



ASCERTISOLUTIONS

CMMC User Guide

Date	Change	Authorized
3/1/2020	Initial version (v 1.0)	Steven Senz
4/24/2020	Explained data sheet input. Updated screen shots	Steven Senz

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Introduction

ASCERTIS stands for **A**utomated **S**ecurity **C**ERTification of Information **S**ystems. ASCERTIS is a web-based application that follows the Risk Management Framework mandated by the Federal Government to assess and accredit federal information systems and determine an organizations Cybersecurity Maturity up to level 3. It is also available for commercial information systems for businesses that provide contractors to the Government.

The Department of Defense (DoD) is requiring all contractors that seek federal contracts to have a Cybersecurity Maturity Model Certification (CMMC) assessment performed by an independent certification authority. The ASCERTIS CMMC engine, provides the means for the organization to perform a critical review of their Information System and Cyber Program, while collecting the artifacts necessary for an independent assessment. The Government requires evidence that the CMMC assessment is based on a critical review of the security artifacts, or test of the controls and an assessment of the security posture of the organization based on those tests and a review of their policies, procedures and interviews of the cyber security staff..

DOD needs to understand the maturity of the organization that has the information system to determine if sensitive information (controlled unclassified information – CUI, or technical design information -TDI) would be at risk. Maturity is based on CMMC levels. The lowest level is 1 and the highest is 5. Organizations that develop, process or transmit CUI/TDI should be at CMMC level 3 or higher.

ASCERTIS provides a methodology to collect all the key artifacts to show an auditor that due diligence is followed as required by the Risk Management Framework.

ASCERTIS follows the RMF six-step process.

The Risk Management Framework starts by categorizing the information system as low risk, moderate risk, or high risk, depending on the impact the failure or compromise of the system has on the organization or its mission. The impact of failure is usually based on the type of information processed, transmitted, or stored. The more sensitive the information, the more risk their is should information become compromised.

Once the risk category is determined (step 1), the appropriate security control can be selected to protect the information and the information system (step 2).



In the CMMC assessment engine the security controls are organized by CMMC level within each domain category. In this manner, should an organization only be concerned about achieving CMMC level 2, controls at level 3 can be ignored (marked Not Applicable). By definition, the information of concern is CUI and TDI. Information of this type includes, but is not limited to: employee salary and health information, employee background checks, drug testing, company financial records, contract information, and trademark and patent information, schematics from the government, functional test documents, interface control specifications, requirements and software trace matrices, etc.

Any system that processes, transmits, or stores CUI/TDI is a moderate-risk system and controls are already defined by NIST SP 800-171 R1 *Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations*. Systems that do not process, transmit, or store CUI are considered low risk systems and not all the NIST 800-171 controls need to be applied. ASCERTIS simplifies the first two process steps by identifying all the necessary controls that need to be considered, as well as how these controls are implemented.

The control implementation module (step 3) provides the assessor with an easy-to-select control implementation choice in a good/better/best selection process. If none of the choices reflect how the control is implemented for that system, a custom input field is provided.

In the security assessment module (step 4, part 1), each control undergoes a series of reviews to confirm that the security functions are in place and working as designed. These reviews could be interviews with key security or operations personnel, documentation reviews for policies and procedures, demonstrations of functionality (e.g., password complexity), and reviews of artifacts (e.g., logs, reports, scan results) that are to be produced as a result of monitoring and control.

In the threat assessment module (step 4, part 2) the ISSO/ISSM discusses the impact of various threat impacts to the business mission or the information system. A likelihood rating is obtained based on the rigor of the controls that are in place to prevent the threat from occurring. This rating determines which failed or partially satisfied controls need remediation.

In the CMMC certification module (step 4 part 3) the certifier reviews each of the CMMC controls that were satisfied at each level and the requisite security domain policies, procedures and other documents to determine an overall CMMC certification level for the organization.

All the controls must be satisfied at the previous level in order to achieve a certification at a higher level. Therefore, an organization that is seeking a CMMC certification at level 3 must first satisfy all the practice and process controls at levels 1 and 2

The POA&M report is an agreement between the security team and the operations team on how to remediate controls that put the information system at moderate or high risk. The POA&M, along with a certification letter, are presented to the Authorizing Official who issues the Authority to Operate (step 5). The CMMC assessment is presented to the leadership of the organization and is available to the Department of Defense.

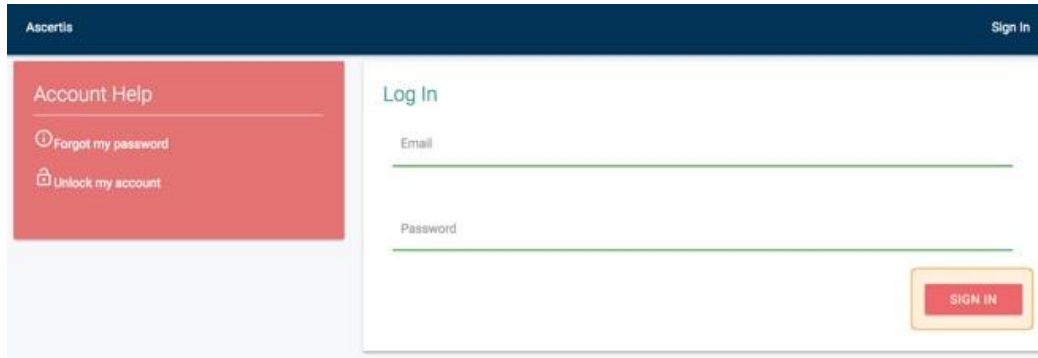
Over time, the POA&M report is updated to reflect corrective actions to failed controls. Corrected controls are closed out on the POA&M report as part of the monitoring phase (step 6). During this phase, additional inspections may result in new findings. New findings are added to the POA&M list as part of continual monitoring and assessment.

Creating Systems (for administrators only)

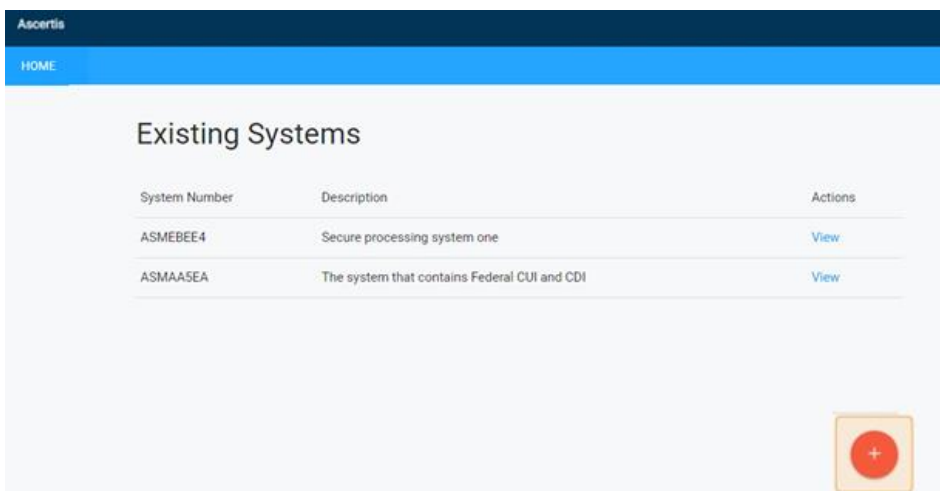
The splash page explains the importance of an independent CMMC assessment for companies that contract with the Department of Defense.



Click “Sign In” to enter the login page.



Enter the username and password to sign in. A pop-up appears to indicate a successful sign in.



The Existing Systems page opens, showing the available systems, named with alphanumeric identifier and description.

Click “+” to add a new system/organization.

Create System

Name

New System

Description

New System Description

Type in the system/organization name and description, then click “Submit.”

The screenshot shows the 'Existing Systems' page in the Ascertis application. The page has a dark blue header with 'Ascetis' on the left and 'Log Out' on the right. Below the header is a blue navigation bar with 'HOME'. The main content area is titled 'Existing Systems' and contains a table with the following data:

System Number	Description	Actions
ASMEBEE4	Secure processing system one	View
ASMAASEA	The system that contains Federal CUI and CDI	View
ASM1C48D	New System Description	View

At the bottom right of the table area, there is a red square button with a white plus sign, used for adding new systems.

The Existing Systems page refreshes. Click “View” to access the eight modules for the selected system.

ASCERTIS Modules

ASCERTIS contains 8 modules: System Info, Controls, Requirements, CMMC Practices, CMMC Processes, Threats, Action Plan, and Reports.

These modules appear on the system home screen. The system name appears at the top, followed by its alphanumeric reference code.

SystemOne (Ref: ASM424B6)
Test system 12
Completion Percentage: 0%

System Info START	Controls START	Requirements START
Threats START	CMMC Practices START	CMMC Processes LOCKED
Action Plan START	Reports START	

The module completion percentage begins at 0%.

New System (Ref: ASM1C48D)

New System Description

Completion Percentage: 0%

As the modules are completed, the percentage increases.

New System (Ref: ASM1C48D)

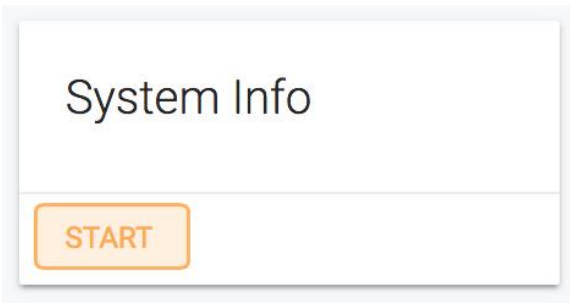
New System Description

Completion Percentage: 20.50%

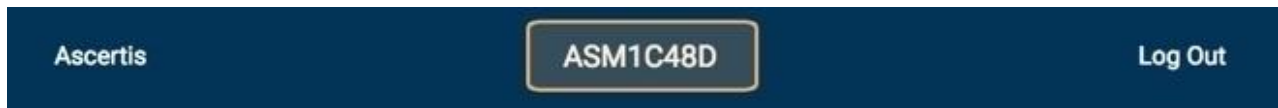
Complete the modules in sequence from left to right, starting with System Info and ending with Reports. Save the assessment process at any point and continue later by clicking "Start" on the module of interest.

Users should note that the threat modules is locked until the Controls and Requirements modules are completed. This is to prevent the generation of “misleading information” due to control and requirement information not being entered.

The action plans module is locked until the Controls, Requirements and Threat modules are completed. This is to prevent the generation of POA&M items for requirement for which the calculated risk is determined to be low.



Navigate back to the home screen by clicking on the system reference code, located in the center of the navigation bar at the top of the screen.



To log out, click “Log Out” on the right side of the navigation bar.



Preparing for the Assessment – Graphics and Lists

There are several items that need to be prepared before the assessment engine is ready to be used. These are:

1. A company logo
2. Network diagram showing all the interfaces to repositories (local and remote)
3. Hardware list
4. Software list

The Company Logo needs to be a at least 120 KB in size. The network graphic should be at least 450KB. The network diagram should not exceed 1 page. The hardware list must contain the following headers. The hardware template can be downloaded from the following link and should look like the template below

<https://ascertis/cmmc-compliance-application>

A	B	C	D	E	F	G	H	I	J	K	L
IP_Address	Host Name	Description	OS_Family	OS_Name	OS_Version	Patch Level	Manufacturer	Model	MAC_Address	Equipment_Class	Serial_No

Below is an example of how the equipment list should be completed. Note due to the size the file records are shown in two parts

A	B	C	D	E	F
IP_Address	Host Name	Description	OS_Family	OS_Name	OS_Version
192.101.6.107	APPVOLTEST-01	Server	ubuntu	ubuntu_linux	12.04
192.101.0.59	DWESA006FA81045	Router	Cisco	cisco:ios:15	S
192.1.1.187	FLB-B148069	Workstation	Windows	windows_10	sp1:x64-enterprise

G	H	I	J	K	L
Patch Level	Manufacturer	Model	MAC_Address	Equipment_Class	Serial_No
4	HP	2020	00:50:56:ac:44:49	Server	ABEX-1376-1f25
15.8	CISCO	5750	00:27:90:ad:589:890	Router	ABEX-1376-1f42
1909	Dell	Optiplex 750	ec:cd:6d:85:10:b8	Workstation	ABEX-1376-1f127

Only the first 3 columns (IP address, Host Name and Description) must be completed – the other columns are optional – but provide a more complete picture of the infrastructure environment.

The Software template can be downloaded from the following link and should look like the template below

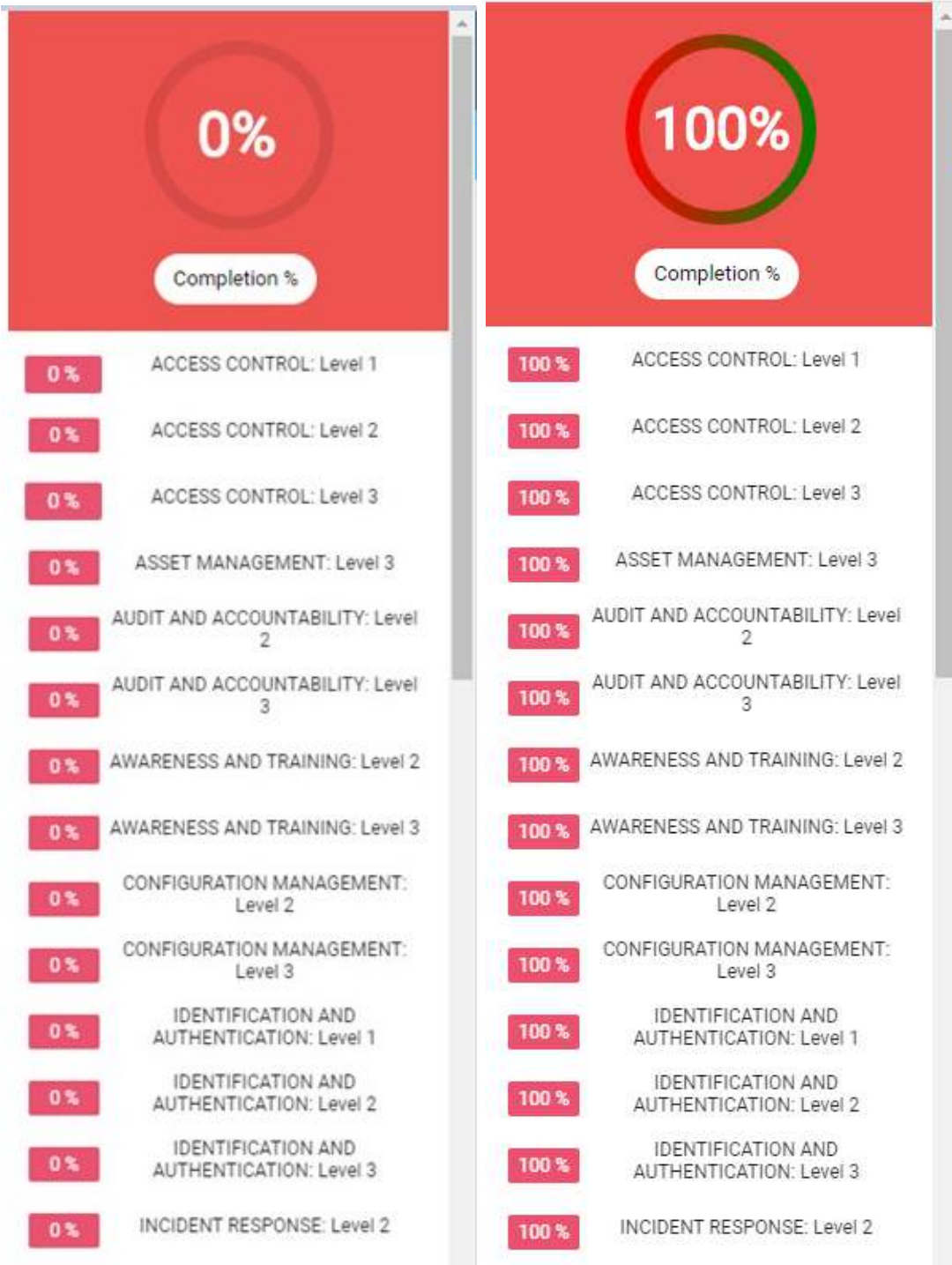
<https://ascertis/cmmc-compliance-application>

A	B	C	D
Name	Vendor	Version	Patch_Level

Below is an example of how the software list should be completed. Only the first three columns information are mandatory

A	B	C	F
Name	Vendor	VERSION	Patch_level
DesignPro	Capterra	5	5.5.708
Adobe Acrobat XI Pro	Adobe	11	11.0.19
Adobe Flash Player	Adobe	26	26.0.0.131
Adobe Photoshop CC 2015	Adobe	2015	16.1.2
Adobe Reader XI (11.0.20)	Adobe	XI	11.0.20

Progress Sidebar



As controls are selected, the percentage meter on the left reflects the overall progress. When the meter reaches 100%, all the controls have been mapped to an implementation method.

Notice the controls within each security domain are organized by level. Some security domains have levels 1, 2 and 3, others only have levels 2 or 3. Users do not have to respond to controls higher than the CMMC level for which they are interested in being certified.

100 % ACCESS CONTROL: Level 1

- ✓ AC.1.001: Account Management
- ✓ AC.1.002: Access Enforcement
- ✓ AC.1.003: Use of External Information Systems - Terms and Conditions
- ✓ AC.1.004: Publicly Accessible Content

Click on the heading name to expand the controls. Completed controls show a checkmark. All sub-heading controls must be completed for the heading control to show 100%.

In this example all the access controls for level 1 have been defined as indicated by the checkmarks so the completion for this control at level 1 is 100%

50 % PHYSICAL PROTECTION: Level 1

- ✓ PE.1.134: Physical Access Control
- ✓ PE.1.131: Physical Access Authorizations
- > PE.1.132: Physical Access Control
- > PE.1.133: Physical Access Control

In this example, PE 1.132 and PE 1.133 do not have a checkmark, so the implementation description for these controls need to be entered. The progress bar indicates this control family at level 1 is only 50% defined

75 % PHYSICAL PROTECTION: Level 1

- ✓ PE.1.134: Physical Access Control
- ✓ PE.1.131: Physical Access Authorizations
- ✓ PE.1.132: Physical Access Control
- > PE.1.133: Physical Access Control

0 % PHYSICAL PROTECTION: Level 2

0 % PHYSICAL PROTECTION: Level 3

0 % RECOVERY: Level 2

0 % RECOVERY: Level 3

0 % RISK MANAGEMENT: Level 2

0 % RISK MANAGEMENT: Level 3

0 % SECURITY ASSESSMENT: Level 2

GOOD ANSWER

All visitors must sign in and have a contact person.

SELECT

BETTER ANSWER

All visitors must sign in and have a contact person, and must be escorted at all times within the facility.

SELECTED

Click on the name of the control to generate the good/better/best options. Select the best option or type a custom answer.

75 % PHYSICAL PROTECTION: Level 1

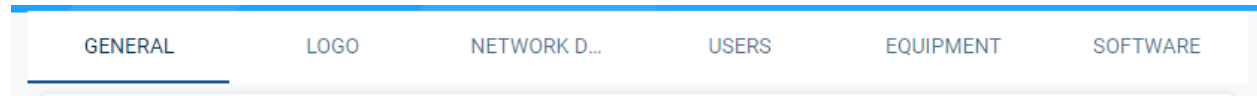
- ✓ PE.1.134: Physical Access Control
- ✓ PE.1.131: Physical Access Authorizations
- ✓ PE.1.132: Physical Access Control
- > PE.1.133: Physical Access Control

The progress sidebar updates to reflect the current percentage completed

Manually move to the previous or next control by clicking its number on the progress sidebar. All control answers must eventually reach a completion percentage of 100% before moving onto the next module.

Module 1 – System Information

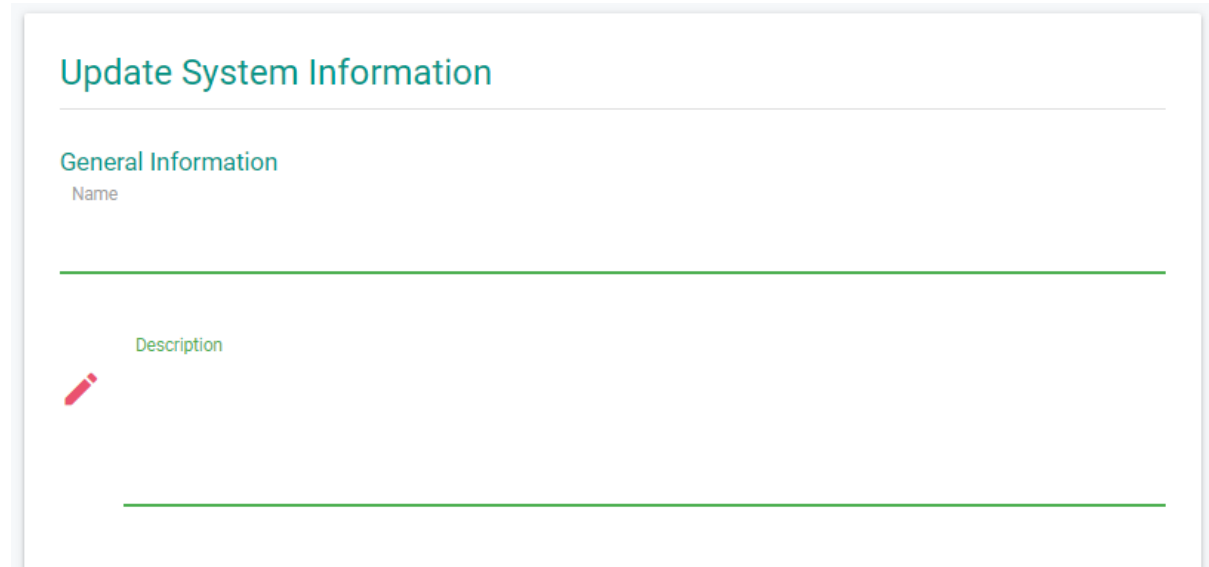
The System Information module creates the front matter of the System Security Plan. It collects all the basic information of the system and the organization, such as the key stakeholders, the environment, mission, and boundaries. The information to be collected appears in the top menu bar for this module. This includes general information about the system, a company logo, a network diagram, who the key users of the system for the assessment are, and the equipment that will be covered by the assessment. The information is completed by selecting the categories in the menu bar at the top



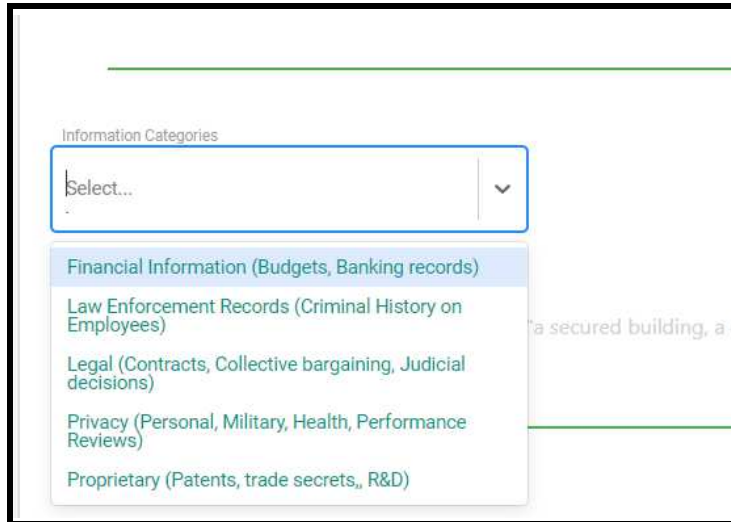
The Name of the system will auto be inserted from the name given during System Identification by the administrator.

GENERAL

In the Description field there should be a brief description of physical and logical components of the systems.

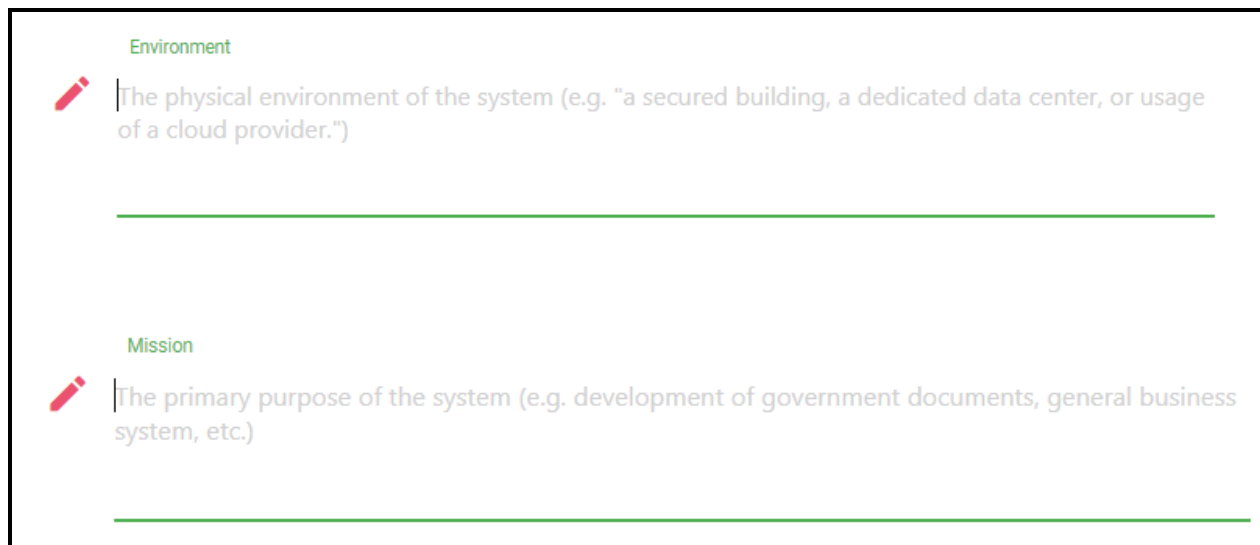
A screenshot of a web form titled 'Update System Information'. Under the heading 'General Information', there is a 'Name' field with a horizontal line below it. Below that is a 'Description' field with a red pencil icon to its left and a horizontal line below it.

Because the assessment is concerned with the protection of Controlled Unclassified Information (CUI) and Technical Design Information (TDI), these categories of information have been loaded into the application.

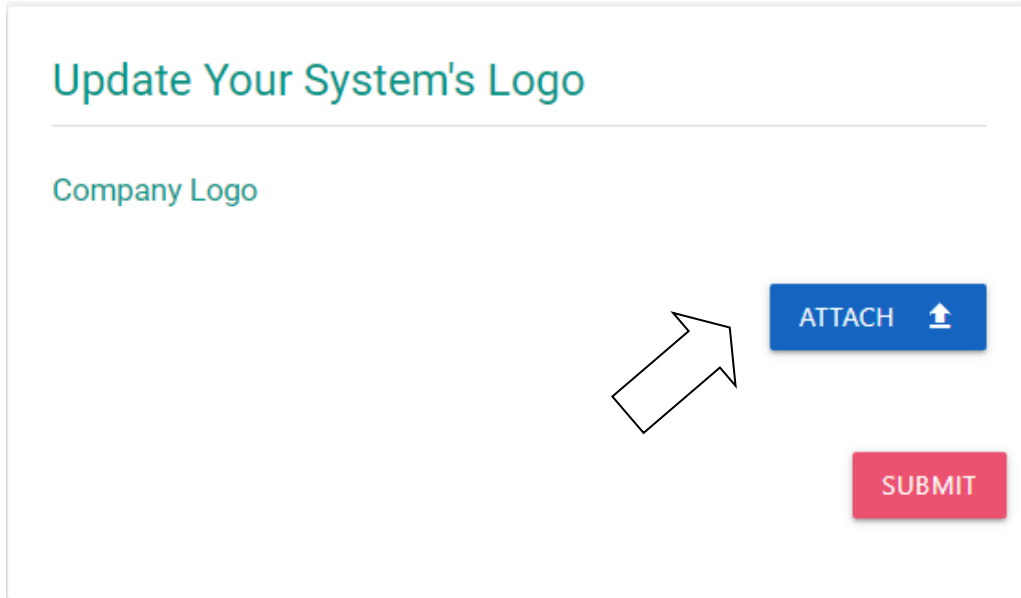


Click on "Information Categories" to select the information types. Use the drop-down menu to select the information category, entering more than one category, if needed

Next, enter the Environment of the IT system and the Mission (primary purpose) of the system. The pencil icon will turn red to indicate that text is being entered. Indicate if there is another system connected to the system under review (ISA) and the security level of the connected system.



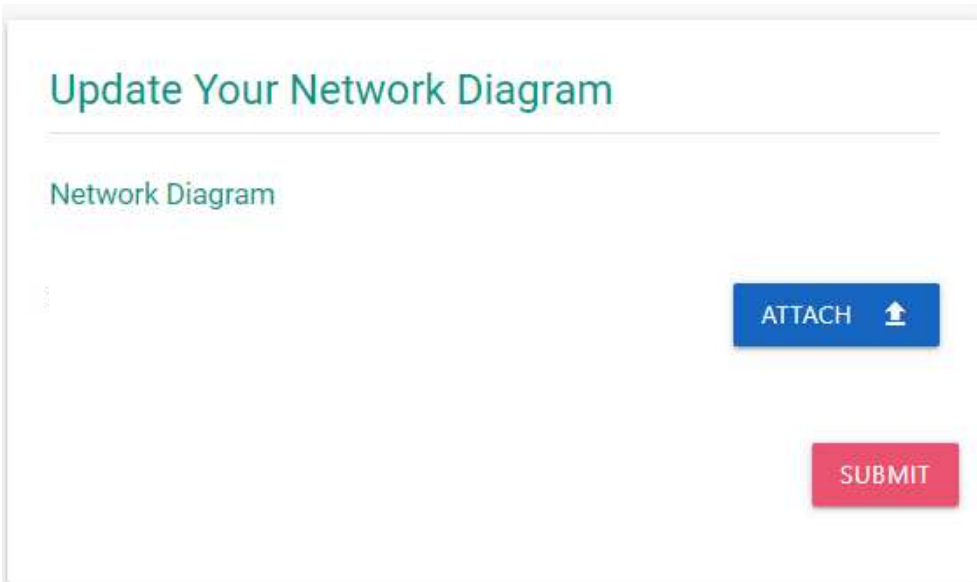
LOGO



Select a company logo by clicking on "Attach" to upload the company logo just selected. Then click "Submit". The company logo graphic appears on the cover of the reports. The logo should be a high-resolution

image, typically 3-inches by 3-inches. Graphics for the diagram and logo must be in PNG or JPEG format.

NETWORK DIAGRAM



Following a similar process for the company logo. Select a network diagram file from your repository. Click "Attach" to upload the diagram, then "Submit". Diagrams should show the border firewalls, the servers, routers, and endpoints.

The network diagram format must be GIF or JPG. If there is a cloud server in the architecture, include a VPN link to the service provider.

USERS

In this section there are a series of input tiles for the various personnel responsible for the security of the information and assessing the organization and the Information System. These personnel roles include:

- System owner
- Certifier
- Authorizing Officer
- Senior Information Security Officer
- Key Person

The input tiles all require the same information. Below is the input tile for the Senior Information Security Officer.

Senior Information Security Officer

Name	Title
<input type="text"/>	<input type="text"/>
Email	Phone
<input type="text"/>	<input type="text"/>

Note: user will be locked for editing once account is validated

SUBMIT

Information is entered by placing the cursor on the line under each input field.

EQUIPMENT

The information about the equipment included in the assessment can be either entered by hand using the “add row button” or by uploading a CSV file with the requisite information. If your information is contained in a CSV file, click on the red button at the bottom (blue arrow), select the appropriate file, which will appear in the table, then click “submit” (red arrow)

Equipment

IP Address	Host Name	Description	OS Family	OS Name	OS Version	Patch Level
No data to show						

ADD ROW DELETE ROW

CLICK TO SELECT FILES TO UPLOAD

SUBMIT

XLSX Uploads support files with columns labeled "IP Address", "Host Name", "Description", "OS Family", "OS Name", "OS Version", "Patch Level", "Manufacturer", "Model", "MAC Address" "Equipment Class", and "Serial Number"

While not all information is required, it will be useful for monitoring the environment during the monitoring stage of the Risk Management Framework.

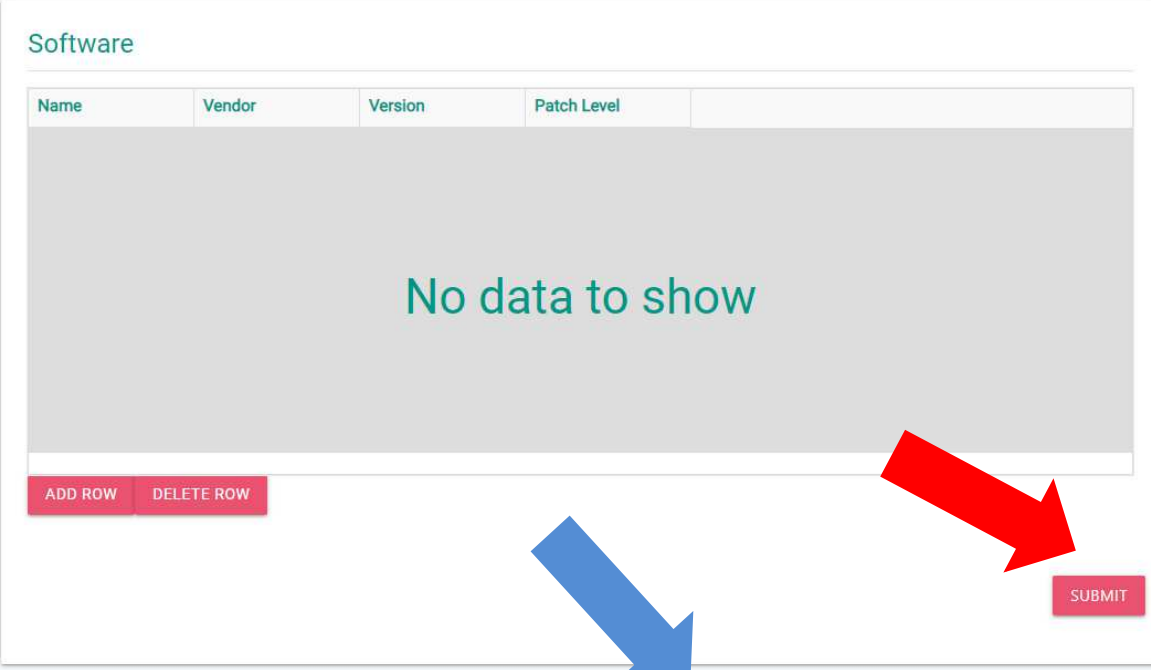
If adding information by row – double click on each cell to bring up the input form. Enter text fields within tables for the operating systems, hardware and component inventory, and major applications used. Tabbing over places the cursor in the next column on the table. To create a new row, click “Add.”

Click “Submit” to save and return to the home screen.

To modify the prior inputs, click “Start” on the System Info module. Enter the updated information into the input fields and click “Submit” to save over the prior selections.

SOFTWARE

The information about the software included in the assessment can be either entered by hand using the “add row” button or by uploading a CSV file with the requisite information. If your information is contained in a CSV file, click on the red button at the bottom (blue arrow), select the appropriate file, which will appear in the table, then click “submit” (red arrow)



The screenshot shows a web interface for a 'Software' table. The table has columns for 'Name', 'Vendor', 'Version', and 'Patch Level'. The table is currently empty, displaying 'No data to show'. Below the table are two buttons: 'ADD ROW' and 'DELETE ROW'. A blue arrow points to a red button labeled 'CLICK TO SELECT FILES TO UPLOAD.' located below the table. A red arrow points to a 'SUBMIT' button located to the right of the table.

XLSX Uploads support files with columns labeled "Name", "Vendor", "Version", and "Patch Level"

If adding information by row – double click on each cell to bring up the input form. Enter text fields within tables for the operating systems, hardware and component inventory, and major applications used. Tabbing over places the cursor in the next column on the table. To create a new row, click “Add.”

Click “Submit” to save and return to the home screen.

To modify the prior inputs, click “Start” on the System Info module. Enter the updated information into the input fields and click “Submit” to save over the prior selections.

Module 2 – Control Implementation

The Control Implementation module provides an easy-to-select control implementation choice in a good/better/best selection process.

CM.2.061: Baseline Configuration

Establish and maintain baseline configurations and inventories of organizational systems (including hardware, software, firmware, and documentation) throughout the respective system development life cycles.

<p>GOOD ANSWER</p> <p>All network endpoints and infrastructure and software are under configuration management. General users cannot download software in a production environment.</p> <p>SELECTED</p>	<p>BETTER ANSWER</p> <p>All network endpoints and infrastructure and software are under configuration management. General users cannot download software in a production environment. All changes to software /firmware, or documentation is reviewed by a Change Management Board prior to implementation.</p> <p>SELECT</p>	<p>BEST ANSWER</p> <p>All network endpoints and infrastructure and software are under configuration management. General users cannot download software in a production environment. All changes to software /firmware, or documentation is reviewed by a Change Management Board prior to implementation. Scanning is done on the network to identify if baseline configurations have changed. Software licenses are confirmed automatically.</p> <p>SELECT</p>
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After reading the descriptions of the good/better/best answers for the applicable CMMC level controls, click “Select” below the appropriate answer. If none of the choices reflect how the control is implemented for that system, enter a custom answer.

1. Once an answer is selected, “Select” changes to “Selected,” and the blue background changes to green. Change an answer by clicking on “Select.” The colors will reflect the new selection.

Note: Custom answers do **not** disappear, even if that answer is no longer selected. This allows for re-selection of that answer in the future without the need to re-type the entire field.

There will be instances where a pre-set answer is appropriate but the {Tool Name} or {Service Provider} needs to be entered. In this case select the appropriate text to copy and paste the text into the custom box, then insert the appropriate tool or vendor name

There are 130 NIST and CMMC controls in the assessment engine. Some controls may not apply. In this case, enter the words “Not Applicable” in the custom input field.

The next control loads automatically after clicking “Select.”

Manually navigate to the previous or next control by clicking the forward and backward arrows.

The selected answer is highlighted in green.

CUSTOM RESPONSE

IR.2.094: Analyze/Triage

Analyze and triage events to support event resolution and incident declaration.

GOOD ANSWER

An Integrated Security Incident Response Team (ISIRT), or similar function, provides formally-assigned cybersecurity, IT, privacy and business function representatives that can execute coordinated incident response operations. IT personnel, or a similar function, implement and maintain an asset management capability, including endpoint devices.

SELECT

BETTER ANSWER

IT security personnel implement and maintain an incident response capability using a documented and tested Incident Response Plan (IRP) which is updated based on lessons learned. An Integrated Security Incident Response Team (ISIRT), or similar function, provides formally-assigned cybersecurity, IT, privacy and business function representatives that can execute coordinated incident response operations. IT personnel, or a similar function, implement and maintain an asset management capability, including endpoint

SELECT

BEST ANSWER

A Security Operations Center facilitates incident management operations. IT security personnel implement and maintain an incident response capability using a documented and tested Incident Response Plan (IRP) which is updated based on lessons learned. An ISIRT provides formally-assigned cybersecurity, IT, privacy and business function representatives that can execute coordinated incident response operations. IT personnel, or a similar function, implement and maintain an asset management capability, including endpoint devices.

SELECT

Custom Answer

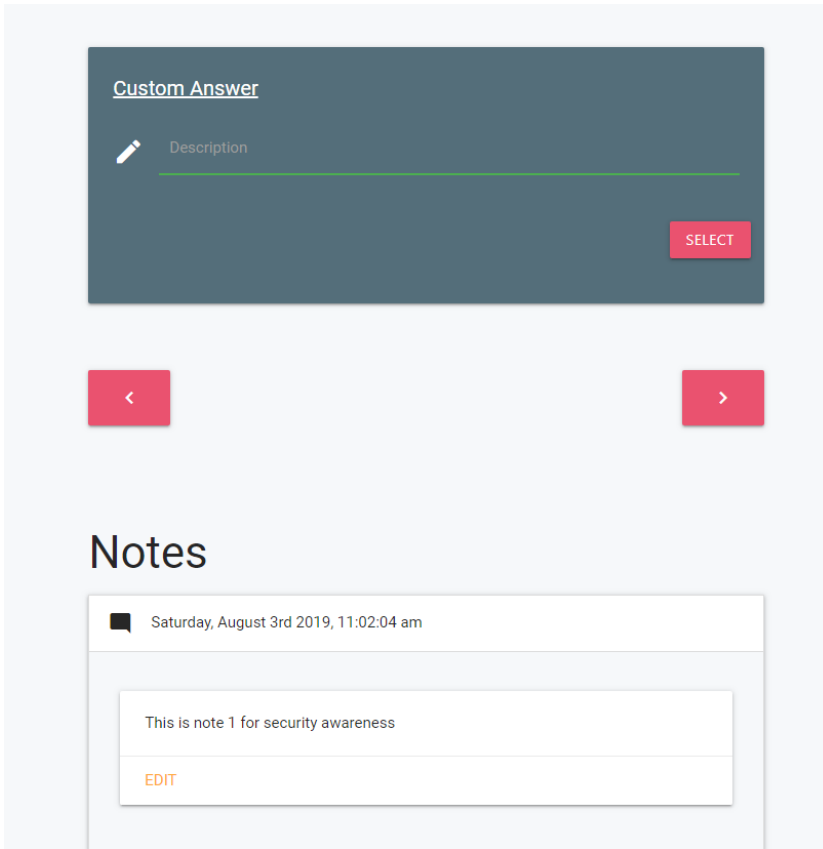
Description

Incident response is handled by a service provider who is response for incident analysis and response

SELECTED

Selecting the custom answer will highlight the custom answer in green.

Selecting a new or prior answer will highlight the selected answer in green. The custom answer is still available for the future, even though it is not the currently selected answer.

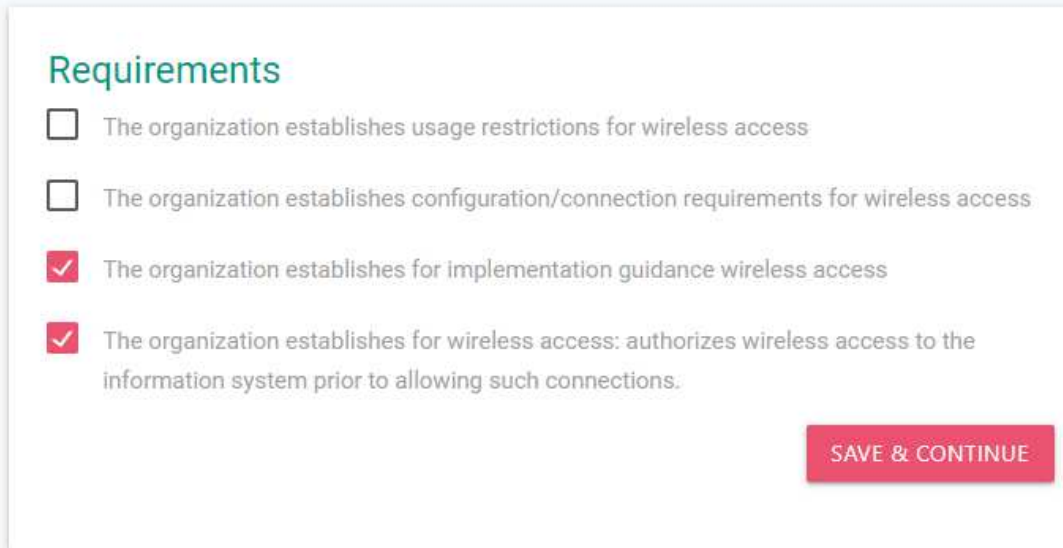


Each control also contains a notes section at the bottom of the control page. The notes section is for additional explanations of how the control works or mitigation plans that are already in progress. Notes for controls will appear in POA&M reports for any control that does not meet all the requirements.

Notes are additive. Assessors/evaluator can add additional notes for each control. The system keeps track of the time and date of multiple notes.

Module 3 – Requirements

In the Requirements module, the organization’s ISSM or designated security individual determines which requirements are satisfied by the implementation of the security control defined in the previous module. Each Control implementation has one or more security requirement it is designed to satisfy. The individual checks the requirements that are satisfied. Requirements that are not met are not checked and these will result in POA&M items.



The screenshot shows a web interface titled "Requirements". It contains a list of four items, each with a checkbox and a text description:

- The organization establishes usage restrictions for wireless access
- The organization establishes configuration/connection requirements for wireless access
- The organization establishes for implementation guidance wireless access
- The organization establishes for wireless access: authorizes wireless access to the information system prior to allowing such connections.

A red button labeled "SAVE & CONTINUE" is located at the bottom right of the form.

Controls have multiple requirements. Each requirement usually requires a separate test/interview/artifact to confirm the requirement met. For each requirement that is checked, the ISSM or security individual needs to assure that an appropriate artifact can be produced to support the decision. During the independent assessment the certifier(s) will need to review some or all the artifacts to determine the accuracy of the requirements ratings.

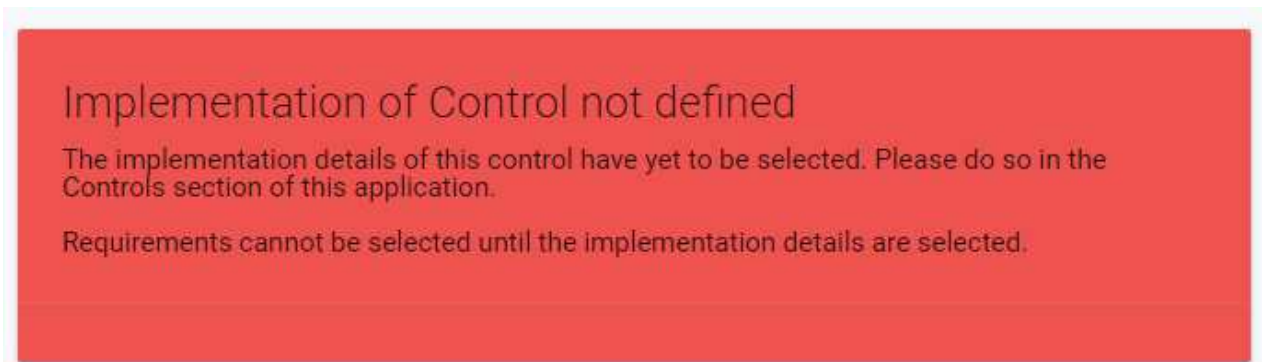
- Requirements that state the organization has a policy require a documentation review.
- Requirements that state a process is followed require a documentation review and an interview with a person who implements that process.
- Requirements that state an artifact is produced (e.g., logs, reports, scan results) require the artifact be produced or shown.
- Technical requirements require either a demonstration (e.g., session timeout in 15 minutes), or evidence that the technical requirement is coded into group policy, or firewall policy, or other program code that is implemented to monitor or control the environment.

Several metrics for each control are collected: total requirements satisfied, total requirements not satisfied, and risk rating of the control.

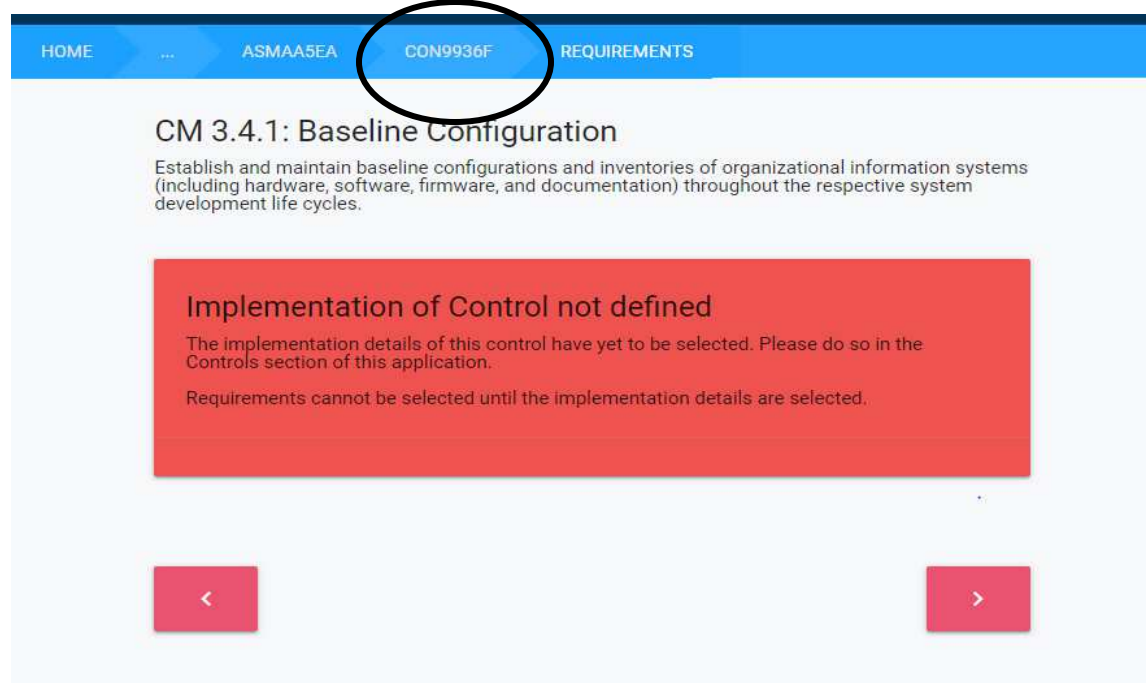
The control is satisfied when **all** requirements are met. Many controls meet some, but not all, of the requirements. The percentage of requirements met determines if corrective actions for that control must be performed. The Threat Assessment section provides more details.

Use NIST SP 800-171A R1 as the guide to determine relevant tests/interviews/artifacts to conduct for each test.

Note: Controls cannot be assessed if they have not been defined as implemented in the previous module. In these instances, a red warning box appears. Return to that control in the Controls module and complete the implementation type. Then the checkboxes for that control in the assessment module will activate.



Click the control link on the menu bar to return to the control.



Module 4 – Threat Assessment

In the Threat Assessment module, the ISSO/ISSM discusses the impact of various threat scenarios to the business mission or the information system. A likelihood rating is obtained based on the rigor of the controls in place to prevent the threat from occurring. This rating determines which failed or partially satisfied controls need remediation.

Mapping controls to each threat vector determines which controls to remediate that provide the greatest value.

Calculated risk of moderate and high are forwarded to the POA&M table for remediation.

The threat module discusses multiple threat vectors and scenarios that could compromise the information system or the company and its mission.

The likelihood of occurrence is based on the level of rigor of enforcement by the controls that are implemented to protect the environment from that threat scenario.

The rigor of enforcement is based on the number of functional requirements satisfied by the group of control (as the numerator) over the total number of functional requirements (as the denominator) that could be satisfied by the group of control.

Threat Type	Threat Source	Controls	Likelihood Of Occurrence	Impact Severity	Calculated Risk
technical	Exploits weak passwords	IA 3.5.9, IA 3.5.7	high	moderate	moderate
technical	Unauthorized upload of files to anonymous FTP server.	AU 3.3.2, SC 3.13.6, SC 3.13.7	moderate	low	low
internal	Sensitive information provided to unauthorized personnel.	MP 3.8.2, AC 3.1.19, MA 3.7.3, MP 3.8.3	high	high	high

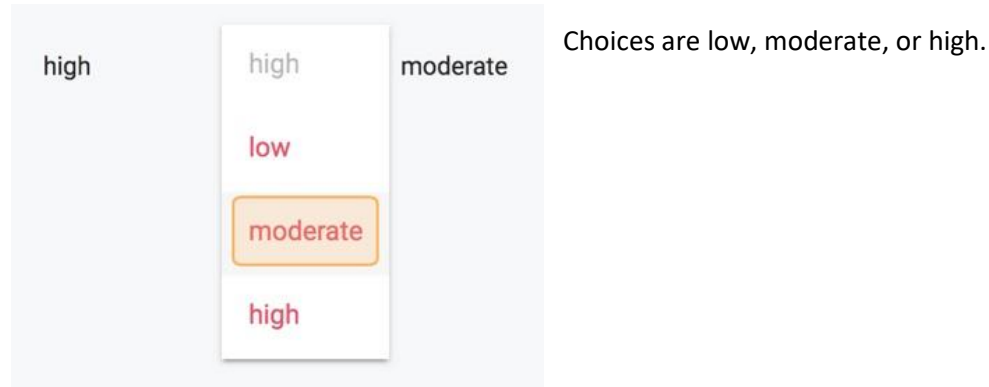
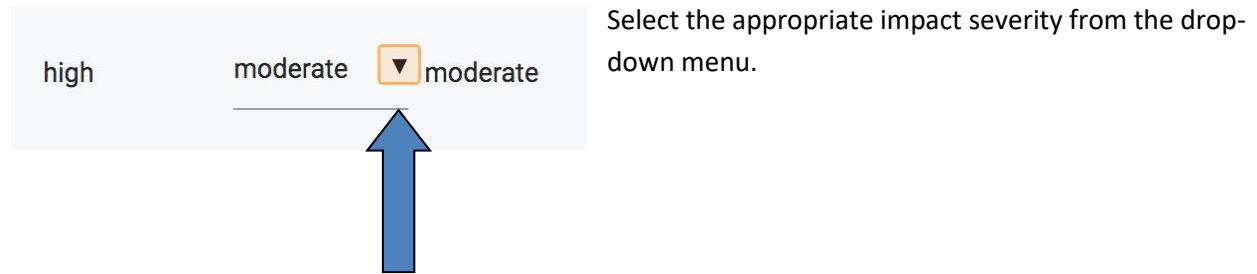
Controls that mitigate the vulnerability

1. Based on composite score of applicable controls
 2. Based on judgement of ISSO/System Owner
 3. Based on NIST tables

Likelihood of Occurrence

If 80% of the controls are enforced for a specific threat source, the likelihood of occurrence is low for that attack vector; if 60-79% of the controls are enforced, there is moderate likelihood; and if less than 60% of the controls are enforced, there is high likelihood of occurrence. These values automatically appear in the threat table.

Impact severity is a rating decided by the stakeholders of the information system/company.



Impact severity is **high** if the event could be expected to have a **severe or catastrophic** adverse effect on organizational operations, organizational assets, or individuals. Impact severity is **moderate** if the event could be expected to have a **serious** adverse effect on organizational operations, organizational assets, or individuals. Impact severity is **low** if the event could be expected to have a **limited** adverse effect on organizational operations, organizational assets, or individuals.

The calculated risk is based on the NIST risk table from NIST 800-30 as in the table below.

Calculated risk of moderate or high requires that the controls that help mitigate this risk be improved to cause the overall evaluated risk to become “low”. Controls that are not considered low risk are added to the POA&M list.

Threat Likelihood	Severity Impact		
	Low	Moderate	High
High	Low	Moderate	High
Moderate	Low	Moderate	Moderate
Low	Low	Low	Low

Module 5 – CMMC Practices

The CMMC Assessment of the control Practices of the organization produces the following results for the 17 practice domains. Each practice domain can have one of three results:

N/A – There are no security practices for the domain at the level indicated

Pass – all the security practices for the domain at the level indicated are being enforced.

Fail – not all the security practices for the domain at the level indicated are being enforced.

CMMC practice levels are dependent on the results of the previous level within the domain. For example, a CMMC level 2 of “pass” for a practice domain cannot be achieved in the CMMC level 1 for that practice domain resulted in “fail.” Below are the definitions for CMMC practice levels as defined by CMMC Model Version 1.0

Level 1: Basic Cyber Hygiene. Level 1 focuses on the protection of Federal Contracts information (FCI) and consists only of practices that correspond to the basic safeguarding requirements specified in 48 CFR 52.204-21

Level 2: Intermediate Cyber Hygiene. Level 2 serves as a progression from Level 1 to Level 3 and consists of a subset of the security requirements in NIST SP 800-171 as well as practices from other standards and references. Because this level represents a transitional stage, a subset of the practices references the protection of Controlled Unclassified Information (CUI).

Level 3: Good Cyber Hygiene. Level 3 focuses on the protections of CUI and encompasses all the security requirements specified in NIST SP 800-171 as well as additional practices from other standards and references to mitigate threats.

The table below provides a summary of the number of practice domains that were passed or failed at each level. If there were no controls that mapped to a specific practice domain a not applicable (N/A) rating was provided. The POA&M table (see POA&M report) identifies the specific control requirements that need to be satisfied at each level to advance the organization to higher CMMC levels.

CMMC Practice Maturity Level

Domain	Capability	CMMC Level One	CMMC Level Two	CMMC Level Three
AUDIT AND ACCOUNTABILITY	Review and manage audit logs	LEVEL PASSED	LEVEL NOT PASSED AU.2.044	LEVEL NOT PASSED AU.3.052 AU.3.051
CONFIGURATION MANAGEMENT	Perform configuration and change management	LEVEL PASSED	LEVEL NOT PASSED CM.2.064 CM.2.065 CM.2.066	LEVEL NOT PASSED CM.3.067 CM.3.068 CM.3.069
MEDIA PROTECTION	Identify and mark media	LEVEL PASSED	LEVEL PASSED	LEVEL NOT PASSED MP.3.122
SYSTEM AND INFORMATION INTEGRITY	Perform network and system monitoring	LEVEL PASSED	LEVEL NOT PASSED SI.2.217 SI.2.216	LEVEL NOT PASSED SI.3.218
PERSONNEL SECURITY	Protect federal contract information during personnel actions	LEVEL PASSED	LEVEL NOT PASSED PS.2.128	LEVEL NOT PASSED
IDENTIFICATION AND AUTHENTICATION	Grant access to authenticated entities	LEVEL NOT PASSED IA.1.076 IA.1.077	LEVEL NOT PASSED IA.2.080 IA.2.079 IA.2.081 IA.2.082 IA.2.078	LEVEL NOT PASSED IA.3.085 IA.3.086 IA.3.084 IA.3.083

The table is autogenerated based on the requirements met for each control that was identified as implemented in Module 2. The above table represents a situation where none of the required security are implemented (e.g. start of the assessment input). This is a read only table – since the data is drawn from the other ASCERTIS engine modules there is no user interface to this table.

It should be noted that even without implementing any control several security domains at level 1 are marked as passed. This is misleading, and the domain is rated as passed only because these domains have no security control allocated to level 1.

Module 6 – CMMC Processes

Module 7 is only available to the independent certifiers. The organization’s ISSM or security person has read access to the module but is prohibited by role from have write or edit capability.

Module is the assessment of policies and procedures, and plans and resources that the independent certifiers review and critique. Policy document are reviewed to determine if the organization’s policies are clearly identified and provide a means to ensure they are followed. Processes documents are reviewed to ensure they provide procedures that when followed will provide the security functions mandated by the controls.

General Staff may be interviewed to ensure they understand the security policies and any punitive actions that are permitted for failure to adhere to the policies. Security personnel will be interviewed to assure they understand the processes by which they perform their duties as well as to confirm there are enough staff to provide the defense in depth to protect the organization’s and government’s information.

Following is an example of the Process table that is completed by the certification team for access control

Access Control		
Artifact	Document Name	Rating
Policy		
Comments		
Procedures		
Comments		
Plans and Resources		
Comments		

Module 7 – Plan of Actions and Milestones (POA&M)

The POA&M table displays controls needing remediation. It auto-generates this data from the threat likelihood assessment. Thus, the threat assessment module must be completed prior to entering the POA&M module.

POA&M items include remediation strategies, timelines, and points of contact. The ISSO/ISSM is responsible in assuring that these corrective actions take place. The POA&M table auto-generates with respect to the controls included in the table.

POA&M Items are color coded as follows:

- White – the corrective actions and responsible personnel have not been identified
- Light Green – corrective actions, responsible personnel and due date have been identified
- Dark Green – POA&M actions has been successfully closed out
- Red – POA&M item due date has passed, and the POA&M action has not been completed

The screenshot shows a form for a POA&M item titled "CM.3.068 - Least Functionality Periodic Review". The status is "Failed Requirement" with a description: "The organization defines policies regarding software program usage and restrictions." Below this is a "Notes" section, which is highlighted with a blue arrow pointing to it from the left. Underneath is the "Plan of Action Details" section, which is divided into two columns: "Remediation" and "Resources Needed". Each column has a text input field for "Projected Completion" (format: mm/dd/yyyy) and "Actual Completion" (format: mm/dd/yyyy). A red "SUBMIT" button is located at the bottom right of the form.

All POA&M item start as white background items.

The ISSM and organizational leadership agree on a corrective action, what resources are needed (personnel, budget, etc.), and the due date for completion.

If there were any notes for the control that were entered during control implementation stage (Module 2) they would appear in the notes section on the PO&AM action tile.

CM.3.068 - Least Functionality Periodic Review

Failed Requirement
The organization defines policies regarding software program usage and restrictions.

Notes

Plan of Action Details

Remediation

 Develop a software usage policy, detailing restriction on download and use of non licensed software

Projected Completion
05/01/2020

Resources Needed

 ISSM - write policy / CIO - approval


Actual Completion
mm/dd/yyyy

SUBMIT

Once the required information is entered, the background color changes to light green. The color will stay light green until either the project is completed (turns dark green) or the completion date has passed without the action being

completed (turn red)

Actual Completion

02/01/2020 

February 2020 ◀ ● ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

SUBMIT

Dates can be entered in directly or by placing the mouse at the end of the date line. A calendar drop down will appear and the user can select the date desired

CM.3.068 - Least Functionality Periodic Review

Failed Requirement
The organization defines policies regarding software program usage and restrictions.

Notes

Plan of Action Details

<small>Remediation</small>	<small>Resources Needed</small>
<p> Develop a software usage policy, detailing restriction on download and use of non licensed software</p> <hr/>	<p> <u>ISSM</u> - write policy / <u>CIO</u> - approval</p> <hr/>
<small>Projected Completion</small>	<small>Actual Completion</small>
01/01/2020	mm/dd/yyyy

SUBMIT



In this example the due date was changed to show a time that has already passed. The background color is now red

CM.3.068 - Least Functionality Periodic Review

Failed Requirement
The organization defines policies regarding software program usage and restrictions.

Notes

Plan of Action Details

<small>Remediation</small>	<small>Resources Needed</small>
<p> Develop a software usage policy, detailing restriction on download and use of non licensed software</p> <hr/>	<p> <u>ISSM</u> - write policy / <u>CIO</u> - approval</p> <hr/>
<small>Projected Completion</small>	<small>Actual Completion</small>
04/01/2020	03/01/2020

SUBMIT

In this example the due date was changed, showing the task was completed as indicated by the completion date being entered. The background color turns dark green

The Authorizing Official is responsible for assuring that POA&M actions

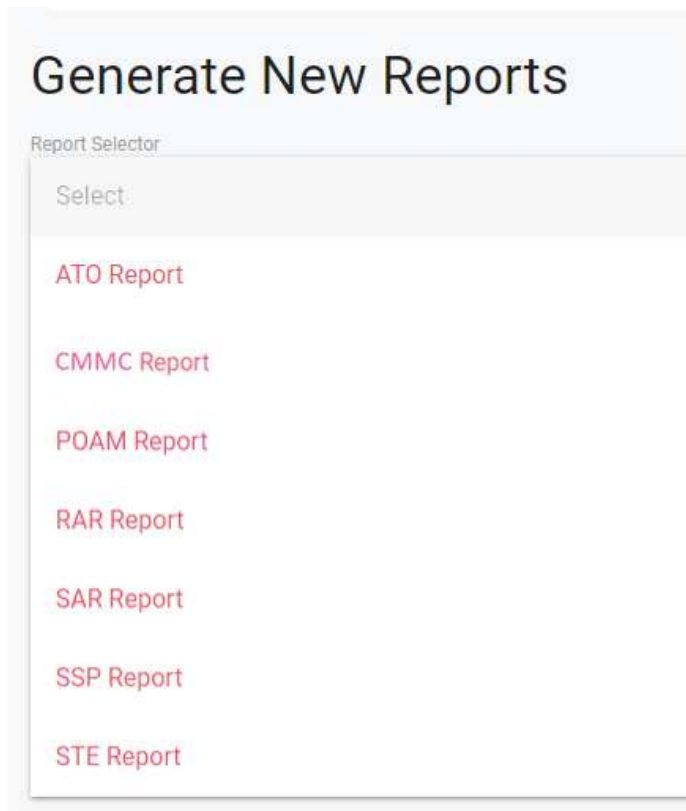
receive priority among the many routine IT projects in order to reduce the vulnerability exposure within the agreed-upon timelines.

Reports

The Government can ask for the bodies of evidence that the Authorizing Official (AO) based this decision on. The Government can terminate a contract if it believes the contractor system was improperly granted an ATO.

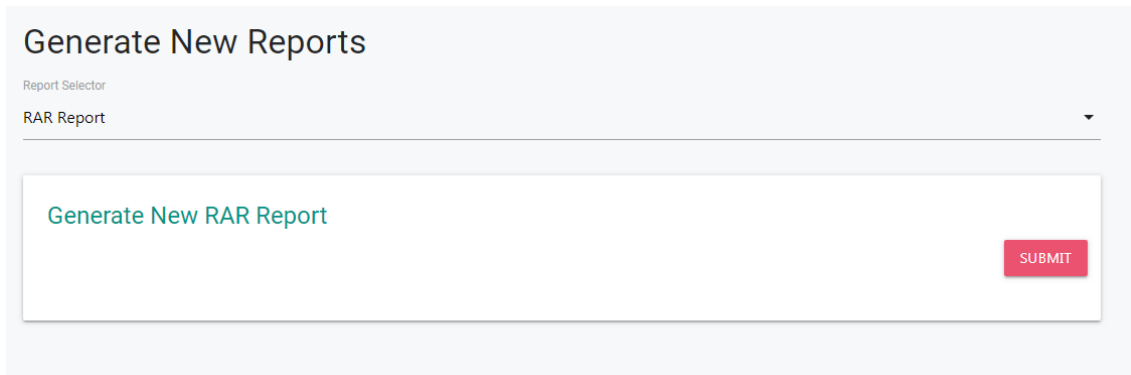
ASCERTIS produces the following bodies of evidence reports:

- System Security Plan (SSP)
- Security Test and Evaluation Report (ST&E)
- Security Assessment Report (SAR)
- Risk Assessment Report (RAR)
- Plan of Action and Milestones (POA&M)
- Authorization Letter (ATO)
- CMMC Practices and Process Assessment Report (CP2AR)



The screenshot shows a web interface titled "Generate New Reports". Below the title is a "Report Selector" dropdown menu. The menu is currently open, displaying a list of report types: "Select", "ATO Report", "CMMC Report", "POAM Report", "RAR Report", "SAR Report", "SSP Report", and "STE Report". Each report type is listed in red text.

To generate a report, the user selects “create new report” and then uses the arrow to select the required report.



Generate New Reports

Report Selector
RAR Report

Generate New RAR Report

SUBMIT

The reports appear in order of generation request with the most current report at the bottom.

Existing Reports

Report Type	Generated At	Actions
SSP Report	Monday, July 29th 2019, 8:22:14 am	View
SSP Report	Monday, July 29th 2019, 8:22:14 am	View
SSP Report	Monday, July 29th 2019, 8:22:21 am	View
STE Report	Monday, July 29th 2019, 8:24:14 am	View
RAR Report	Saturday, August 3rd 2019, 11:06:36 am	View

The report will appear in the downloads folder in PDF format.

Certification and ATO Letter

The organization must show enough documentation to support the authorization and certification decisions, to verify the ongoing implementation and operational maintenance of designed security controls.

The Certifier is an independent reviewer hired by the organization to perform the assessment. The Certifier produces the CMMC assessment report which is presented directly to DOD. This report summarizes the overall risk posture of the system, a summary of the most severe POA&M items that need remediation, and a duration that the system can operate pending the remediation of the POA&M items.

If an organization is qualifying for a CMMC level 3 assessment then an authorization for the system being reviewed will be also be included, provided the assessed risk is considered low or moderate. The Certifier meets with the ISSO/ISSM or company representative that helped conduct the tests. The ISSO/ISSM is responsible for assuring the POA&M items are completed on schedule. The certifier will generate a certification letter indicating that an ATO should be given to the system under review. The ISSO/ISSM countersigns the certification letter.

The Certifier then prepares the ATO letter for the AO and the CMMC certification letter which can be reviewed by DOD. The AO is ultimately responsible for the security of the information system and the assurance that the organization will spend the time and money to correct the deficiencies revealed through testing. The AO signs the ATO.

The certification and ATO letter are then uploaded to the ASCERTIS application for future reference and are available via the portal.

The duration of operation is usually three years for low-risk systems. Moderate- and high-risk systems typically have a shorter timeframe for operation, but the timeframe can be extended if the POA&M items are remediated as scheduled. Failure to correct the control deficiencies can result in rescinding the ATO or prevent an organization from achieving higher CMMC levels.