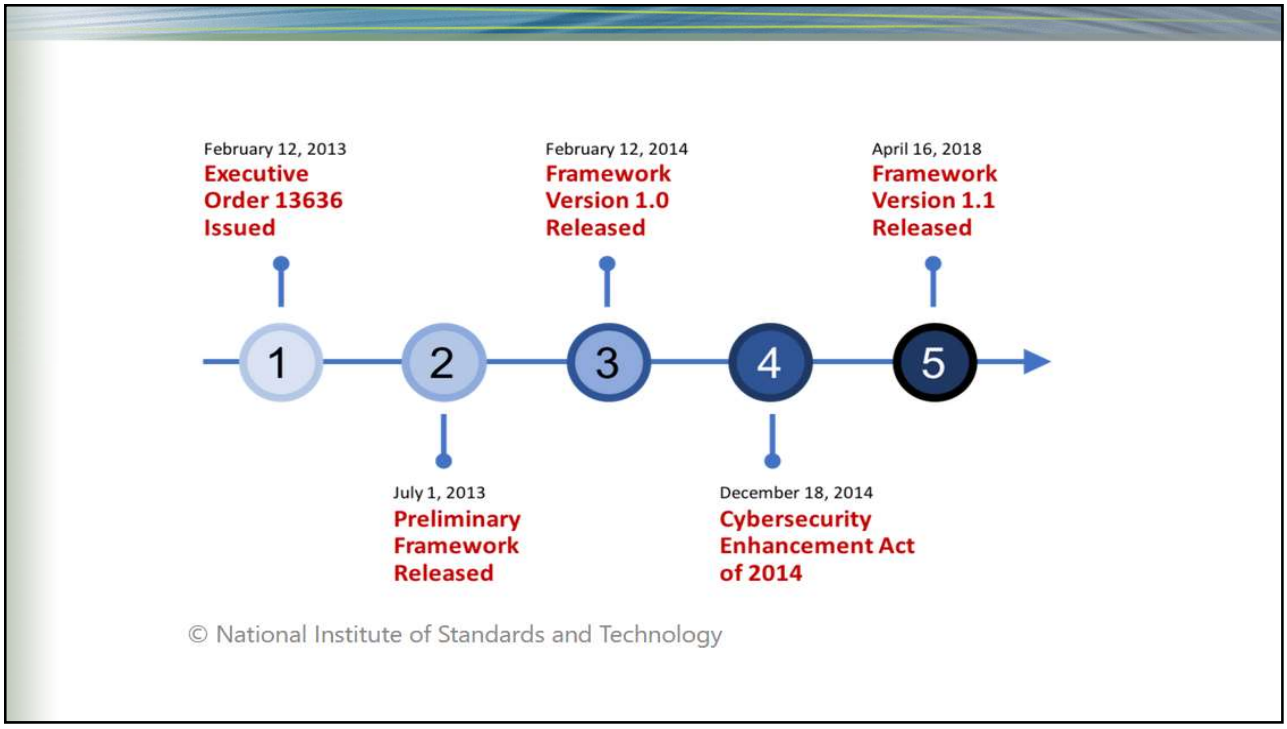
February 12, 2013
Executive Order 13636 Issued
February 12, 2014
Framework Version 1.0 Released
April 16, 2018
Framework Version 1.1 Released
1
2
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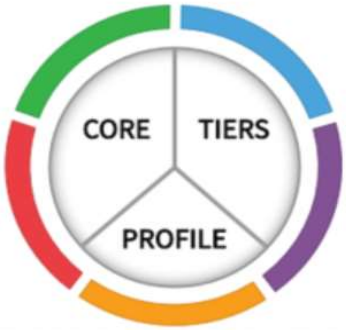
5
July 1, 2013
Preliminary Framework Released
December 18, 2014
Cybersecurity Enhancement Act of 2014
© National Institute of Standards and Technology

## NIST Cybersecurity Framework

**Framework Components**

The Cybersecurity Framework consists of three main components:

- Framework Core
- Implementation Tiers
- Profiles



## Component 1: FRAMEWORK CORE

### The Five Functions

- Highest level of abstraction in the core
- Represent five key pillars of a successful and wholistic cybersecurity program
- Aid organizations in expressing their management of cybersecurity risk at a high level


4

## The Identify Function

The Identify Function assists in developing an organizational understanding of managing cybersecurity risk to systems, people, assets, data, and capabilities

**Example Outcomes:**

- Identifying physical and software assets to establish an Asset Management program
- Identifying cybersecurity policies to define a Governance program
- Identifying a Risk Management Strategy for the organization. Identifying Risk Assets vulnerabilities and threats
- Identify a Supply Chain Risk Management Strategy

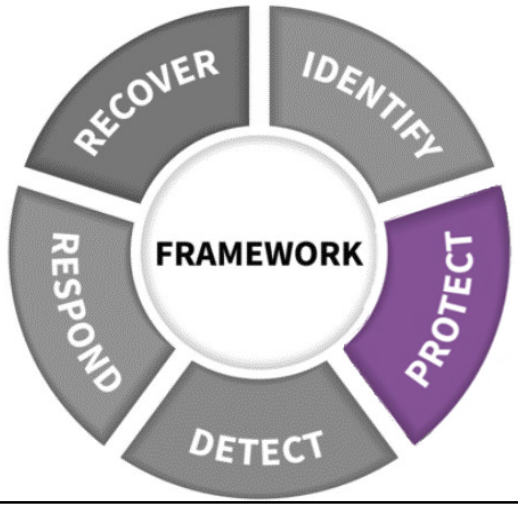

5

## The Protect Function

The Protect Function supports the ability to limit or contain the impact of potential cybersecurity events and outlines safeguards for delivery of critical services

**Example Outcomes:**

- Establishing Data Security protection to protect the confidentiality, integrity, and availability
- Managing Protective Technology to ensure the security and resilience of systems and assists
- Empowering staff within the organization through Awareness and Training
- Implementing Protection Process Procedures

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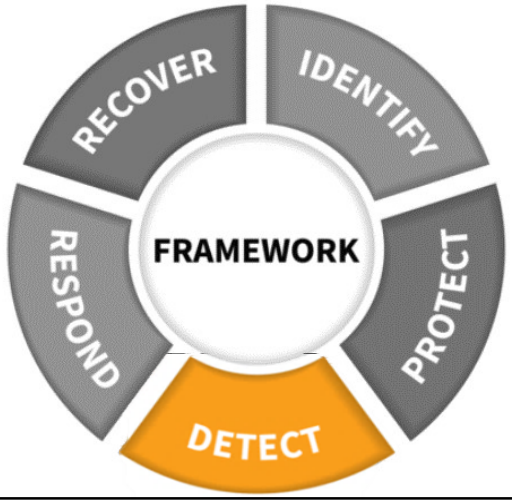
## The Detect Function

The Detect Function defines the appropriate activities to identify the occurrence of a cybersecurity event in a timely manner

**Example Outcomes:**

- Implementing Security Continuous Monitoring capabilities to monitor cybersecurity events
- Ensuring Anomalies and Events are detected, and their potential impact is understood
- Verifying the effectiveness of protective measures



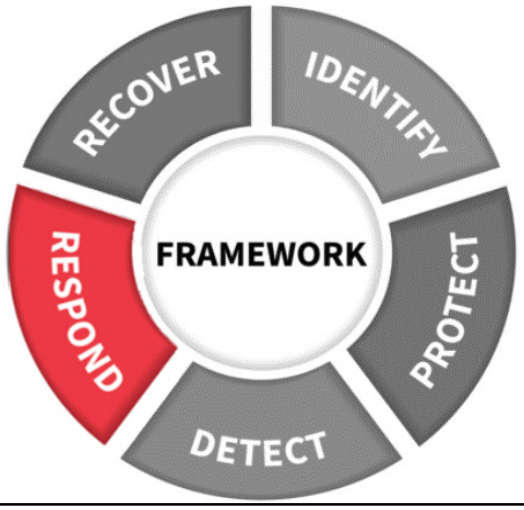

7

## The Respond Function

The Respond Function includes appropriate activities to take action regarding a detected cybersecurity incident to minimize impact

**Example Outcomes:**

- Ensuring Response Planning processes are executed during and after an incident
- Managing Communications during and after an event
- Analyzing effectiveness of response activities.
- Implement improvements

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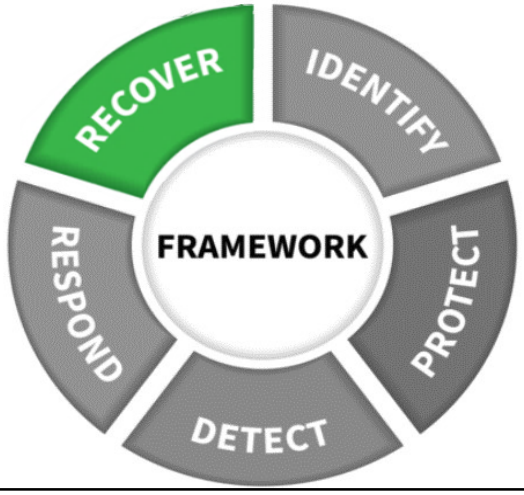
## The Recover Function

The Recover Function identifies appropriate activities to maintain plans for resilience and to restore services impaired during cybersecurity incidents

**Example Outcomes:**

- Ensuring the organization implements Recovery Planning processes and procedures
- Implementing improvements based on lessons learned
- Coordinating communications during recovery activities



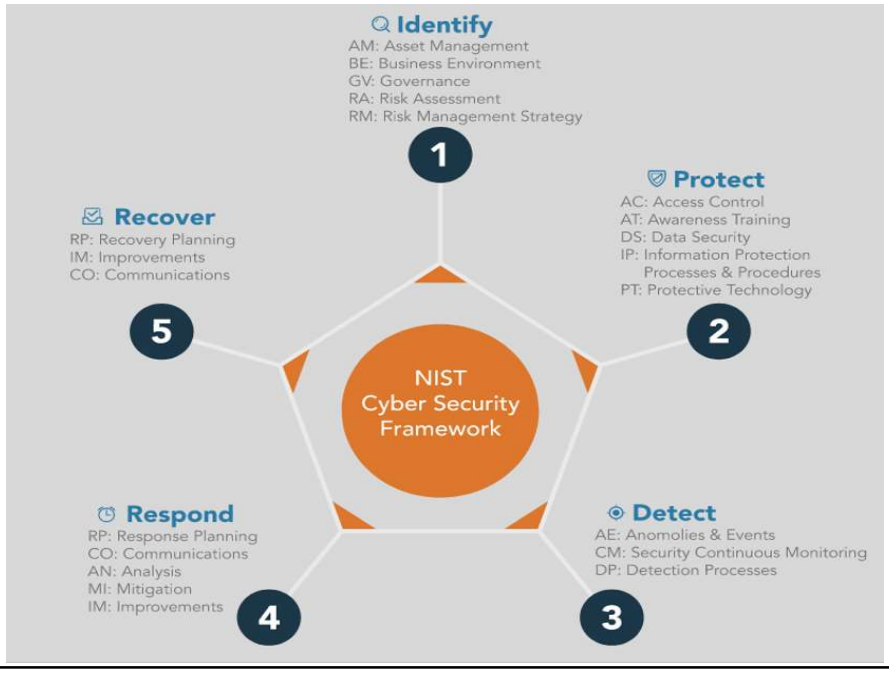

9

## Examples

| | |
|---|---|
| Protect | Implement a monthly information security email newsletter informing the recipients of current threats to the organization and its personnel. |
| Identify | Build a comprehensive inventory of all systems, including hardware and software. |
| Recover Improvement | Ensure that each time a plan is implemented that lessons learned are incorporated back into the plan. |
| Detect | Establish a baseline of known normal behaviors to identify anomalies and events. |
| Recover comm | Engage public relations to ensure efforts are communicated internally and externally. |

10

## Summary


Identify
AM: Asset Management
BE: Business Environment
GV: Governance
RA: Risk Assessment
RM: Risk Management Strategy
1
Protect
AC: Access Control
AT: Awareness Training
DS: Data Security
IP: Information Protection Processes & Procedures
PT: Protective Technology
2
Recover
RP: Recovery Planning
IM: Improvements
CO: Communications
5
NIST Cyber Security Framework
Respond
RP: Response Planning
CO: Communications
AN: Analysis
MI: Mitigation
IM: Improvements
4
Detect
AE: Anomolies & Events
CM: Security Continuous Monitoring
DP: Detection Processes
3

## Component 2: Implementation Tiers

- The CSF is designed to be useful for all areas of the industry.
- Implementation tiers aid that mission by providing multiple tiers based on your organization risks appetite
- The NIST CSF describes 4 Tiers to aid in implementation
- Tiers are tools to help the organization identify decisions regarding cybersecurity
- Think of Tiers as the preferred outcome of activity

**Cybersecurity Framework Tiers**

**Tier 1 - Partial:**
**Reactive to situations**
**No formalized security process**
**Does not participate in any information sharing activities**

**Tier 2 – Risk Informed:**
**Policies may exist, but are known to only a few key people**
**Threats are recognized, but may not be efficiently communicated to even internal parties**
**Acts upon risks based on external intelligence, but probably not consistently**

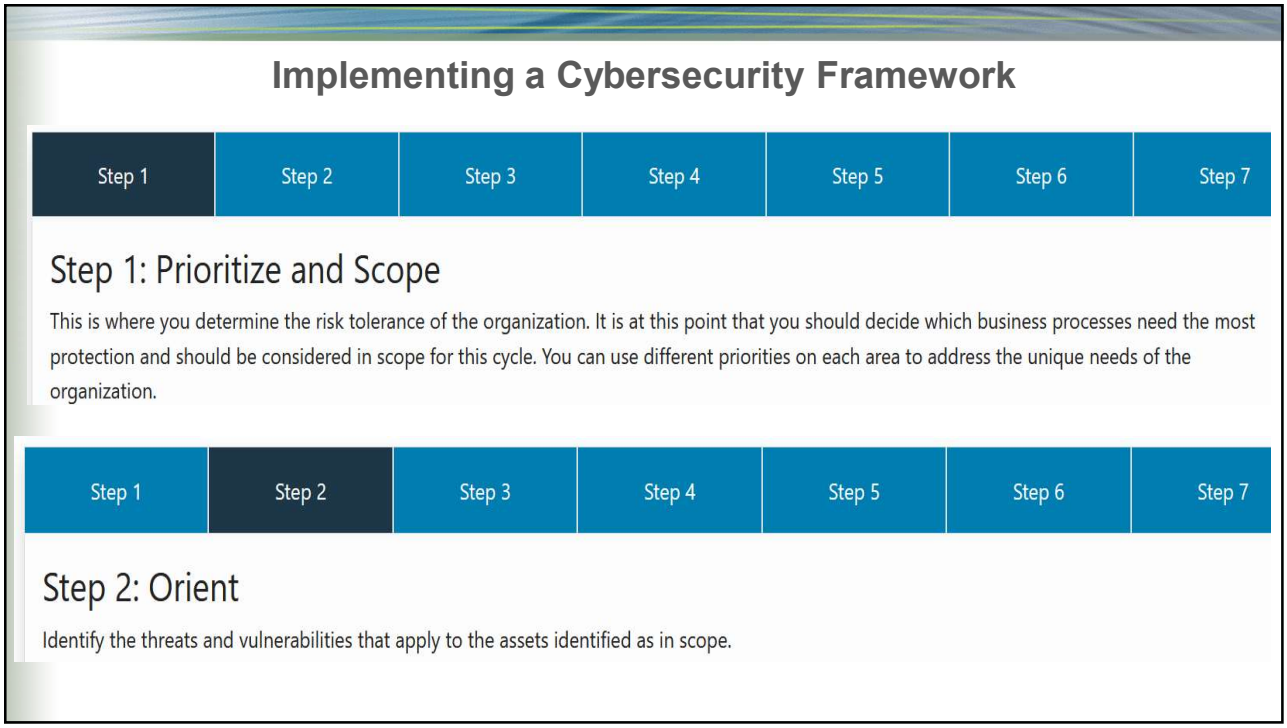
**Tier 3 – Repeatable:**
**Organization has implemented CSF standards**
**Has formal policy that is updated on a regular basis**
**Organization can repeatedly respond to cyber crises**

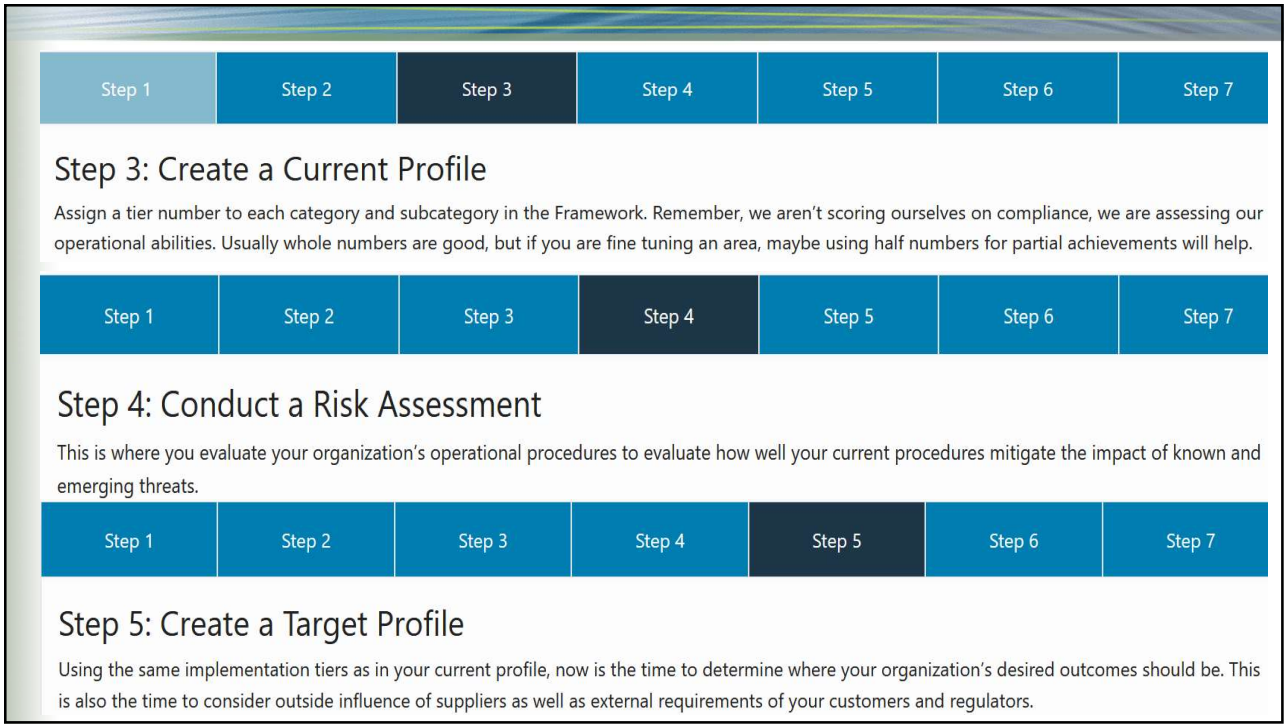
**Tier 4 – Adaptable:**
**Can quickly adapt to new and emerging threats**
**Understands their place in the cyber supply chain and actively works to protect others**
**Risk management is built into culture so everyone is able to recognize risk**

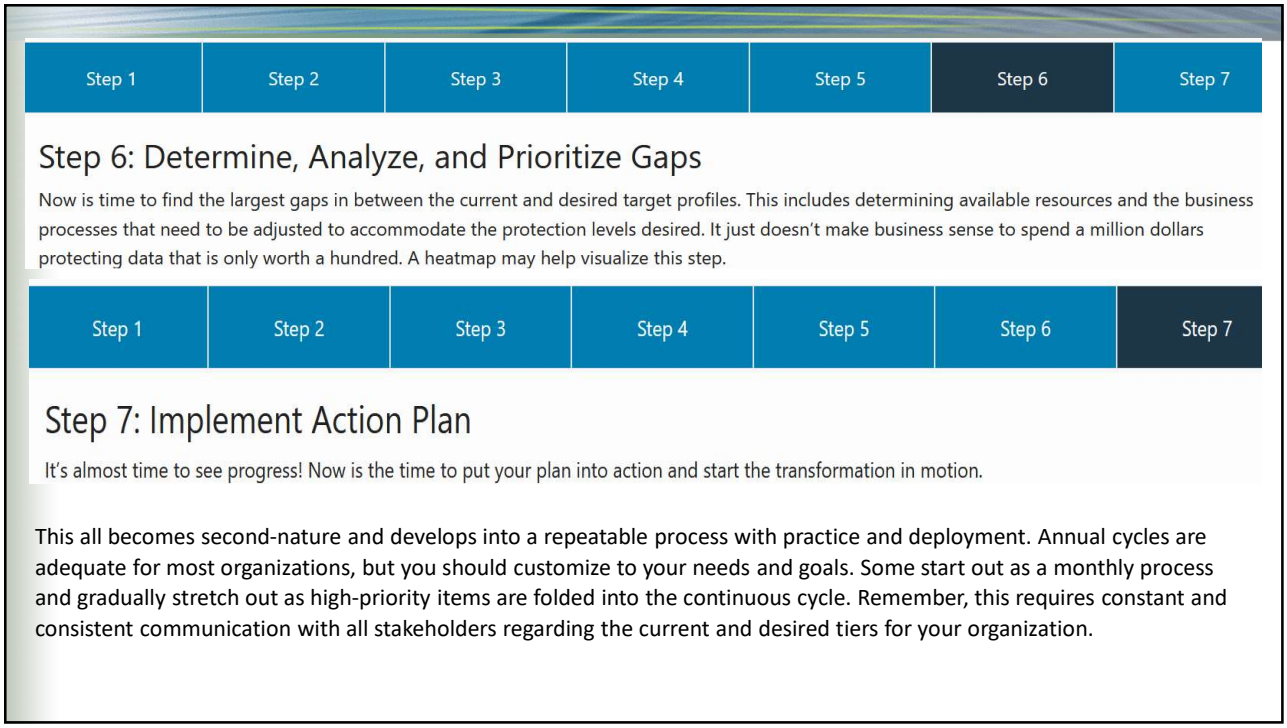
## Component 3: Profiles

Profiles are both outlines of an organization's current cybersecurity status and roadmaps toward CSF goals for protecting critical infrastructure. NIST said having multiple profiles—both current and goal—can help an organization find weak spots in its cybersecurity implementations and make moving from lower to higher tiers easier.

Profiles also help connect the functions, categories and subcategories to business requirements, risk tolerance and resources of the larger organization it serves. Think of profiles as an executive summary of everything done with the previous three elements of the CSF.


Implementing a Cybersecurity Framework
Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
Step 7
Step 1: Prioritize and Scope
This is where you determine the risk tolerance of the organization. It is at this point that you should decide which business processes need the most protection and should be considered in scope for this cycle. You can use different priorities on each area to address the unique needs of the organization.
Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
Step 7
Step 2: Orient
Identify the threats and vulnerabilities that apply to the assets identified as in scope.


Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
Step 7
Step 3: Create a Current Profile
Assign a tier number to each category and subcategory in the Framework. Remember, we aren't scoring ourselves on compliance, we are assessing our operational abilities. Usually whole numbers are good, but if you are fine tuning an area, maybe using half numbers for partial achievements will help.
Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
Step 7
Step 4: Conduct a Risk Assessment
This is where you evaluate your organization's operational procedures to evaluate how well your current procedures mitigate the impact of known and emerging threats.
Step 1
Step 2
Step 3
Step 4
Step 5
Step 6
Step 7
Step 5: Create a Target Profile
Using the same implementation tiers as in your current profile, now is the time to determine where your organization's desired outcomes should be. This is also the time to consider outside influence of suppliers as well as external requirements of your customers and regulators.




This all becomes second-nature and develops into a repeatable process with practice and deployment. Annual cycles are adequate for most organizations, but you should customize to your needs and goals. Some start out as a monthly process and gradually stretch out as high-priority items are folded into the continuous cycle. Remember, this requires constant and consistent communication with all stakeholders regarding the current and desired tiers for your organization.