows each audit/review, summary POA&Ms will be generated on the 1st of each month, based on the data maintained in the CFACTS. The CFACTS shall be populated and maintained with security and privacy related findings and action plans from any audit or review, whether internal or external. Corrective actions are to be established in the CFACTS to address all resulting weaknesses entered therein, and those corrective actions shall be maintained current in the CFACTS to support reporting requirements.

Initial Report. Within 30 days (or as otherwise directed by CMS) of the final results for every internal/external audit/review, an initial CMS POA&M is due to CMS that describes the findings of the audit/review and initial corrective actions planned for implementation.

Monthly POA&M Package. On a monthly basis, business partners shall provide updates in the CFACTS on progress towards completion of remediation efforts for weaknesses identified from all known sources.

3.5.3 - Timing Requirements for Compliance Conditions

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Many security documents, such as risk assessments, security plans, Contingency Plans, as well as many **MAC** ARS control requirements require annual or yearly performance (e.g., test, submission, recertification, review, update). When such a requirement is to be performed annually or yearly, it is to be performed no later than the one year anniversary date of its previous performance (i.e., within 365 days [366 days in leap years]). The only exceptions to this annual/yearly compliance condition are deliverables whose annual due date are set and distributed by CMS, such as the annual FA submission.

If the business partner wishes to change the timing cycle of an annual or yearly requirement compliance date, the business partner is required to shorten the timing cycle and not lengthen the annual/yearly timing cycle to attain the new performance date. For example, if the annual/yearly performance date for reviewing the security plan is 7/31/13 and the business partner desired to change the review date to 5/31/14, they would be required to review the security plan no later than 7/31/13, again no later than 5/31/14, and no later than 5/31/yy thereafter.

For other controls, there may be a requirement they be performed every 6 months, monthly or weekly. To express this in terms of days, every 6 months shall be completed within the range of 181 - 184 days. Monthly controls shall be performed within the range of 28 - 31 days and weekly controls shall be performed within 7 days. The only exception to this is if a monthly or weekly control falls on a non-business day, the control can be completed on the next business day, but the next control process must return to the normal cycle. For example, if a weekly control is normally performed on a Friday, but one Friday is a holiday, the control can be performed on the next business day (i.e., Monday). The control must then be performed again on the upcoming Friday, which would be 4 days later. *If a MAC ARS control is stated in days, then 30 days will be considered a monthly control, and 180 days will be considered a 6 month control.*

Exceptions to the timing requirements can be implemented with the approval of the CMS ISSO. These can be one time exceptions (e.g., a disaster recovery test is performed in 380 days instead of 365 days due to scheduling issues with the recovery facility), or can be for recurring items, as long as the intent of the control is maintained. For example, if a recurring monthly control can be improved via automation, but alternative timing (i.e., the first business day of each month for a monthly control can vary between 28 and 34 days) must be part of the automation, then the alternative timing can be implemented with the approval of the CMS ISSO.

3.6 - Security Incident Reporting and Response

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

All security incidents shall be reported to CMS in accordance with the requirements listed in the CMS RMH Chapter 8. Incidents shall be reported to the IT Service Desk. *A security incident is a PII or PHI breach, a ransomware event, or an event that impacts the Confidentiality, Integrity or Availability of Medicare data.*

MACs shall email each incident report to mailto:Security_Incident@cms.hhs.gov.

NIST Special Publication 800-61r2 defines a computer security incident as a violation or imminent threat of violation of computer security policies, acceptable use policies, or standard security practices. Examples of incidents are:

- An attacker commands a botnet to send high volumes of connection requests to a web server, causing it to crash.
- Users are tricked into opening a “quarterly report” sent via email that is actually malware; running the tool has infected their computers and established connections with an external host.
- An attacker obtains sensitive data and threatens that the details will be released publicly if the organization does not pay a designated sum of money.
- A user provides or exposes sensitive information to others through peer-to-peer file sharing services.

An “imminent threat of violation” refers to a situation in which the organization has a factual basis for believing that a specific incident is about to occur. For example, the antivirus software maintainers may receive a bulletin from the software vendor, warning them of new malware that is rapidly spreading across the Internet.

The business partner shall use its security policy and procedures to determine whether *a non-reportable event or a reportable* security incident *has occurred*. *Examples of non-reportable events include a user connecting to a file share, a server receiving a request for a web page, a user sending email and a firewall blocking a connection attempt*. Upon receiving notification of an IT systems security incident or a suspected incident, the SSO or another identified individual shall immediately perform an analysis to determine if an incident actually occurred. The incident could result in adversely impacting the processing of Medicare data or the Confidentiality, Integrity and Availability of Medicare data.

All suspected security incidents or events shall be reported to the business partner’s IT service desk (or equivalent business partner function) as soon as an incident comes to the attention of an information system user. All security incidents and events shall be reported to the CMS IT Service Desk in accordance with the procedures set forth in the CMS RMH Chapter 8 Incident Response. This document is available on the CMS Information Security Web site at <http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/index.html>. The CMS IT Service Desk can be contacted by telephone at 800-562-1963 or 410-786-2580, or by e-mail at: mailto:CMS_IT_Service_Desk@cms.hhs.gov. Contacting the CMS IT Service Desk by telephone is recommended if immediate action by CMS is required. *In addition, MACs shall also email each incident report to mailto:Security_Incident@cms.hhs.gov.*

When reporting confirmed security incidents, business partners shall report the date and time when events occurred or were first discovered; names of systems, programs, or networks affected by the incident; and impact analysis. Release of information during incident handling shall be on an as-needed and need-to-know basis. When other entities should be notified of incidents at external business partner sites, CMS will coordinate with legal and public affairs contacts at the effected entities. If a violation of the law is suspected, CMS will notify the Office of Inspector General (OIG) Computer Crime Unit and submit a report to the Federal Computer Incident Response Capability (FedCIRC) of the incident with a copy to the CMS Senior Information Systems Security Office.

As part of the risk management process, the business partner shall determine the extent of the incident’s impact and the potential for new or enhanced controls required to mitigate newly

identified threats. These new security controls (and associated threats and impacts) should provide additional input into the business partner's risk assessment. Business partners shall refer to The CMS Information Security Incident Handling and Breach Analysis/Notification Procedure for further guidance.

Many of the PII breaches being reported to CMS occur when unencrypted emails are sent to the intended recipients. A mitigating control to allow many of these breaches to be closed more easily is the implementation of the Transport Layer Security (TLS) protocol within email servers such as Microsoft Exchange. The TLS protocol encrypts emails for transmission between two email servers. There are different TLS features which can be used and provide different levels of assurance that an email will be encrypted. Use of any of these features requires TLS to be enabled. To mitigate the severity of email PII breaches, business partners are required to enable TLS on their email servers. In addition, the most secure TLS feature that can be enabled to encrypt emails between business partners shall be implemented. If a business partner cannot implement TLS, a risk must be documented in the RA.

3.7 - System Security Profile

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Key Requirements

The System Security Profile is a copy of the documents that are maintained in CFACTS and on CMS Web sites. These documents would be available should business partner management require timely access to them without CFACTS or CMS Web site availability.

Consolidate security documentation (paper documents, electronic documents, or a combination) into a System Security Profile that includes the following items:

- Completed FAs
- Security Plans (for each GSS and MA)
- Risk Assessments
- Certifications
- Contingency Plans
- POA&Ms for each compliance security review
- POA&Ms for other security review undertaken by Department of Health and Human Services (HHS) OIG, CMS, Internal Revenue Service (IRS), GAO, consultants, subcontractors, and business partner security staff
- Incident reporting and responses
- Systems information security policies and procedures

The System Security Profile shall be kept in a secure location, kept up-to-date, and pointers to other relevant documents maintained. A backup copy of the System Security Profile shall be kept at a secure off-site storage location, preferably at the site where back-up tapes and/or back-up facilities

are located. The back-up copy of the profile shall also be kept up-to-date, particularly the contingency plan documents.

3.8 - Authorization To Operate

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Business partners are required to acquire and maintain a CMS CIO-issued Authorization to Operate (ATO) for each FISMA system. To maintain an ATO, the business partner is expected to maintain all security documentation in CFACTS, and the documentation must be up to date as defined in BPSSM table 3.1. In addition, high risk POA&Ms must be in either a pending verification status or mitigated so the risk can be demonstrated to be moderate or low.

3.9 - Fraud Control

(Rev. 11, Issued: 09-30-11, Effective: 10-31-11, Implementation: 10-31-11)

Business partners are required to safeguard systems against fraud. The CMSRs address fraud control issues such as personnel screening, separation of duties, rotation of duties, and training. Business partners should practice fraud control in accordance with the CMSRs and Appendix B, An Approach to Fraud Control.

3.10 - Patch Management

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Key Requirements

The timely patching of systems is one of the critical controls to preventing network intrusions.

The *MAC ARS* contains the time frames required to be met for timely patching. The time frame begins when the vendor releases a patch, not when the business partner becomes aware of a patch.

Timely patching is critical to maintaining the operational CIA of Medicare systems. However, failure to keep operating system and application software patched is the most common mistake made by IT professionals. New patches are released daily and it is often difficult for even experienced system administrators to keep abreast of all the new patches. The Computer Emergency Response Team (CERT)/Coordination Center (CC) (<http://www.cert.org>) estimates the majority of all network intrusions could be avoided by keeping systems up-to-date with appropriate patches.

To help address this growing problem, CMS recommends that business partners have an explicit and documented patching and vulnerability policy and a systematic, accountable, and documented process for handling patches. The *MAC ARS* provides specific guidance on time frames for implementing patches. Further guidance is provided in Table 3.3 below for 1) Patch Identification, 2) Patch Installation and 3) Unsupported software.

Table 3.3

Patch Identification	<p>Include all patches that are released from the system, application, or device vendor.</p> <p>All patches must be analyzed by the business partner to determine their applicability and security impact on the</p>
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	operating environment. All patches analyzed from the vendor must be tracked through a formal process and categorized as 1) Security or 2) Operational in nature.
Patch Installation	The <i>MAC ARS</i> provides specific guidance on time frames for implementing patches. Security related patches not installed based on business partner analysis shall be documented with an appropriate business justification that includes security impact, operational impact, business impact, mitigating or compensating controls, and residual risk. Re-evaluation of the justification must be performed within every 365 days.
Unsupported Software	Unsupported software, or software that is not formally supported by the software vendor for security or operational patches, shall not be used unless advanced patch support is purchased or provided through another documented source. All unsupported software in operation shall be documented within the Business Partner's IS RA and POA&M with phase out timelines defined.

NIST SP 800-40 Version 2.0, Creating a Patch and Vulnerability Management Program, provides a valuable and definitive process for setting up, maintaining, and documenting a viable patch management process. CMS highly encourages business partners to utilize NIST and other guidance documents to develop configuration standards, templates, and management processes that securely configure Medicare systems as part of their configuration management program.

3.11 - Security Configuration Management

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

<p>Key Requirements</p> <p>Business partners are required to create a security baseline for the configuration of the information system components. A baseline is a formal, management approved standard that documents the customization of guidelines.</p> <p>Federal guidelines should be used to create baselines. If a Federal guideline does not exist, hardening guides or documented best practices may be used.</p> <p>DMEMACs, ABMACs, and VDCs are responsible for <u>starting</u> their security configurations with the Defense Information Systems Agency (DISA) Security Technical Implementation Guide (STIG) Checklists when creating a baseline. All appropriate or referenced DISA checklists and guidelines shall be considered for input into each baseline.</p>
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FISMA requires each agency to determine minimally acceptable system configuration requirements and ensure compliance with them. CMS highly encourages business partners to utilize guidance

documents to develop configuration standards, templates, and processes that securely configure Medicare systems as part of their configuration management program.

Security configuration guidelines may be developed by different federal agencies, so it is possible that a guideline could include configuration information that conflicts with another agency or CMS guideline. To resolve configuration conflicts among multiple security guidelines, the CMS hierarchy for implementing Federal security configuration guidelines follows. If there is a conflict between *the MAC ARS* and a DISA STIG, the *MAC ARS* takes precedence. See Table 3.4 for more information. If there are any other questions or concerns about resolving conflicts among security configuration guidelines, business partner SSOs shall contact their CMS ISSO.

Table 3.4

Business Partners	DMEMAC/ABMAC/VDCs
1. <i>MAC ARS</i>	1. CMS/ <i>MAC ARS</i>
2. USGCB	2. DISA/USGCB
3. NIST National Checklist Program (NCP) / NIST	3. NIST National Checklist Program (NCP) / NIST
4. DISA	

3.11.1 - Security Technical Implementation Guides (STIG)

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Security guidelines, called STIGs, are available for most major operating systems, support applications, and infrastructure services. STIGs contain detailed guidance, best practices, and recommendations for configuring a particular product. STIGs are developed by DISA to help system operators configure security within their systems to the highest level possible. DISA also has made available Security Requirement Guides (SRGs) for certain platforms. These guidance documents may be intended to use along with STIGs as the security guidelines for a specific platform. All STIGs and SRGs are available from DISA. The link for these documents is <http://iase.disa.mil/stigs/Pages/index.aspx>. CMS recommends that business partner SSOs (or their designated representative) subscribe to the DISA STIG-News Mailing List at: <http://iaseapp.disa.mil/stigs/script/subscribe.aspx> so they will be notified whenever updated or new STIG Checklists become available.

The use of latest publically available DISA STIG is mandatory for all business partner systems/applications that process, store, and/or transmit Medicare claims data. DMEMACs, ABMACs, and VDCs are required to start with the STIG configurations and then document a customized baseline with any deviations based on environment specific implementation. In the event that DISA does not have a STIG available for a specific platform, business partners should follow the defined CMS hierarchy within the *MAC ARS* controls.

While it may not be possible to implement all of a STIG's recommended security settings because doing so would compromise the functionality of an application and/or system, CMS expects every business partner to analyze the STIG recommended settings and determine which ones are feasible, and to implement all settings that are found to be feasible. Settings that cannot be implemented across an entire platform (e.g. Windows 2008, AIX) shall be documented as "system deviations." Customized baseline values (including those that may already be "system deviations") that cannot

be implemented on only specific systems shall be documented as “system exceptions,” and settings that cannot be implemented across an entire platform (e.g. Windows 2008, AIX) shall be documented as “system deviations.” All STIG recommended security settings that are determined not to be feasible in a business partner environment (including “system exceptions”) shall be documented in the applicable system/application Security Configuration Checklist (SCC) with appropriate business justification (security impact, operational impact, business impact), mitigating or compensating controls, and residual risk.

3.11.2 - United States Government Configuration Baseline (USGCB) Standard *(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)*

The purpose of the United States Government Configuration Baseline (USGCB) initiative is to create security configuration baselines for Information Technology products widely deployed across the federal agencies. The USGCB baseline evolved from the Federal Desktop Core Configuration (FDCC) mandate. While not addressed specifically as the FDCC, the process (now termed the USGCB process) for creating, vetting, and providing baseline configurations settings was originally described in a 22 March 2007 memorandum from OMB to all Federal agencies and department heads and a corresponding memorandum from OMB to all Federal agency and department Chief Information Officers (CIO).

Business Partners have the choice of using the USGCB configurations or the STIGs for the platforms listed on the USGCB Web site at <http://usgcb.nist.gov/index.html>.

3.11.3 - United States Government Configuration Baseline (USGCB) Standard

(Rev. 12, Issued: 11-15-13, Effective: 01-17-14, Implementation: 01-17-14)

The purpose of the United States Government Configuration Baseline (USGCB) initiative is to create security configuration baselines for Information Technology products widely deployed across the federal agencies. The USGCB baseline evolved from the Federal Desktop Core Configuration (FDCC) mandate. While not addressed specifically as the FDCC, the process (now termed the USGCB process) for creating, vetting, and providing baseline configurations settings was originally described in a 22 March 2007 memorandum from OMB to all Federal agencies and department heads and a corresponding memorandum from OMB to all Federal agency and department Chief Information Officers (CIO).

Business Partners have the choice of using the USGCB configurations or the STIGs for the platforms listed on the USGCB Web site at <http://usgcb.nist.gov/index.html>.

3.11.4 - National Institute of Standards and Technology (NIST) **(Rev. 12, Issued: 11-15-13, Effective: 01-17-14, Implementation: 01-17-14)**

The Cyber Security Research and Development Act of 2002 (P.L. 107-305) tasks NIST to “develop, and revise as necessary, a checklist setting forth settings and option selections that minimize the security risks associated with each computer hardware or software system that is, or is likely to become widely used within the federal government.”

CMS, as a government agency, highly encourages business partners to review and incorporate the NIST concepts into their Medicare security program. Under the Computer Security Act of 1987 (P.L. 100-235), NIST develops computer security prototypes, tests, standards, and procedures to

protect sensitive information from unauthorized access or modification. Focus areas include cryptographic technology and applications, advanced authentication, public key infrastructure, internetworking security, criteria and assurance, and security management and support. These publications present the results of NIST studies, investigations, and research on IT security issues. The publications are issued as Federal Information Processing Standards (FIPS) Publications, Special Publications (SP), NIST Interagency Reports (NISTIRs), and IT Laboratory (ITL) Bulletins.

Special Publications in the 800 series (SP 800-xx) present documents of general interest to the computer security community. FIPS are issued by NIST after approval by the Secretary of Commerce pursuant to Section 5131 of the Information Technology Reform Act of 1996 (P.L. 104-106) and the Computer Security Act of 1987 (P.L. 100-235). With the passage of FISMA, there is no longer a statutory provision to allow agencies to waive mandatory FIPS. The waiver provision had been included in the Computer Security Act of 1987; however, FISMA supersedes that Act. Therefore, any reference to a “waiver process” included in FIPS publications is no longer valid. Note, however, that not all FIPS are mandatory; consult the applicability section of each FIPS for details.

CMS does not normally require the verbatim use of NIST SPs for the configuration of Medicare systems. In cases where verbatim compliance is required, the requirements are specified in this Business Partners Systems Security Manual (BPSSM) and the ARS. However, CMS highly encourages business partners to utilize NIST and other guidance documents to develop security standards, templates, and processes that securely configure Medicare systems as part of their configuration management program.

The most current NIST publications are available at: <http://csrc.nist.gov/publications/index.html>.

CMS continues to work closely with NIST in the development of new standards, FIPS, and security documentation to ensure the highest and most reasonable level of security of Medicare data.

3.12 - End of Life Technology Components

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

The current HHS policy states “Operating systems, software and applications are considered end-of-life (EOL) when they are no longer supported by the vendor/provider and do not receive product updates and security patches.” To align with HHS and beginning with *the MAC* ARS, control SA-22 was added to restrict the use of unsupported information system components. For business partners, components are defined as any hardware or software used by the FISMA system.

While paying for extended support with the component vendor or a third party vendor is acceptable for meeting the HHS policy regarding EOL, business partners are expected to plan for and remove components that are no longer in general support, as soon as possible and within 18 months of the end of general support. General support (defined as mainstream support by Microsoft) for a component starts when the component is made publicly available and ends on the date announced by the vendor. If the component cannot be removed at the end of general support, six months before the end of general support, business partners shall initiate steps appropriate to mitigate any risks (e.g., isolate the component, implement additional monitoring procedures or purchase extended support), document a project plan to remove the component, document the residual risk in the RA and the SSP, and notify their COR if additional support expenses will be incurred. In addition, once the components are no longer in general support, business partners shall work with their federal ISSO and Cyber Risk Advisor to create a POA&M to document and track corrective actions, and document any Risk Acceptances in CFACTS.

3.13 - Cloud Computing

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

According to NIST, cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. (NIST SP 800-45). FEDRAMP has implemented security requirements for low, moderate and high risk rank systems. CMS *included* cloud service provider (CSP) controls to ARS version *3.1* for low and moderate systems. Inheritable controls for selected CSPs have been added to CFACTS. MACs and other business partners that are rated as high can use CSPs for non-claims processing functions with the approval of the CMS ISSO. Requirements that are less strict than the *MAC* ARS requirements must still be met, or if not met, must be documented in a CMS Risk Acceptance. Also, other requirements that are not specifically documented in the *MAC* ARS or in an RMH document, such as the reporting of configuration settings is not waived with the use of a CSP; therefore, this should be carefully considered before requesting to use a CSP.

With the publication of FEDRAMP high controls, CMS needs to define the applicable high level controls before any high system can be processed at a CSP. As CMS publishes the high controls, business partners can request to move parts or all of their processing at a CSP.

3.14 – MAC ARS Control Tailoring

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Limited tailoring of certain MAC ARS controls is permissible. The MAC ARS will contain controls that are required to be implemented, but within certain controls, parts of the control can be tailored to meet appropriate system requirements. For controls where tailoring is permitted, an acknowledgement of the tailoring; and the tailored language, parameter or setting shall be documented in CFACTS within the control implementation section. Any tailoring is subject to review, evaluation and adjustment by CMS to ensure that the intent of the tailored control is met.

Controls that can be tailored include the language identified in the MAC ARS in Table 3: Keyword and Phrases to Identify Tailorable Controls and Control Enhancements.

3.15 - Data Loss Prevention

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Data protection for a Business Partner's environment is critical in ensuring the privacy and integrity of their information. Business Partners must have a comprehensive Data Loss Prevention (DLP) solution in place to provide comfort that data is not being exfiltrated from their environment. The DLP solution should also provide assurance that if unauthorized data exfiltration is identified, it is blocked and the effects are mitigated. The implemented DLP solution must cover data in use (endpoints), data in transit (network), and data at rest (data storage). Several tools implemented for other MAC ARS controls, such as Malicious Code Protection (endpoints), Intrusion Detection System/Intrusion Protection System (network) and encryption (data storage) can be combined to form a DLP solution. Business partners shall maintain documentation to support the DLP solution including formally maintained policies and procedures for the tools, controls, and processes.

3.16 - Wireless Access Monitoring

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

As outlined in MAC ARS AC-18, wireless access to a network is not allowed unless explicitly approved by the CMS CIO. MAC ARS AC-18 also states that an organization must monitor for unauthorized wireless access. Business partners must have a program in place to fulfill this requirement and have associated policies and procedures outlining how the program is operated. The implementation must be capable of identifying unauthorized wireless devices or access points that could be providing access to the network. Monitoring activities should be performed on a periodic basis as needed, but at least quarterly to confirm that unauthorized wireless access does not exist and/or is removed. If wireless access to the environment has been approved by the CMS CIO, an accurate and formally maintained listing of approved access points must be maintained to perform effective monitoring. The approved wireless access point list should be reviewed during the monitoring process to capture necessary updates.

3.17 - Malicious Software

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

MAC ARS SI-3 requires that malicious software mechanisms be in place for an organization's information systems. If malicious software mechanisms are available for a system, they should be implemented and meet the requirements outlined in SI-3. In the event that an information system/platform does not have compliant malicious software mechanisms available for implementation, the Business Partner should put in place mitigating controls (e.g. file integrity monitoring) to assist in detecting/blocking the risk of malicious software. Documentation for these mitigating controls should be represented in formally maintained policies and procedures specific to the information systems in question.

3.18 - Whitelisting

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

MAC ARS CM-7(5) requires that defined software be documented and explicitly authorized to be allowed to be executed. This authorization of software is known as whitelisting. If the whitelisting of software is a manual process, then the process to review and update the list of authorized software programs must be completed no less often than every seventy-two (72) hours. If automated tools are used to whitelist software, then the automated tools must be updated whenever the authorized software changes or new software is authorized, and the tool must be programmed to either perform a scan the network for unauthorized software no less often than every seventy-two (72) hours, or perform an on-demand evaluation of software every time the software is executed.

3.19 – Data Encryption

(Rev. 14, Issued: 06-15-18), Effective: 11-30-18, Implementation: 11-30-18)

The MAC ARS includes several controls that require data encryption; however, the language included in some of the controls appears to conflict with language in other controls. To consistently address all of the data encryption controls included in the MAC ARS, a risk assessment shall be completed to determine if the CIA of the data can be maintained with or without encryption. All workstations and portable media containing PII or PHI should already be encrypted. For other hardware and software maintained within the documented and approved

system security boundary, where the risk assessment determines that CIA is at risk, FIPS 140-2 compliant encryption shall be implemented for data in transit and/or data at rest. If the risk assessment determines that adequate controls are in place to protect the CIA of the data while it is within the documented and approved system security boundary, then the data can be transmitted and stored in the clear. Also, when encrypting data, the method of encryption can be determined to be hardware or software as appropriate.

4 - Information and Information Systems Security

4.1 - Security Objectives

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

FISMA defines three security objectives for information and information systems: confidentiality, integrity, and availability (CIA). FISMA also directs the promulgation of Federal standards for: (i) the security categorization of Federal information and information systems based on the objectives of providing appropriate levels of information security according to a range of risk levels; and (ii) minimum security requirements for information and information systems in each such category. These Federal standards are issued in the form of FIPS 199, Standards for Security Categorization of Federal Information and Information Systems, and FIPS 200, Minimum Security Requirements for Federal Information and Information Systems, respectively.

4.1.2 - Security Level by Information Type

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

Using FIPS 199, CMS categorized its information according to information type. An information type is a specific category of information (e.g., privacy, medical, proprietary, financial, investigative, contractor sensitive, security management) defined by an organization or, in some instances, by a specific law, Executive Order, directive, policy, or regulation.

CMS has defined many information types processed on and/or by CMS information systems. These information types are defined in the Risk Management Handbooks RMH Vol II Procedure 2-3 Categorizing an Information System and RMH Vol III Standard 3-1 Authentication (for e-authentication), located at: <http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/Information-Security-Library.html>. For each information type, CMS used FIPS 199 to determine its associated security category by evaluating the potential impact value (e.g., High, Moderate, or Low) for each of the three FISMA security objectives—CIA. The resultant security categorization is the CMS System Security Level. This is the basis for assessing the risks to CMS operations and assets, and in selecting the appropriate minimum security controls and techniques (i.e., *MAC ARS controls*).

4.1.4 - Minimum System Security Requirements—HIGH

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

FIPS 200 specifies minimum security requirements for information and information systems supporting the executive agencies of the federal government and a risk-based process for selecting the security controls necessary to satisfy the minimum security requirements. To comply with FIPS 200, agencies shall first determine the security category (i.e., information type) of their information system in accordance with the provisions of FIPS 199, and then apply the appropriate set of baseline security controls contained in NIST SP 800-53 Rev. 4 (as amended), Recommended Security Controls for Federal Information Systems. Agencies have flexibility in applying the baseline security controls in accordance with the tailoring guidance provided in NIST SP 800-53

Rev. 4. This allows agencies, such as CMS, to adjust the security controls to more closely fit its mission requirements and operational environments.

The CMS Information Security and Privacy Policy contains individual policy statements, along with the CMS Minimum Security Requirements provide technical guidance to CMS and its contractors as to the minimum level of security controls that shall be implemented to protect CMS' information and information systems. These two CMS documents, along with other federal and CMS requirements, form the basis for the *MAC* ARS.

4.2 - Sensitive Information Protection Requirement

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

Business partners are responsible for implementing the Minimum Protection Standards (MPS) for all CMS sensitive information (digital and non-digital) and information systems categorized at the "HIGH" security level designation. The MPS establishes a uniform method for protecting data and items that require safeguarding. The MPS applies to all IT facilities, areas, or systems processing, storing, or transmitting CMS sensitive information (i.e., any information categorized as "HIGH") in any form or on any media.

Care must be taken to deny unauthorized access to areas containing sensitive systems and information during working and non-working hours. This can be accomplished by creating restricted areas, security rooms, or locked rooms. Additionally, sensitive information in any form (computer printout, photocopies, tapes, notes, etc.) must be protected during non-duty hours. This can be done through a combination of methods: secured or locked perimeter, secured area, or containerization.

4.2.1 - Restricted Area

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

A restricted area is a secured area whose entry is restricted to authorized personnel (individuals assigned to the area). All restricted areas shall either meet secured area criteria or provisions shall be made to store CMS sensitive items in appropriate containers during non-working hours. The use of restricted areas is an effective method for eliminating unnecessary traffic through critical areas, thereby reducing the opportunity for unauthorized disclosure or theft of sensitive information. All of the following procedures must be implemented to qualify as a restricted area.

Restricted areas shall be indicated by prominently posted signs and separated from non-restricted areas by physical barriers that control access. The number of entrances should be kept to a minimum and each entrance shall have controlled access (e.g., electronic access control, key access, door monitor) to prevent unauthorized entry. The main entrance should be controlled by a responsible employee positioned at the entrance to enforce the restriction of access to authorized personnel accompanied by one or more officials.

When unescorted, a restricted area register shall be maintained at a designated entrance to the restricted area and all visitors (persons not assigned to the area) entering the area shall be directed to the designated entrance. Visitors entering the area shall enter (in ink) in the register: their name, signature, assigned work area, escort, purpose of entry, and time and date of entry.

The entry control monitor shall verify the identity of visitors by comparing the name and signature entered in the register with the name and signature of some type of photo identification card, such as a driver's license. When leaving the area, the entry control monitor or escort shall enter the

visitor's time of departure. Each restricted area register shall be closed out at the end of each month and reviewed by the area supervisor/manager.

To facilitate the entry of employees who have a frequent and continuing need to enter a restricted area, but are not assigned to the area, an authorized access list (AAL) can be maintained. Each month a new AAL shall be posted and vendors shall be required to sign the register. If there is any doubt on the identity of the individual prior to permitting entry, their identity shall be verified prior to permitting entry.

4.2.2 - Security Room

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

A security room is a room that has been constructed to resist forced entry. The primary purpose of a security room is to store protectable material. The entire room shall be enclosed by slab-to-slab walls constructed of approved materials (e.g., masonry brick, dry wall, etc.) and supplemented by periodic inspection. All doors for entering the security room shall be locked with locking systems meeting the requirements set forth below (section 4.2.5, Locking Systems). Entry is limited to specifically authorized personnel.

Door hinge pins shall be non-removable or installed on the inside of the room. Any glass in doors or walls shall be security glass (a minimum of two layers of 1/8 inch plate glass with .060 inch [1/32] vinyl interlayer, nominal thickness shall be 5/16 inch). Plastic glazing material is not acceptable. Vents and louvers shall be protected by an Underwriters' Laboratory (UL)-approved electronic Intrusion Detection System (IDS) that annunciates at a protection console, UL-approved central station, or local police station; and the IDS shall be given top priority for guard/police response during any alarm situation.

Whenever cleaning and/or maintenance are performed, and sensitive systems and/or information may be accessible, the cleaning and/or maintenance shall be done in the presence of an authorized employee.

4.2.3 - Secured Area (Secured Interior/Secured Perimeter)

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

Secured areas are interior areas or exterior perimeters which have been designed to prevent undetected entry by unauthorized persons during working and non-working hours. Personnel may not reside in computer rooms and/or areas containing sensitive information unless that individual is authorized to access that sensitive information. To qualify as a secured area, the area shall meet the following minimum standards:

- Enclosed by slab-to-slab walls constructed of approved materials and supplemented by periodic inspection or other approved protection methods, or any lesser-type partition supplemented by UL-approved electronic IDS and fire detection systems.
- Unless electronic IDS devices are used, all doors entering the space shall be locked and strict key or combination control should be exercised.
- In the case of a fence/gate, the fence shall have IDS devices or be continually guarded, and the gate shall be either guarded or locked with intrusion alarms.

- The space shall be cleaned during working hours in the presence of a regularly assigned employee.

4.2.4 – Container

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

The term container includes all file cabinets (both vertical and lateral), safes, supply cabinets, open and closed shelving, desk and credenza drawers, carts, or any other piece of office equipment designed for the storage of files, documents, papers, or equipment. Some of these containers are designed for storage only and do not provide any protection value (e.g., open shelving). For purposes of providing protection, containers can be grouped into three general categories: locked containers, security containers, and safes or vaults.

4.2.4.1 - Locked Container

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

A locked container is a commercially available or prefabricated metal cabinet or box with riveted or welded seams, or metal desks with lockable drawers. The lock mechanism may be either a built-in key, or a hasp and lock. A hasp is a hinged metal fastening attached to the cabinet, drawer, etc. that is held in place by a pin or padlock.

4.2.4.2 - Security Container

(Rev. 9, Issued: 06-20-08, Effective: 07-01-08, Implementation: 07-22-08)

Security containers are metal containers that are lockable and have a tested resistance to penetration. To maintain the integrity of the security container, key locks should have only two keys and strict control of the keys is mandatory. If combinations are used, they shall be given only to those individuals who have a need to access the container. Security containers include the following:

- Metal lateral key lock files
- Metal lateral files equipped with lock bars on both sides and secured with security padlocks
- Metal pull drawer cabinets with center or off-center lock bars secured by security padlocks
- Key lock “Mini Safes” properly mounted with appropriate key control

If the central core of a security container lock is replaced with a non-security lock core, then the container no longer qualifies as a security container.

4.2.4.3 - Safe/Vault

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

A safe/vault is not required for storage of CMS sensitive information. However, if used, they shall meet the following requirements:

- A safe is a GSA-approved container of Class I, IV, or V, or UL listings of TRTL-30 or TRTL-60.

- A vault is a hardened room with typical construction of reinforced concrete floors, walls, and ceilings that uses UL-approved vault doors and meets GSA specifications.

4.2.5 - Locking System

(Rev. 10, Issued: 07-17-09, Effective: 08-17-09, Implementation: 08-17-09)

The lock is the most accepted and widely used security device for protecting installations and activities, personnel data, sensitive data, classified material and government and personal property. All containers, rooms, buildings, and facilities containing vulnerable or sensitive items shall be locked when not in actual use. However, regardless of their quality or cost, locks should be considered as delay devices only and not complete deterrents. Therefore, locking system must be planned and used in conjunction with other security measures.

Minimum requirements for locking systems for secured areas and security rooms are high-security pin-tumbler cylinder locks that meet the following requirements:

- Key-operated mortised or rim-mounted deadbolt lock
- Have a deadbolt throw of one inch or longer
- Double-cylinder design; cylinders have five or more pin tumblers
- Contains hardened inserts or inserts made of steel if bolt is visible when locked
- Both the key and lock shall be “off-master”

Convenience-type locking devices such as card keys, sequenced button-activated locks used in conjunction with electric strikes, etc., are authorized for use only during working hours. Keys to secured areas not in the personal custody of an authorized employee and any combinations shall be stored in a security container. The number of keys or persons with knowledge of the combination to a secured area shall be kept to a minimum.

4.2.6 - Physical Intrusion Detection System (IDS)

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

Physical IDSs are designed to detect attempted breaches of perimeter areas. Physical IDS devices can be used in conjunction with other measures to provide forced entry protection for non-working hour security. Additionally, alarms for individual and document safety (fire), and other physical hazards (water pipe breaks) are recommended. Alarms shall annunciate at an on-site protection console, a central station, or local police station. Physical IDS devices include, but are not limited to: door and window contacts, magnetic switches, motion detectors, and sound detectors, that are designed to set off an alarm at a given location when the sensor is disturbed.

4.2.7 - Minimum Protection Alternatives

(Rev. 11, Issued: 09-30-11, Effective: 10-31-11, Implementation: 10-31-11)

The objective of the MPS is to prevent unauthorized access to CMS sensitive information. MPS requires two barriers to accessing sensitive information under normal security. The reason for the two barriers is to provide an additional layer of protection to deter, delay, or detect surreptitious entry. Because local factors may require additional security measures, management shall analyze local circumstances to determine space, container, and other security needs at individual facilities.

Table 4.1 shall be used to determine the minimum protection alternatives required to protect CMS sensitive information. Note that any of the three alternative protection standards is acceptable whenever all of the applicable perimeter, interior area, and/or container standards are met. The protection alternative methods are not listed in any order of preference or security significance.

Table 4.1. Protection Alternative Chart

	Perimeter Type	Interior Area Type	Container Type
Alternative #1	Secured		Locked
Alternative #2	Locked	Secured	
Alternative #3	Locked		Security

4.3 - Encryption Requirements for Data Leaving Data Centers (Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

CMS, as a trusted custodian of individual health care data, must protect its most valuable assets—its information and its information systems. Consequently, CMS believes that putting the government’s credibility at risk is not acceptable.

No data that includes personally identifiable information (PII) shall be transported from a CMS data center (including business partner data centers and subcontractor data centers) unless it has been encrypted. The only exception to this requirement is for hardcopy records that are transported to and from an off-site location and between off-site locations. To qualify for this exception, the controls listed below (additional information is available from CMS) shall be used.

To prepare the records for shipment:

- The records shall be stored in boxes.
- Each box shall be uniquely identified.
- Boxes shall be secured for shipment.
- Secured boxes shall be loaded into the shipping container or vehicle.
- Total items in each shipment shall be noted and the Bill of Lading signed.
- At time of pickup, the shipping company representative shall verify and sign the Bill of Lading.
- A copy of the identification records shall accompany each shipment.
- The shipping container or vehicle shall be locked and sealed with the seal number noted on the Bill of Lading.
- A copy of the completed Bill of Lading shall be kept by the contractor.

Upon receipt of the shipment at the storage facility:

- A storage facility representative shall verify the seal number and that it is unbroken.
- Compare the contents of the shipment against the Bill of Lading and the boxes against the copy of the identification record.
- If any discrepancies are found, the discrepancy shall be immediately resolved.
- After verification that all boxes shipped were received, information from the Bill of Lading shall be sent to the shipper where it shall be verified.
- Within 24 hours, all boxes on each shipment shall be scanned into the storage facility’s tracking system and inserted into the storage racks.

5 - Internet Security

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

With prior written approval of their sponsoring CMS Business Owner, business partners may use Internet technology for transmission of and/or receipt of health care transactions. Each request for using Internet technology will be considered individually and approval is not automatic. However, any approval shall require that business partners meet CMS architectural, security, data interchange, and privacy requirements for Internet-facing infrastructure. Further, an independent (third-party) *Security Control Assessment* of the new functionality prior to its release into production is required and the *Security Control Assessment* must include penetration testing. The *Security Control Assessment* is conducted to validate compliance with the following specific architectural, security, data interchange, and privacy requirements, as well as the *MAC ARS*. The *Security Control Assessment* must be conducted by a CMS-contracted third party. The existing requirement for an annual penetration test of the contractor network shall include any approved Internet infrastructure. Compliance with existing requirements to conduct quarterly vulnerability scans and annual penetration testing is still mandatory.

Briefly, architectural, security, data interchange and privacy requirements include the following:

1. Architecture:

- Explicit compliance with CMS system lifecycle standards, particularly:
 - CMS Technical Reference Architecture (TRA), as currently released, and all its appendices, and
 - CMS TRA Application Services, as currently released for Application Development Guidelines.
- Utilization of resources to leverage existing technology and solutions such as platform and software developed by contractors and in compliance with CMS standards to meet the same or similar business requirements. The technology and solutions would also have to align with requirements for the Medicare Administrative Contractors, Enterprise Data Centers, and Standard Front End initiatives.

2. Security:

- Full compliance with the CMS eXpedited Life Cycle Framework (Checkpoints, Deliverables, and Activities including Security Authorization) in introducing the new functionality.
- Satisfactory systems test and evaluation of the Internet application to include evaluation of all control categories set forth in the *MAC ARS*.
- Compliance with DHHS and CMS standard configuration settings.
- Compliance with the NIST SP 800-41 *Rev. 1*, Guidelines on Firewalls and Firewall Policy; NIST SP 800-44 *Version 2*, Guidelines on Securing Public Web Servers; NIST SP 800-94, Guide to Intrusion Detection and Prevention Systems (IDPS) NIST 800-111, Guide to Storage Encryption Technologies for End User Devices; NIST SP 800-113, Guide to SSL VPNs; NIST SP 800-114, User's Guide to Securing External Devices for Telework and Remote Access; NIST SP 800-115, Technical Guide to Information Security Testing and Assessment; NIST SP 800-119, Guidelines for the Secure Development of IPv6; and NIST SP 800-144, Guidelines on Security and Privacy in Public Cloud Computing.
- Security Authorization dependent on compliance with security control requirements and completion of documentation such as the risk assessment, the security plan for the

infrastructure, platform, and applications supporting the Internet functionality, and a CP for the supporting platform and application. The risk assessment must address e-authentication requirements and controls for electronic transactions, or refer to a separate document if one exists. All security documentation must be developed to the CMS methodologies and procedures provided at: <http://www.cms.gov/Research-Statistics-Data-and-Systems/CMS-Information-Technology/InformationSecurity/Information-Security-Library.html>.

3. Privacy: Completion of a Privacy Impact Assessment (PIA) as set forth in Section 208 of the E-Government Act.
4. Data Interchange:
 - Utilization of HIPAA compliance standards for applicable transactions (i.e. claims, remittances and inquiry/response for eligibility and claim status) to be enabled by the new functionality.
 - Enabling both batch file transfer and interactive screen presentation for the HIPAA transactions.
 - 508 compliance for interactive screen presentation.
 - All Internet and non-Internet data exchange modes (i.e. Interactive Voice Recognition, Direct Data Entry, and Computer to Computer) shall return consistent data.
 - Compliance with Trading Partner authentication requirements including submitter/provider relationship for the HIPAA transactions.

Application requirements include but are not limited to the following:

1. A proof of concept/concept of operation paper describing the new application and functionality.
2. Information that the Internet service shall be extended only to entities or providers enrolled in the jurisdiction of the proposing business partner.
3. An attestation that the applicant has had a similar private-side application that has been in production for more than one year. The attestation shall describe the experience of the private-side application and how it relates to the Internet proposal.

Other application requirements may be imposed by the sponsoring CMS business component.

Additionally, business partners may also use the Internet for: 1) utilizing the IRS Filing Information Returns Electronically (FIRE) system for Form 1099 submissions, and 2) utilizing e-mail to transmit sensitive information via encrypted attachments in accordance with all applicable *MAC ARS controls*. An application for these uses is not required. If not already emplaced, contractors must install firewalls, filtering technology to screen incoming e-mail for high risk transmissions such as executables, up-to-date virus protection software, and intrusion detection software to utilize the Internet for these purposes.

Appendix A: Medicare Information Technology (IT) Systems Contingency Planning

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

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1 Introduction

(Rev. 14, Issued: 06-15-18, Effective: 11-30-18, Implementation: 11-30-18)

CMS business partners are required by the MAC ARS Contingency Planning family to develop and maintain a Contingency Plan (CP). Business partners are expected to develop and test contingency plans that address key recovery scenarios that could occur as the result of a disastrous situation. While a contingency plan cannot address all possible scenarios, the plan should be structured to be useful in a variety of situations. When developing a CP, the business partners are required to address all of the MAC ARS controls. The CP needs to be developed in accordance with the CMS RMH VIII 4-4 Standard Contingency Planning document. In addition, NIST Special Publication 800-34 rev 1, Contingency Planning Guide for Federal Information Systems, should be reviewed. NIST identifies different components and plan types that should be documented and be incorporated in a robust CP.

The purpose of this appendix is to supplement the CMS RMH manual and NIST publication and to provide information to aid the business partner in planning for and responding to an emergency or system disruption, and to recover from that emergency or disruption. It is to be used by the CMS Medicare business partner management, IT systems management and staff, and system security persons charged with preparing for continuing the operation of Medicare systems and developing an IT systems CP, or updating an existing plan. In addition, the business partner's SSP and RA should be used as a checkpoint to determine if appropriate contingencies have been addressed in the CP. Also, the CP should be coordinated with the Incident Response activities to address the restoration and recovery activities associated with an incident.

It can be noted that a CP can be out of date shortly after it is created and updated. Automated tools exist to facilitate the development and maintenance of a plan. These tools can significantly help keep a plan current, but they may not address all of the areas required and they may not format the data in a manner that is consistent with CMS requirements. In these situations, the business partner will need to supplement the tools with additional information and cross references to ensure that all required information is documented.

2 Scope

The business partner IT systems CPs address organizations and sites where Medicare data is processed, including claims processing locations, data centers, and other processing or printing sites.

3 Definition of an Acceptable Contingency Plan

A CP is a document that describes how to deal with an emergency or system disruption. These situations could be caused by, but not be limited to, a power outage, hardware failure, fire, or terrorist activity. A CP is developed and maintained to ensure quick, appropriate, effective, and efficient response in those situations for which a foreseen risk cannot be mitigated or avoided.

Before developing an IT systems CP, it is advisable to have or create a contingency policy. The CP shall be driven by a contingency policy. The contingency policy is a high level

statement relative to what the management wants to do to address a contingency and to recover from the emergency or system disruption.

The IT systems CP shall be developed under the guidance of IT management and systems security persons and all organizational components shall be actively involved in providing information for developing the plan, for making plan related decisions, and for providing support to plan testing.

It can be a very subjective argument relative to what constitutes an acceptable CP. In this document, the description of an acceptable CP is based on the results of the research, analysis and review of various documents from Government and industry, and the review of existing business partner CPs and test reports.

The following summary statements define what constitutes an acceptable CP. This is not an all- inclusive list and the topics are not in any order of importance or priority.

1. Considers the protection of human life as the paramount guiding principle, and then aims at the backup, recovery, and restoration of critical business functions, protecting equipment and data, and preserving the business reputation for providing high-quality service.
2. Is logical, reasonable, understandable, user friendly, and can be implemented under adverse circumstances.
3. Considers risk assessment results.
4. Addresses possible and probable emergencies or system disruptions that would require the implementation of the CP.
5. Can be sufficiently tested on an established regular basis within recommended recovery periods at reasonable cost.
6. Contains information that is needed and useful during an emergency or system disruption.
7. Can, when implemented, produce a response and recovery, such that critical business functions are continued.
8. Specifies the persons necessary to implement the plan, and clearly defines their responsibilities.
9. Clearly defines the resources necessary to implement the plan.
10. Reflects what can be done – is not a wish list.
11. Assumes people shall use sound judgment, but will need clearly stated guidance, since they will be functioning in a non-normal environment, under possibly severe conditions and pressure.
12. Addresses backup and alternate sites.
13. Addresses the use of manual operations, where appropriate and necessary.

14. Contains definitive “Call Lists” to use for contacting the appropriate persons in the proper sequence. These lists would include vendor points of contact.

An acceptable CP should be straight to the point. It should not contain any more information than is necessary to plan for and implement contingency actions. The users should not get bogged down in detail as they read the plan to determine what to do, when to do it, what is needed to do it, and who should do it. The CP should serve as a “user’s manual” and be easy to understand and use.

Because a CP is designed to be used in a stressful situation, it shall be written with that as a foremost thought in mind. The prime objective is to maximize the continuity of critical operations.

Reviewing a CP and testing it will help determine whether it remains an acceptable plan. The review and testing shall not focus solely on content, but shall also focus on ease of use.

A complete set of CPs for an organization may be made up of several smaller CPs, one for each business function (e.g. claims processing) or for a single data center, for example. This breakdown into manageable parts helps to keep a plan easy to use.

Careful thought should be given to the organization of the CP. The organization should be logical in terms of what will the user want to know or do first. If the first thing that should happen in an emergency is that a call list shall be used to notify persons, then that call list, or a pointer to it, should be placed very near the front of the CP. Not every informational item to be utilized during a contingency event will be in the CP document. For example, the plan may point to an attachment or to a separate procedures manual. It is imperative to assure that any information provided in a separate procedures manual is readily available and easily obtainable. In this regard, a CP should contain a very understandable and useful table of contents, so that a user can quickly find the information being sought.

Contingency planning can provide a cost-effective way to ensure that critical IT capabilities can be recovered quickly after an emergency. IT systems contingency planning shall embrace a coordinated contingency policy of what will be done to fully recover and reconstitute all operations.

4 IT Systems Contingency Planning

The goal of IT systems contingency planning is to continue accomplishing critical IT systems operations in an emergency or system disruption and to accomplish a rapid and smooth recovery process.

4.1 Contingency Planning

Contingency planning is preparing for actions in the event of an emergency situation, and giving some thought and planning to what your organization will do to respond and recover. The IT systems contingency planning process shall address all the actions and resources needed to ensure continuity of operation of critical IT systems and the means of implementing the needed resources. IT management and staff shall be trained to handle emergency or system

disruption situations in data centers and other areas where data processing systems are located. Contingency planning includes such training.

It is advisable to establish a IT systems contingency planning team. This team would be responsible for defining critical IT systems, including applications software, data, processing and communications capabilities, and other supporting resources. These would be the key people in the implementation of the plan.

4.2 Coordination with Other Business Partners

If a business partner's data center or other data processing environment is linked to other business partners for the transmission of Medicare data, then the contingency planning shall address those links relative to receiving input, exchanging files, and distributing output. If alternate/backup IT systems capabilities are to be utilized, then their functions and data transmission links shall be considered in the planning.

Coordination with other business partners is essential to completing the IT systems contingency planning process.

5 IT Systems Contingency Plan

The following format in conjunction with the RMH may be used in developing a IT Systems CP. While this format is not required, all of its elements shall be included in the CP.

1. Introduction
 - Background
 - Purpose/Objective
 - Management commitment statement
 - Concept of operations
 - Scope
 - Organizations
 - Systems
 - Boundaries
 - IT capabilities and resources
 - CP policy
 - Priorities
 - Continuous operation
 - Recovery after short interruption
 - Minimum recovery times
2. Assumptions
3. Authority/References
4. Definition of what the CP addresses
 - Organizations
 - Systems
 - Boundaries

5. Three phases defined
 - Respond
 - Recover
 - Restore/reconstitute
6. Roles/Responsibilities defined
7. Definition of critical functions
8. Alternate capabilities and backup
9. Definition of required resources to respond and recover
10. Training
 - CP shall address Who – When – How
11. Testing the CP
 - Philosophy
 - Plans
 - Boundaries
 - Live vs. Walkthrough
 - Reports
 - Responsibilities
12. CP maintenance/updating
 - Schedule
13. Relationships/Interfaces
 - Outside (vendors, providers, banks, utilities, services, CMS)
 - Internal
 - Dependencies
14. Attachments
 - Actions for each phase
 - Procedures
 - Call trees
 - Vendor contact list
 - Hardware inventory
 - Software inventory
 - System descriptions
 - Alternate/Backup site information
 - Assets/Resources
 - Risk Assessment Summary (refer to System Security Plans)
 - Agreements/Memos of Understanding
 - Manual Operations
 - Supplies/Materials/Equipment
 - Floor plans
 - Maps

The CP shall provide for off-site storage:

- Backup software
- Data
- Appropriate documents (emergency telephone lists, memos of understanding, etc.)
- Copies of the CP
- Administrative supplies (forms, blank check stock, etc.)

6 Testing

CMS requires testing of the CP annually under conditions that simulate an emergency or a disaster. A CP shall also be tested after a substantive system change that necessitates a revision to the CP.

CMS requires that the critical IT systems shall be tested within every 365 days and the CP updated to accommodate any changes, including updated versions of software or critical data. Critical systems are those whose failure to function, for even a short time, could have a severe impact, or have a high potential for fraud, waste, or abuse.

6.1 Claims Processing Data Centers

Many of the contractors with which CMS has direct contracts do not have their own data centers. They usually contract this service out. If a business partner does not have its own data center, then it is the responsibility of the business partner to inform the subcontractor that operates the data center that they shall have a CP that addresses the requirements outlined in the Appendix.

6.2 Multiple Contractors

Data centers usually serve multiple contractors. Existing shared processing environments allow for multiple contractors to process claims at a data center. There are numerous data centers processing Part A and Part B claims for multiple Medicare contractors.

It is important to test a CP at a data center that serves multiple contractors. This provides a mechanism to examine the possible commingling of data between contractors, wherein data may be compromised.

Before testing of the CP begins, it is important to understand how contractor data is protected and/or kept separate. The data centers may use a security package, such as ACF, to control access and separation of data. In order to perform appropriate testing, the complexity of the data center operation must be understood.

6.3 Test Types

CP test guidance suggests four types of testing:

- Walkthrough/Tabletop Test

- Checklists
- Simulation/modeling
- Tabletop Test
- Live/Comprehensive Exercises

These are defined below:

- **Walkthrough/Tabletop Test:** A walkthrough test is accomplished by going through a set of steps to accomplish a particular task or action initiated because of a contingency event. The precursor to a walkthrough test is that the steps are documented so that they can be logically followed. A “test team” might sit around a table and talk through each step and then walk through” the various steps, and then discuss expected outcomes and further actions to be taken. They may use a checklist to ensure that all features of a step are addressed or that all resources necessary to accomplish the task or action are considered. A walkthrough test does not involve accomplishing the actions being tested in real time or using the live environment. A walkthrough test could be accomplished by using a group of test people to act out what might happen if a real contingency event occurred. They might go to the alternate site, but they would not actually start all hardware, software, and communication operations in order to assume the function of the primary site.

For those applications that are both hosted at CMS and not participating in a broader recovery test to a CMS-approved recovery site during their annual test cycle, a tabletop test is required. A tabletop test is discussion-based only, and does not involve deploying equipment or other resources. The discussion during the test can be based on a single scenario or multiple scenarios. By simulating an emergency in an informal, stress-free environment, this test method allows for the free exchange of ideas and provides participants an opportunity to practice the steps to be followed in an actual event and to identify areas in the CP for enhancement.

A successful tabletop test steps participants through real-life scenarios; captures its results in a formal report; and incorporates the “lessons learned” into subsequent versions of the CP and the tabletop test plan. Refer to CMS Contingency Planning Tabletop Test Procedures, for step-by-step instructions for conducting a tabletop test.

- **Checklists:** Checklists are used to clearly present a step-by-step logical sequence so systems and sub-systems may be recovered in a logical manner. Checklists are intended to provide a direct, simple coordinated listing of events that ensure that all necessary steps are executed during the recovery process.
- **Simulation/Modeling:** Modeling involves creating a computer model of the process to be tested. This allows easy testing of many variables without physically having to make changes. For example, you can vary the number of servers that go down during a disaster or the number of people that can get to an alternate site following a disaster.

Simulation involves taking physical actions, but not necessarily to the full extent of what might actually happen during an emergency. For example, instead of actually moving everyone to an alternate site to continue operations, a small team may undertake a set of realistic preparatory actions at the prime site, and another team does the same at the alternate site. Thus, many steps could be simulated by the two teams and worthwhile results evaluated.

- **Live/Comprehensive Exercises:** This is the most complete and expensive test to accomplish. It involves completing the physical steps that would actually be taken if an emergency occurred. People and materials would be moved to an alternate site for the test, and servers would actually be shut down to reduce capability. Power would be shut off, and live conditions would be tested. A live test uses actual environments, people, and components to accomplish the test in real time. It is the real thing, nothing artificial, or made up, is substituted. If the test is to see if an alternate site capability can be implemented, then in a live test, the hardware, software, data, communications, and people at the alternate site would be set into action and begin functioning as the primary site to support operations.

End-to-end refers to the scope of the testing (partial testing is less than end-to-end).

When conducting end-to-end testing, items to consider include:

- End-to-end testing can be completed as part of walkthrough or live test.
- Not testing end-to-end means that some links, processes, or subsystems are missed.
- What is the risk in not conducting end-to-end testing?
- Live end-to-end testing can be very expensive!

Considering risks and cost, management shall make a decision as to what type and scope of testing is appropriate.

6.3.1 Live vs. Walkthrough

- High-level testing can take the form of a walkthrough test.
- A walkthrough can be part of the overall testing process, but not the whole process.
- Lower-level testing can include a walkthrough, if live testing is not an option.
 - Live testing shall be the first choice.
 - Fall back to a simulation/model if live testing is not an option.
Cost, time, and interruption of normal operations are major considerations in doing a live test.
 - A walkthrough test should be the last resort.
- Consider what a walkthrough test would miss.
- Consider the ramifications of missing that part of the test.
- Remember that there is risk in not doing a live test—is the risk acceptable?
 - Consider the criticality of functions, processes, and systems.
If critical to continuing essential business operations, then these are strong candidates for live testing.
- Testing interfaces.

It is important to test the critical interfaces with internal and external systems. It is difficult to test interfaces using a “walkthrough” method. Simulation or “live” testing is preferred.

- Cost and complexity.
The decision as to how to test critical functions, processes, and systems must result from careful consideration of complexity and cost. A complete “live” test of all elements of an operation may prove to be extremely costly, in terms of both dollars and time. If that cost outweighs the “cost” of the risk of not doing live testing, then “live” testing should probably be ruled out.

6.3.2 End-to-End

This kind of testing aims to ensure that all software and hardware components associated with a function, process, or system are tested from the front end through to the back end (input through process through output). As with live testing, end-to-end testing can be expensive.

- End-to-end testing shall only be considered for critical functions, processes, or systems.
- Why is end-to-end testing needed?
- It provides the best assurance that there are no problems.
- Would a partial test be meaningful?
If the overall process to be tested can be sub-divided into critical and non-critical components, then only the critical ones need be considered for end-to-end testing.
- Examples of types of end-to-end tests:
 - Claims receipt through to check generation
 - Query of a database through to the response
 - Medicare Secondary Payer (MSP) check request through to check issue and back to MSP
- Evaluate complexity and cost.
The decision on how to test critical functions, processes, and systems shall carefully consider complexity and cost. A complete end-to-end test of all elements of an operation may prove to be extremely costly, both in terms of dollars and time. If that cost outweighs the cost of the risk of not doing end-to-end testing, then end-to-end testing should probably be ruled out.
- Consider the criticality of functions, processes, and systems.
Look at the criticality of functions, processes, and systems. If these are critical to continuing essential business operations, then these are strong candidates for end-to-end testing.
- If you cannot do end-to-end testing, then consider live testing of all links possible to help ensure minimum problems.
 - Or, do simulation/modeling
 - Or, do walkthrough

Overall testing may take the form of reviews, analyses, or simulations of contingencies. Reviews and analyses may be used for non-critical systems, whereas critical systems shall be tested under conditions that simulate an emergency or a disaster.

It is advisable that the testing of critical systems be done end-to-end, input through output, so that no physical activity, automated process, or Medicare business partner system is left untested. Critical interfaces internal and external to the systems shall be tested.

Testing may include activities in addition to computer processing. Manual operations shall be checked according to procedures, and changes made as experience indicates.

6.4 Local Processing Environments

IT systems CP testing relative to local environments, such as individual or clustered workstations and local area network (LAN) configurations, may be less comprehensive than data center testing. Reviews and analyses may be used to accomplish certain non-critical systems testing, whereas critical systems require full simulation or live testing. The criticality of the system is the deciding factor relative to what type testing is used, how often tests are accomplished, and how thorough the testing shall be.

The decision of which test approach to use relative to a specific system or configuration shall be a management decision based on advice from the System Security Officer (SSO), IT systems staff, operations and support representatives, and the lead test planner/manager.

6.5 Test Planning

An IT systems contingency test plan shall address at least the following:

- Test objectives
- Test approach
- Required equipment and resources
- Necessary personnel
- Schedules and locations
- Test procedures
- Test results
- Failed tests
- Corrective action management process
- Retest
- Approvals

It is advisable to establish test teams responsible for preparing and executing the IT systems CP tests. Responsibilities shall be assigned to test team members, including executives, observers, and contractors.

Following testing, the corrections specified in a Corrective Action Management Process shall be tested. The process shall include:

- List of items that failed the previous test

- Corrections planned
- Retest detail
- Schedule
- Review responsibilities

Ensure that the lessons learned from IT systems CP testing are formally discussed among senior business partner management, operations, IT management and staff, and the SSO.

Documentation shall exist for:

- Test plans
- Test results
- Corrective action management process
- Retest plans
- Memos of Understanding/Formal Test Arrangements
- Lessons Learned

7 Minimum Recovery Times

Maximum Tolerable Downtime (MTD) is the time it takes to recover an operation, function, process, program, file, or whatever has to be recovered as an operational entity.

Minimum recovery time is the longest acceptable period of time for recovery of operations. If claims processing operations must be recovered within 72 hours, then that is the MTD to recover. Anything over that is unacceptable.

- Recovery times may vary, depending on the criticality of the entity involved.
- Times can be from a few minutes to days or weeks.
- A table/matrix can be constructed that lists the recovery times.
- There can be a separate table/matrix for each organization or major function (e.g., claims processing, medical review, check generation).
- Recovery times shall be carefully defined and must be achievable.
- Recovery times shall be verified to some extent through testing (simulation or live).

8 Responsibilities

Following is a summary of responsibilities for key groups and persons involved with contingency planning.

8.1 Business Partner Management

- Defines scope and purpose of IT systems contingency planning.

- Authorizes preliminary IT systems contingency planning.
- Ensures that appropriate CPs are developed, periodically tested, and maintained.
- Ensures that all IT operations participate in the contingency planning and the development of the plans.
- Reviews the plan and recommendations.
- Requests and/or provides funds for plan development and approved recommendations.
- Assigns teams to accomplish development of test procedures, and for testing the plan.
- Reviews test results.
- Ensures that the appropriate personnel have been delegated and notified about the responsibility for effecting backup operations, and that the backup copies of critical data are ready for use in the event of a disruption.
- Ensures that the business partner organization can demonstrate the ability to provide continuity of critical IT systems operation in the event of an emergency.
- Business partner management shall approve:
 - The CP
 - Changes to the CP
 - Test Plans
 - Test results
 - Corrective action management processes
 - Retest Plans
 - Memos of Understanding/Formal Arrangement Documents
 - Lessons Learned
 - Changes to storage and backup/alternate site facilities

8.2 Systems Security Officer (SSO)

- Documents the scope and purpose of IT systems contingency planning
- Reconciles discrepancies and conflicts
- Evaluates security of backup and alternate sites
- Leads the preparation of the CP
- Submits the plan and recommendations to management
- Monitors implementation of the plan and reports status to management
- Ensures all testing of the plan is accomplished as required
- Reviews test results
- Ensures that the plan is updated based on test results
- Ensures lessons learned are formally documented and discussed

8.3 Service Components (provide support functions such as maintenance, physical security)

- Maintain physical security forces to respond to emergencies.
- Schedule fire and other emergency drills and monitor effectiveness.
- Develop emergency re-supply procedures for forms, supplies, equipment, and furniture.
- Provide for priority replacement of computer hardware.
- Provide for restoring telecommunications.
- Provide for backup sites and procedures.
- Provide information relative to the availability of recovery sites.
- Develop procedures for documenting inventories of equipment and furniture.
- Provide a list of employees' home addresses and phone numbers.
- Support testing of the plan.

8.4 Operating Components (IT operations personnel)

- Designate employees for emergency response teams.
- Designate employees for backup teams.
- Designate employees for recovery teams.
- Provide a list of employees' home addresses and phone numbers.
- Identify time-critical operations and systems.
- Identify critical resources, such as hardware, software, data, communications, facilities, and people.
- Identify supplies (forms, blank check stock, etc.) to be stored at alternate sites.
- Identify processes for obtaining items stored at alternate sites.
- Identify critical data to be backed up offsite.
- Provide information on testing requirements.
- Accomplish and/or support end-to-end system testing.
- Review test results.
- Identify critical, non-automated data processing operations.
- Review basic service organization plans and advise SSO where needs are not met.
- Monitor CP implementation and report status to management.

9 Changes

The CP shall be updated whenever one or more of the following events occurs:

- New systems or operations added.
- Upgrade or replacement of Standard System software.
- Hardware or software replacement.
- Changed back up/alternate site.
- Changed storage facilities.
- Removal of existing systems or operations

10 Attachments

Materials that are too extensive to be included in the body of the Medicare IT Systems CP shall be included as attachments. These shall be referenced in the contingency plan. These shall also be a part of the System Security Profile. Existing material that facilitates response, backup, and recovery operations shall be included as attachments or a pointer provided. Much of this material is bulky and relates to the entire organization. The SSO shall ensure that the information to be attached is pertinent and current, and that updated copies are routinely incorporated, particularly into offsite copies of the CP. Such material includes:

- Master inventories of forms, supplies, and equipment
- Description of computer hardware and peripherals
- Description of applications software
- Appropriate security weakness information
- Systems and program documentation
- Prioritized schedules for computer operations
- Communications requirements, especially computer networks

11 Checklist

The following checklist provides a means for determining if a CP contains the appropriate information that can readily be used in handling an emergency or system disruption. This list is not all-inclusive, but rather should serve as a thought stimulus for evaluating CPs.

This checklist uses the same outline as the suggested CP format.

1. Introduction

Does the CP contain:

- Background
Is a history of the plan provided? Are the physical environment and the systems discussed?
- Purpose/Objective
What does the plan address? Why was it written? What does it aim to accomplish?
- Management Commitment Statement
Has the CP been approved by management and the SSO? Once the CP is created, reviewed, and ready for distribution, it shall be approved by site, operations and information systems management, and the SSO.
- Scope
Are the boundaries of the plan indicated? What organizations are involved, not involved?
 - Organizations
 - Systems
 - Boundaries

- External Interfaces
- IT Capabilities and Resources
 - Is the focus of the plan on IT systems, capabilities, and resources?
- CP Policy
 - Priorities
 - Are the CP steps ranked according to priority?
 - Continuous Operation
 - Are there functions, processes, or systems that are required to continue without interruption?
 - Recovery after Short Interruption
 - Which functions, processes, or systems can be interrupted for a short time?
 - Recovery Times?
 - Are the recover times stated?
 - What are the minimum recovery times?
 - Standalone Units
 - Does a CP exist for any standalone workstation? A key part of a CP shall address any standalone workstations that are part of the critical operations environment. It shall state where backup software and support data for these workstations is stored.
 - Is the plan reviewed and approved by other key affected persons?

2. Assumptions

Are all the important assumptions listed? Have the assumptions been carefully reviewed by the appropriate persons to ensure their validity?

3. Authority/References

- Who or what document is authorizing the creation of the CP?
- What are the key references that apply to the plan?

4. Definition of what the CP Addresses

- Organizations
 - To which organizations does the CP apply?
- Systems
 - Is there a general description of systems and/or processes?
- Boundaries
 - Are the system boundaries clearly defined?
- External Interfaces
 - Are external interfaces clearly defined?

5. Three phases defined

Does the plan address three phases of emergency or system disruption?

- Respond
 - Is this phase adequately described so that it is understood what activities occur therein?
 - Are people, and their safety, considered?
 - Is damage/impact assessment considered?
 - Are the alerting and initial impact assessment procedures fully explained as well as arrangements for continual review of their use and effectiveness?
- Recover
 - Is this phase adequately described so that it is understood what activities occur during this phase?
 - Are effective recovery strategies in place for hardware, software and data?
 - Are hardware configuration and operating system requirements considered?
 - Have interdependencies between internal and/or external systems considered?
- Restore/Reconstitute
 - Is this phase adequately described so that it is understood what activities occur during this phase?
 - Has validation of data been documented?
 - Has a clear path for validating system functionality and operational capabilities been implemented?

6. Roles/Responsibilities Defined

- Has the necessary CP implementation organization been defined and the responsibilities of all those involved clearly stated with no 'gray areas'?
- Will all who have a task to perform be aware of what is expected of them?
- Does the CP assign responsibilities for recovery? The responsibilities of key management and staff persons shall be carefully described in the CP, so that there is no question relative to the duties of these people during an emergency.

7. Definition of Critical Functions

- Does the CP address critical systems and processes?
- Have emergency processing priorities been established and approved by management?
- Does the CP specify critical data? The CP shall specify the critical data needed to continue critical business functions and how frequently the data is backed up.
- Has a list of critical operations, data, and applications been created? In preparing the CP, a list of current critical operations, data and applications shall be documented and approved by management. This list shall contain the items needed to continue the minimum critical business elements and functions until operations could be returned to a normal mode.

8. Alternate Capabilities and Backup

- Have arrangements been made for alternate data processing and telecommunications facilities? Part of contingency planning includes the completion of arrangements for alternate data processing facilities and capabilities, and for alternate telecommunications capabilities necessary to re-establish critical interfaces.
- Does the CP address issues relative to pre-planned alternate locations? The CP shall address any potential issues relative to pre-planned alternate locations. These include:
 - insurance
 - equipment replacement
 - phones
 - utilities
 - security
- Does contingency backup planning exist? Planning for appropriate backup of data and processing capabilities shall include:
 - prioritizing operations
 - identifying key personnel and how to reach them
 - listing backup systems and where they are located
 - stocking critical forms, blank check stock, and supplies off-site
 - developing reliable sources for replacing equipment on an emergency basis
- Is there an alternate information processing site; if so, is there a contract or interagency agreement in place?
- Are the levels of equipment, materials and manpower sufficient to deal with the anticipated emergency? If not, have back-up resources been identified and, where necessary, have agreements for obtaining their use been established?
- Have temporary data storage sites and location of stored backups been identified?
- Is the frequency of file backup documented?
- Have the arrangements been made for ensuring continuing communications capabilities?
- Are backup files created on a prescribed basis and rotated off-site often enough to avoid disruption if current files are damaged?
- Are system, application, and other key documentation maintained at the off-site location?
- Are the backup storage and alternate sites geographically removed from the primary site and physically protected?
- Do data and program backup procedures exist? In order to be prepared for an emergency, it is advisable to provide backups of critical data and software programs. These are stored at off-site locations sufficiently distant from the primary site so as not to be affected by the same emergency that would affect the primary site.
- Is the CP stored off-site at alternate/backup locations? Copies of the CP shall be stored

at several off-site locations, including key personnel homes, so that at least one copy is readily available in time of emergency. Copies of the CP that are stored in a private home shall be protected from inadvertent access.

9. Required Resources

- Are the following resources for supporting critical operations defined and available for an emergency?
 - Hardware
 - Software
 - Communications
 - Data
 - Documents
 - Facilities
 - People
 - Supplies
 - Basic essentials (water, food, shelter, transportation, etc.)
- Does the CP provide for backup personnel? As the CP is implemented, it is necessary to have additional people available to support recovery operations. The CP shall specify who these people are and when they would normally be called into action.

10. Training

- Are management and staff trained to respond to emergencies? Security training shall include modules for management and staff relative to their roles for handling emergency situations.

11. Testing the CP

- Is there a section in the CP that addresses testing of the plan?
- Testing of the CP shall address the following topics:
 - Test Philosophy
 - Test Plans
 - Boundaries
 - Live vs. Walkthrough vs. End-to-End Testing
 - Test Reports
 - Responsibilities

12. CP Maintenance

- Schedule
 - Is the CP annually reviewed and tested within every 365 days? The CP shall be reviewed and tested under conditions as close to an emergency as can be reasonably and economically simulated.
 - Is there a provision for updating the CP within every 365 days?
 - Is the CP revised after testing, depending on test results? Are lessons learned documented and incorporated into the revised CP?

13. Relationships/Interfaces

- Does the CP identify critical interfaces? Interfaces required to continue critical

business functions should be identified. Refer to the System Security Plans.

- Which outside (vendors, providers, banks, utilities, services, CMS) interfaces must be considered?
- Is the plan compatible with plans of interacting organizations and systems?
- What internal interfaces must be considered?
- Which corporate interfaces must be considered?
- Are there special interfaces with corporate systems that must be addressed in the CP?

14. Attachments

Does the CP contain appropriate attachments, as listed below?

A. Actions for Each Phase

Are the actions to be taken in each phase (respond, recover, restore) of the contingency clearly described and related to organizations and/or people?

B. Procedures

- Are there detailed instructions for:
 - responding to emergencies?
 - recovering operations?
 - restoring operations?
- Do contingency backup agreements exist? Agreements with organizations or companies which will provide service, equipment, personnel, or facilities during an emergency shall be in place.
- Are there procedures for addressing the situation where the processing site is intact, but people can't get to it because of a natural disaster? Can the business be operated remotely?
- Is there an implementation plan for working from home?

C. Call Trees

Are there call lists with names, addresses, and phone numbers with priority order relative to whom to call first?

D. Hardware Inventory

Are there lists of all the hardware covered by the CP?

E. Software Inventory

Are there lists of all the software covered by the CP?

F. System Descriptions

Are all the systems covered by the CP defined, including appropriate diagrams?

G. Alternate/Backup Site Information

Is there sufficient detail to completely describe the alternate and/or backup sites, including addresses, phone numbers, contacts, resources available at the sites, and, resources needed to be brought to the site?

H. Assets/Resources

Are there lists of all the needed resources for responding, recovery, and restoring operations?

I. Risk Assessment Summary

Has there been a realistic assessment of the nature and size of the possible threat and of the resources most at risk?

J. Agreements/Memo of Understanding

Are there agreements in place relative to the use of alternate/backup sites, special resources, outside suppliers, extra people, alternate communications, etc?

K. Manual Operations

Are manual operating procedures in place so that certain functions can continue manually if automated support is not available soon enough?

Manual processing procedures shall exist in the backup phase until automated capabilities can take over the information processing. Provisions shall be made to provide this manual capability.

L. Supplies/Materials/Equipment

Is there information that describes how and where to obtain needed supplies, materials, and equipment?

M. Floor Plans

Are the necessary floor plans available?

N. Maps

Are the necessary area and street maps available?

12 References

In addition to this manual, the following documents may be referenced during the IT systems contingency planning process:

- NIST Special Publication 800-34 Rev. 1, Contingency Planning Guide for Information

Technology Systems, May 2010.

<http://csrc.nist.gov/publications/nistpubs/800-34-rev1/sp800-34-rev1.pdf>

- NIST Special Publication 800-12, An Introduction to Computer Security: The NIST Handbook, Chapter 11.
<http://csrc.nist.gov/publications/nistpubs/800-12/handbook.pdf>
- Health Insurance Portability & Accountability Act (HIPAA): The Race to Become Compliant, Ed Deveau, Disaster Recovery Journal, Fall 2000.
- Federal Information System Controls Audit Manual (FISCAM), Exposure Draft, GAO-08-1029G, Section 3.5.
<http://www.gao.gov/new.items/d081029g.pdf>
- OMB Circular No. A-123, Management's Responsibility for Internal Control, Revised, December 21, 2004.
http://www.whitehouse.gov/omb/circulars/a123/a123_rev.html
- Office of Management & Budget, Circular No. A-130, Appendix III, Security of Federal Automated Information Resources, 8 February 1996.
http://www.whitehouse.gov/omb/circulars/a130/a130appendix_iii.html

Appendix B: An Approach to Fraud Control

(Rev. 13, Issued: 09-22-17, Effective: 07-31-17, Implementation: 09-25-18)

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1 Introduction

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This document develops countermeasures relating to fraudulent acts and a checklist to help Medicare contractors assess their vulnerability to fraud. Fraud and embezzlement are skyrocketing, largely because basic safeguards are neglected or lacking. Fraudulent acts are discussed in terms of the types of safeguards in place and functioning.

2 Safeguards against Employee Fraud

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The following safeguards are specific countermeasures against fraudulent acts by employees whose functions involve Medicare program funds. These safeguards are consistent with the *MAC* ARS, and do not constitute wholly different or additional minimum requirements. The following countermeasures should prove especially effective against currently prevalent fraudulent activities and are discussed primarily as they relate to prevention and detection of fraud.

A. Screen New Employees

Screen new employees for positions that involve program funds directly or indirectly to address the applicant's past faithful and honest performance of duties with other employers in addition to job performance and investigation of his/her personal finances. New employees' statements concerning personal finances shall be confirmed with former employers and with banking and credit institutions. Phone calls to previous employers are essential, particularly to former supervisors who should be advised of the nature of the position. Although former employers will sometimes fail to prosecute employees associated with fraudulent activities, they seldom delude a prospective employer asking about the applicant's integrity.

Any blatant dishonesty in the application (such as claiming qualifications and experience the applicant never had) shall remove the applicant from further consideration. Check references and crosscheck them (one against the other) for consistency as well as content. Evaluate references on the basis of the contact's personal knowledge of the applicant's job-related qualifications and integrity.

Proper screening is preventive medicine at its best. Gaps in employment are flags that call for third-party verification, not just a plausible explanation by the applicant. Former employers may be able to shed light on the situation or be able to relate the reason given them about gaps by the applicant.

Circumstances relating to termination of previous employment should be clearly related by former employers. Resolve any inconsistencies or vagueness.

Ask former employers as well as the applicant, whether the employee was ever bonded, or was ever refused bonding. Sensitive screening should not result in violating an applicant's civil rights, while assuring you (and your bonding company) that prudent concern is exercised in the hiring process.

B. Bonding

Bonding is also known as fidelity insurance and comes in all configurations; the broader the coverage, the more expensive the premium. One of the most important things you can do is analyze the extent and conditions of coverage in relation to possible misappropriations of funds. Liability is invariably limited in some respects. For example, coverage often does not extend to external fraud; to losses not proven to have been caused by fraudulent acts by covered employees; to frauds committed by employees known to have perpetrated dishonest acts previously; to frauds whose circumstances are not properly investigated; or to frauds whose alleged perpetrators are not brought to trial. Inherent in the analysis of bonding is risk analysis of fraud in relation to specific components to develop a worst-case fraud scenario in terms of dollar-loss before recovery through bonding.

C. Separation of Duties

Separate duties so that no one employee can defraud the company unaided. This is the cardinal rule for fraud prevention, one that is well-understood in manual operations. It is not as well understood in its application to computer processing where a single automated system may combine functions ordinarily separated, such as transactions and adjustments. Analyze all duties, including all stages of computer programming and operations, in terms of defeating single-handed fraud as well as in terms of effectiveness and efficiency, with fraud controls taking precedence. Group review of programmer code before allowing new/upgraded systems into production is the type of duty-separation (function vs. approval) that serves both effectiveness and security.

D. Rotation of Duties

Rotate duties, particularly those involving authorization of a transaction. Separation of duties makes it difficult for an employee to defraud your organization unaided, so that

embezzlement becomes a crime of collusion. As more and more embezzlement involves more than one person, it becomes necessary to ensure that the same person is not always involved in approving another's functions. An employee is less likely to initiate a fraudulent transaction if he/she is not certain that his/her accomplice will be the one to approve or process that transaction. Moreover, the knowledge that from time to time other employees will perform his/her function or work his/her cases is a powerful deterrent to any fraudulent scheme, particularly embezzlement which requires continual cover-up.

E. Manual Controls

Manual controls are differentiated from automatic controls because constant review is necessary to see that they are in place and working. Moreover, they often supplement or augment automatic controls; for example, the manual review of claims rejected in computer processing. Review all manual controls to determine the extent to which they would be effective against fraud in any operational area; too often, controls are reviewed without fraud specifically in mind. Classic manual controls are those associated with the tape/disk library, and these controls are strongly associated with restricted access and separation of duties. It does little good to separate programmer/operator duties if the programmer is allowed to sign out production tapes or master files for any reason, especially live-testing. Library controls shall require specific authorization for tape removal for specific periods for specific reasons known to, and sanctioned by, the approving authority. The most important manual controls are those over blank-check stock and the automatic check-signer. The employee in control of the check-signer shall not at the same time control the check stock, although these duties may be rotated so that the person controlling the check-signer one day may be assigned to control check stock on the following day when a third person is responsible for the check-signer. However, no one individual shall be allowed to "sign" a check he/she has issued. Rotation of duties is proper only for subsequent operations where one's own previous actions have already cleared.

F. Training

Training employees in their responsibilities relative to fraud in their operations is basic to prudent management. This extends beyond the employee's own activities. For example, Title 18, U.S. Code Section 4 requires anyone having knowledge of a Federal crime to report it to the Federal Bureau of Investigation (FBI) or similar authority, with penalties of up to \$500 fine and 3 years in jail for failure to do so. No employee should be ignorant of this responsibility. This responsibility can be explained as a simple good citizenship requirement and not spying or snitching. Discuss these things periodically in meetings, along with free give-and-take on moral issues and management's position on every aspect of fraud, including perpetration involving collusion with outsiders. Do not single out any employee or function in these discussions, instead make management's position clear regarding so-called "justification" for unauthorized "borrowing" and the fact that fraud can and will be prosecuted. Explain that there can be no permissive attitude towards dishonest acts because such an attitude is corrupting and makes it difficult for employees to remain honest. Make it known that there are controls throughout the organization to prevent and detect fraud, without being specific as to how they work. Require employees to report apparent loopholes in security that might one day (or already) be exploited for fraudulent purposes. Remind employees that ethical conduct requires their full cooperation in the event of any fraud investigation, and when interviewed they shall be called upon to explain

why security gaps or suspicious activities were not reported to the SSO. No security program can be effective without the involvement and cooperation of employees, and nowhere is this truer than with fraudulent activity.

G. Notices

Notices, both periodic and situational, are effective and necessary in the prevention and control of fraud. It is not enough to formulate management policy or to conduct employee training relative to fraudulent activity. It is possible to remind employees of management's continuing concerns and to evaluate employee awareness through simple reminders or announcements of what is happening relative to fraud controls (of a general nature) and management's reliance on their cooperation and understanding of their responsibilities. Without this evidence of sustained management commitment, policy utterances tend to fade from memory or become regarded as part of a new employee's orientation and not part of the scene. This is true of minor abuses, but is also true of abuses that escalate into fraud.

H. Automatic Controls

Automatic controls to prevent or detect fraudulent activities comprise the first line of defense in computer operations. Such controls are often thought of as ensuring data integrity but more in terms of accuracy than of honesty. Evaluate automatic controls in terms of preventing payment to unauthorized persons. Test automatic controls with fraudulent (invalid) input, under strict control of courses, and with management's full cognizance and prior approval.

I. Audit Routines

Audit routines are those programs where trained auditors test for fraud using special routines to reveal computer processing that creates or diverts payments to employees or their accomplices. Wrongdoers not only have to create bogus payments, but also they have to be able to lay their hands on the checks in order to cash them. Devise audit routines to single-out payments being directed to post office boxes or to repeat addresses (where such repeats would be unreasonable), to the addresses of an employee or his family, or to a drop-off address that is not a real business but merely a place to collect mail.

3 Checklist for Medicare Fraud

This checklist represents questions to address in analyzing the security of Medicare fiscal operations.

- 1) Have Medicare operations been identified where fraud or complicity in fraud may be possible, e.g. initiation/approval of payments?
- 2) Have individuals been assigned fraud-protection responsibilities in such components, including the responsibility for reporting possible fraud and vulnerability to fraud?

- 3) Do individual employees at all levels understand that management policy relative to fraud is dismissal and prosecution?
- 4) Are fiscal operations regularly audited relative to fraud vulnerability?
- 5) Are fraudulent acts specifically mentioned in the employee's code of ethical conduct?
- 6) Is employee integrity specifically addressed during the hiring process, and do background investigations elicit information that would uncover an applicant's past fraudulent activity with other employers?
- 7) Are operations set up in such a way as to discourage both individual and collusive fraudulent activity?
- 8) Are programs/systems tested by authorized individuals with "fraudulent" input?
- 9) Are audit trails generated that identify employees who create inputs or make adjustments/corrections that would pinpoint responsibility for any fraudulent act?
- 10) Is there an effective mechanism for detection/prevention of payments being purposely misdirected to employees, relatives, or accomplices?
- 11) Are new or changed programs specifically reviewed for fraudulent code by those responsible for production-run approval (persons empowered to review changes but not to make changes themselves)?
- 12) Are controls designed to prevent fraud, especially in those operations where large sums could be embezzled quickly?
- 13) Are all error-conditions checked for fraud potential?
- 14) Are balancing operations done creatively so that an embezzler could not hide discrepancies?
- 15) Are the official activities of all employees, at all levels, subject to independent review by different reviewers (i.e., not always by the same evaluator)?
- 16) Does management insist on integrity at all levels?
- 17) Has management announced that employee's work activities will be reviewed (in unspecified ways) for both the fact and appearance of integrity?
- 18) Do tape/disk library controls in fact prevent tampering with files/programs for fraudulent purposes?
- 19) Are alternative fraud controls invoked during emergencies?
- 20) Are suspected frauds investigated promptly and properly and are they thoroughly documented?

- 21) Are fraud audits conducted both periodically and randomly?
- 22) Are random samples taken of claims/bill inputs and checked back to their sources?
- 23) Does the Personnel Department check the applicant's background, employment record, references, and possible criminal record before hiring?
- 24) Are badges, identification cards/numbers, and passwords promptly issued and rescinded?
- 25) Is off-hours work supervised, monitored, or otherwise effectively controlled?
- 26) Are all employees required to take their vacations and are their replacements required to check over the vacationers' past activities?
- 27) Are the credentials of outsiders, such as consultants and auditors, checked out?
- 28) Is temporary help bonded, hired from reputable agencies, and their activities restricted to the tasks to be performed? (Same principle applies to employees temporarily borrowed from non-Medicare components.)
- 29) Are written procedures controlled and restricted to employees currently assigned the relevant duties?
- 30) Are special fraud controls specified for backup operations?
- 31) Are incoming checks, including returned checks, handled by two or more individuals in the mailroom and are such teams switched around so that the same people are not always working together?
- 32) Are blank checks and automatic check-signing equipment strictly controlled with a tamper-proof numbering mechanism?
- 33) Is procedure/program documentation relative to the payment process treated as highly sensitive data and safeguarded when superseded?
- 34) Are backup files current and securely stored off-site?
- 35) Are re-runs checked for the possibility of fraud, especially duplicate payments?

Transmittals Issued for this Chapter

Rev #	Issue Date	Subject	Impl Date	CR#
<u>R14SS</u>	06/15/2018	IOM 100-17 Updates	11/30/2018	10576
<u>R13SS</u>	09/22/2017	IOM 100-17 Update	09/25/2018	10216
<u>R12SS</u>	11/15/2013	CMS Business Partners System Security Manual	01/17/2014	8460
<u>R11SS</u>	09/30/2011	CMS Business Partners System Security Manual	10/31/2011	7328
<u>R10SS</u>	07/17/2009	Business Partners System Security Manual	08/17/2009	6410
<u>R9SS</u>	06/20/2008	CMS Business Partners System Security Manual	07/22/2008	5976
<u>R8SS</u>	04/06/2007	CMS Business Partners System Security Manual	05/01/2007	5500
<u>R7SS</u>	03/17/2006	Self Assessment Process in Appendix A and Core Security Requirements	05/01/2006	4342
<u>R6SS</u>	12/09/2005	Incorporation of JSM Instructions in sections 1 through 3	01/09/2006	4111
<u>R5SSS</u>	12/23/2004	Miscellaneous Changes in sections 1 through 3	02/28/2005	3605
<u>R4SSM</u>	03/05/2004	Update links, expand on security concepts, clarify core security requirements and security activities to be conducted/followed, include due dates for system security activities and minor editorial changes.	04/05/2004	3106
<u>R3SSM</u>	03/28/2003	Miscellaneous corrections and clarifications in 1-5 and Appendices	04/11/2003	2568
<u>R2SSM</u>	02/13/2002	Replacement of Manual	02/13/2002	2015
<u>R1SSM</u>	03/28/2003	Initial Issuance of Manual	01/26/2001	1439