Free Cyber Tips and Bad Jokes!

@patrickcleary01

SEC REQUIREMENTS FOR CYBERSECURITY: A DIY GUIDE

As Of Date:
11/8/2018

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alpha architect

We Empower Investors Through Education | Affordable Alpha

Objectives

Provide a quick overview of what cybersecurity is

Demonstrate that basic cybersecurity is quite “doable” for RIAs

Provide next steps to build an efficient, effective cybersecurity program

Bottom Line: You can do this!

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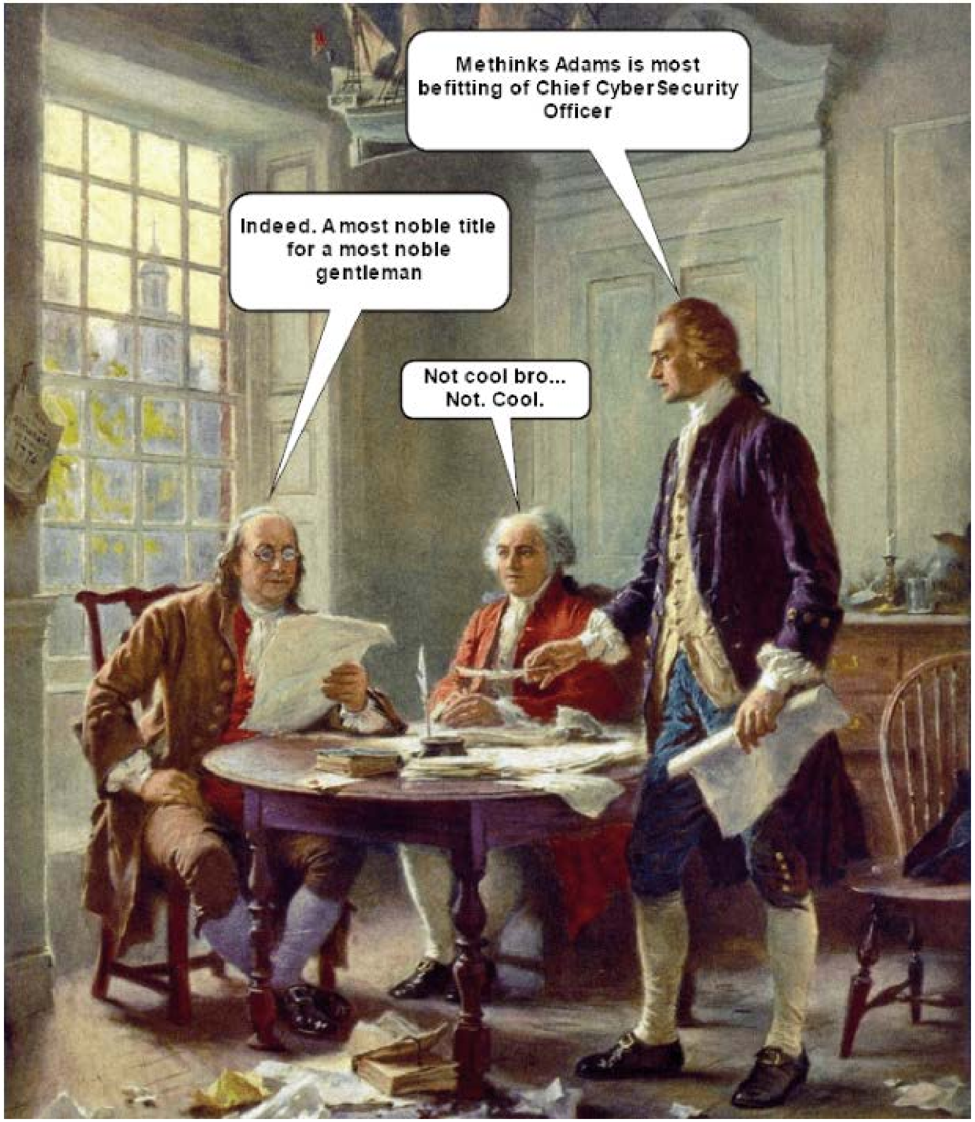
Congrats! You are the Cybersecurity Officer for your firm!!!


Methinks Adams is most befitting of Chief CyberSecurity Officer
Indeed. A most noble title for a most noble gentleman
Not cool bro… Not. Cool.

Source: Wikipedia

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Our Firm Impact Mission and *Passion*:

We Empower Investors Through Education

In order to

Develop ***Sustainable*** Investors

Source: Alpha Architect

You can be a cyber geek! ZERO IT experience in my prior life

Source: Animal House

2000-2004
- Wharton undergrad
- Finance, Accounting, Chipotle
- (Note: I am not John Belushi)

Source: Alpha Architect

2004-2008
- Marine Corps (Combat Engineer)
- Blow stuff up and build stuff
- Tech experience limited to DVD player

Source: Alpha Architect

2008 - today
- Harvard Business School for MBA
- Consultant (Boston Consulting Group
- COO / CCO, Alpha Architect
- Pending MS in Cybersecurity (2019)

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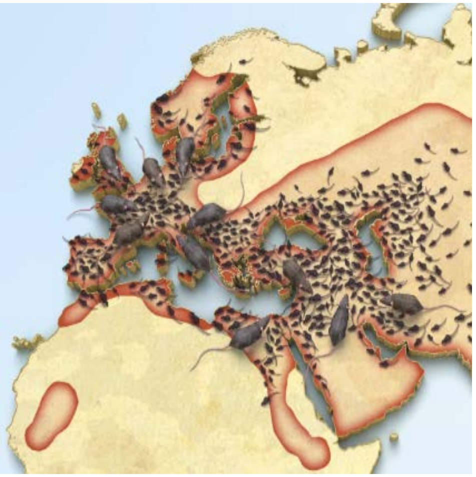
Many scary things can be solved with a simple approach…

Plague



Source: Factinate.com

Source: Amazon.com

Polio

Source: Catalogue archives.gov

Source: vaccines.gov

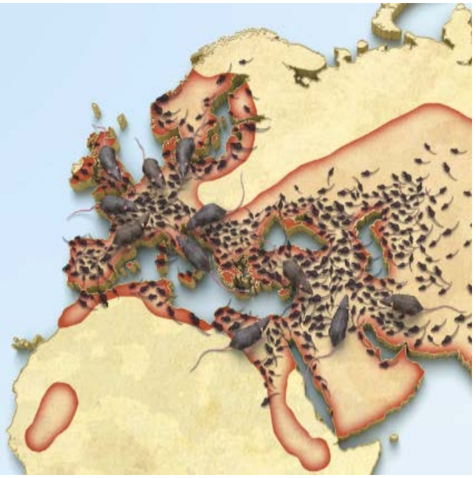
Mother In-law

Source: Quora.com

Source: Aeroflot

…but poor knowledge can create bad solutions

Plague



Source: Factinate.com

“Swallow-eth three turnips whole, lest the plague befall ye”

Polio

Source: Catalogue archives.gov

“Give Oxygen through the lower extremities, by positive electricity”

Mother In-law

Source: Quora.com

“Look honey! This home has an in-law suite!”

Source: Fair use (photos varied)

First – let's define cybersecurity

cybersecurity (sigh-brr-seh-cure-ih-tee)
(noun)

Money pit. A black hole for IT dollars to disappear

Catalyst for converting profits into losses ("lawyer" - synonym)

(sentence) "Tommy, we can't buy groceries this week, we spent all of our food budget on *cybersecurity*"

To be clear, cybersecurity MUST be taken seriously…

Source: Yahoo	2013-2014	3 Bn user accounts
Source: ebay	May, 2014	145 Mn user accounts
Source: SEC	2013	4 Mn security clearance applications
Source: S.W.I.F.T.	Feb, 2016	$101Mn stolen, almost $1Bn

…and regulators are upping their game

Source: SEC

- 2014 Cybersecurity Examination Sweep
- 2015 – Launched Cybersecurity Exam Initiative
- 2016 – EDGAR filing portal hacked. Major political pressure
- 2018 – Fines Voya (BD/IA) $1M for poor cybersecurity controls
- 2018 – warning companies to enhance cyber controls or risk violating federal law

“I’m just getting warmed up!”

Source: Scent of a Woman Fair Use. Al Pacino does not, nor has he, work at the SEC’s cybersecurity unit

No shortage of third party solutions for Advisors…

You need cyber insurance custom tailored for Advisors

These computers are obsolete, you need new ones!

You need a special server room with onsite monitoring!

You definitely need legal opinions here

Have you considered our cyber consulting practice?

Try our turnkey compliance portal

We have special encryption tools just for you

We handle all aspects of vendor management

You need our WHAM-O cloud service

Try our cutting edge SEC cyber exam simulator

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Source: Wikipedia – Danny Devito is not a cyber consultant

How about a different approach?

Common sense

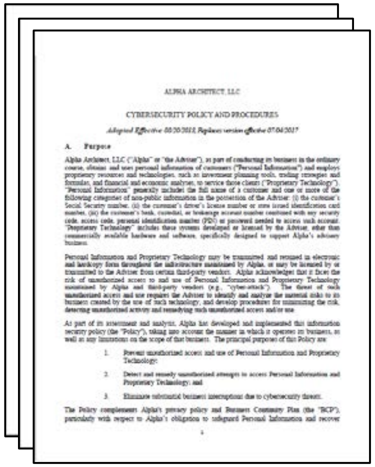
Low cost

Robust

Use vendors as needed, but not by default

A robust cybersecurity program rests on three elements

Cybersecurity Manual



ALPHA ARCHITECT, LLC

CYBERSECURITY POLICY AND PROCEDURES

Adopted Effective 08/20/2018; Replaces version effective 07/04/2017

A. Purpose

Alpha Architect, LLC ("Alpha" or "the Adviser"), as part of conducting its business in the ordinary course, obtains and uses personal information of customers ("Personal Information") and employs proprietary resources and technologies, such as investment planning tools, trading strategies and formulas, and financial and economic analyses, to service those clients ("Proprietary Technology"). "Personal Information" generally includes the full name of a customer and one or more of the following categories of non-public information in the possession of the Adviser: (i) the customer's Social Security number, (ii) the customer's driver's license number or state issued identification card number, (iii) the customer's bank, custodial, or brokerage account number combined with any security code, access code, personal identification number (PIN) or password needed to access such account. "Proprietary Technology" includes those systems developed or licensed by the Adviser, other than commercially available hardware and software, specifically designed to support Alpha's advisory business.

Personal Information and Proprietary Technology may be transmitted and retained in electronic and hardcopy form throughout the infrastructure maintained by Alpha, or may be licensed by or transmitted to the Adviser from certain third-party vendors. Alpha acknowledges that it faces the risk of unauthorized access to and use of Personal Information and Proprietary Technology maintained by Alpha and third-party vendors (e.g., "cyber-attack"). The threat of such unauthorized access and use requires the Adviser to identify and analyze the material risks to its business created by the use of such technology, and develop procedures for minimizing the risk, detecting unauthorized activity and remedying such unauthorized access and/or use.

As part of its assessment and analysis, Alpha has developed and implemented this information security policy (the "Policy"), taking into account the manner in which it operates its business, as well as any limitations on the scope of that business. The principal purposes of this Policy are:

1. Prevent unauthorized access and use of Personal Information and Proprietary Technology;
2. Detect and remedy unauthorized attempts to access Personal Information and Proprietary Technology; and
3. Eliminate substantial business interruptions due to cybersecurity threats.

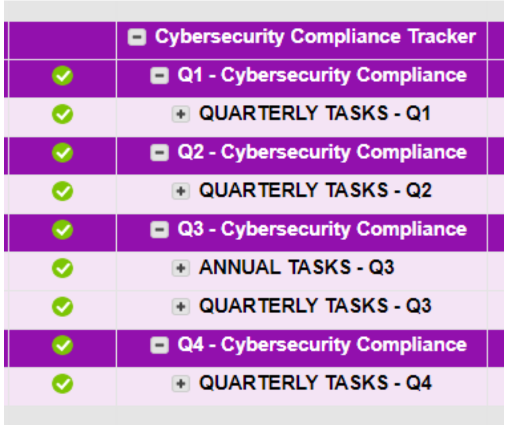
The Policy complements Alpha's privacy policy and Business Continuity Plan (the "BCP"), particularly with respect to Alpha's obligation to safeguard Personal Information and recover

4

Source: *Alpha Architect, FINRA*

What we do

Enabling Processes

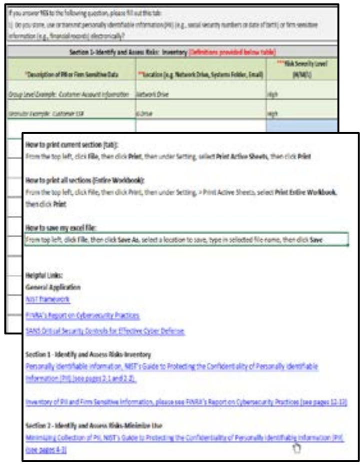


	⊟ Cybersecurity Compliance Tracker
✓	⊟ Q1 - Cybersecurity Compliance
✓	⊞ QUARTERLY TASKS - Q1
✓	⊟ Q2 - Cybersecurity Compliance
✓	⊞ QUARTERLY TASKS - Q2
✓	⊟ Q3 - Cybersecurity Compliance
✓	⊞ ANNUAL TASKS - Q3
✓	⊞ QUARTERLY TASKS - Q3
✓	⊟ Q4 - Cybersecurity Compliance
✓	⊞ QUARTERLY TASKS - Q4

Source: *Alpha Architect, FINRA*

How we do it

Risk Assessment



If you answer YES to the following question, please fill out this tab:

1) Do you store, use or transmit personally identifiable information (PII) (e.g., social security numbers or date of birth) or firm sensitive information (e.g., financial records) electronically?

Section 1- Identify and Assess Risks: Inventory (Definitions provided below table)

*Description of PII or Firm Sensitive Data	**Location (e.g. Network Drive, Systems Folder, Email)	***Risk Severity Level (H/M/L)
Group Level Example: Customer Account Information	Network Drive	High
Granular Example: Customer SSN	G: Drive	High

How to print current section (tab):
From the top left, click **File**, then click **Print**, then under Setting, select **Print Active Sheets**, then click **Print**

How to print all sections (Entire Workbook):
From the top left, click File, then click Print, then under Setting, > Print Active Sheets, select **Print Entire Workbook**, then click **Print**

How to save my excel file:
From top left, click File, then click **Save As**, select a location to save, type in selected file name, then click **Save**

Helpful Links:
General Application
NIST Framework
FINRA's Report on Cybersecurity Practices
SANS Critical Security Controls for Effective Cyber Defense

Section 1 - Identify and Assess Risks-Inventory
Personally Identifiable Information, NIST's Guide to Protecting the Confidentiality of Personally Identifiable Information (PII) (see pages 2-1 and 2-2).

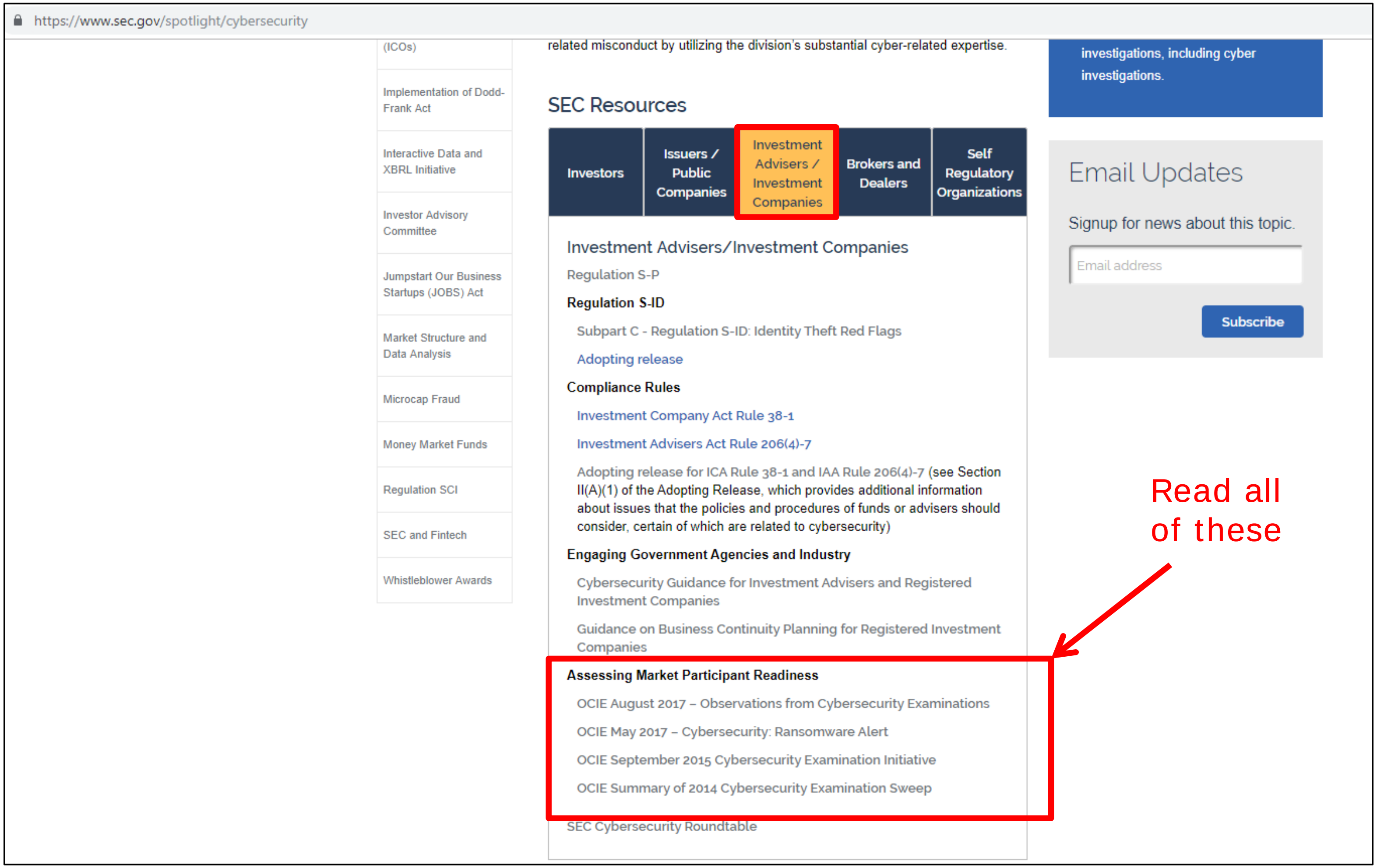
Inventory of PII and Firm Sensitive Information, please see FINRA's Report on Cybersecurity Practices (see pages 12-13)

Section 2 - Identify and Assess Risks-Minimize Use
Minimizing Collection of PII, NIST's Guide to Protecting the Confidentiality of Personally Identifiable Information (PII) (see pages 4-3)

Source: *Alpha Architect, FINRA*

How we get better

Step 1: Go to SEC and learn what the standards are



https://www.sec.gov/spotlight/cybersecurity

(ICOs)

Implementation of Dodd-Frank Act

Interactive Data and XBRL Initiative

Investor Advisory Committee

Jumpstart Our Business Startups (JOBS) Act

Market Structure and Data Analysis

Microcap Fraud

Money Market Funds

Regulation SCI

SEC and Fintech

Whistleblower Awards

related misconduct by utilizing the division's substantial cyber-related expertise.

investigations, including cyber investigations.

SEC Resources

Investors
Issuers / Public Companies
Investment Advisers / Investment Companies
Brokers and Dealers
Self Regulatory Organizations

Investment Advisers/Investment Companies

Regulation S-P

Regulation S-ID

Subpart C - Regulation S-ID: Identity Theft Red Flags

Adopting release

Compliance Rules

Investment Company Act Rule 38-1

Investment Advisers Act Rule 206(4)-7

Adopting release for ICA Rule 38-1 and IAA Rule 206(4)-7 (see Section II(A)(1) of the Adopting Release, which provides additional information about issues that the policies and procedures of funds or advisers should consider, certain of which are related to cybersecurity)

Engaging Government Agencies and Industry

Cybersecurity Guidance for Investment Advisers and Registered Investment Companies

Guidance on Business Continuity Planning for Registered Investment Companies

Assessing Market Participant Readiness

OCIE August 2017 – Observations from Cybersecurity Examinations

OCIE May 2017 – Cybersecurity: Ransomware Alert

OCIE September 2015 Cybersecurity Examination Initiative

OCIE Summary of 2014 Cybersecurity Examination Sweep

SEC Cybersecurity Roundtable

Email Updates

Signup for news about this topic.

Read all of these

Source: SEC

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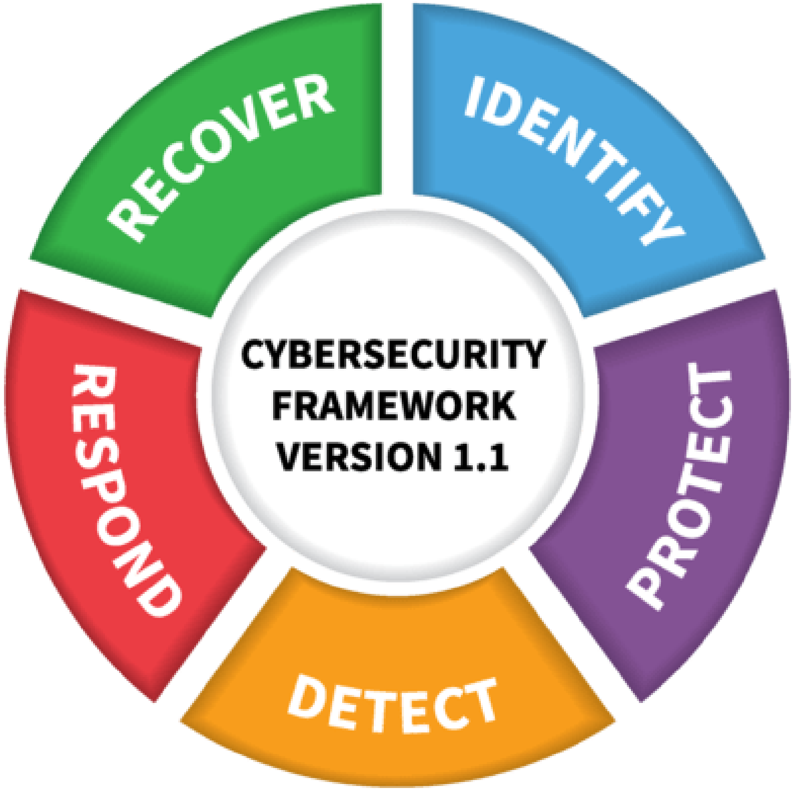
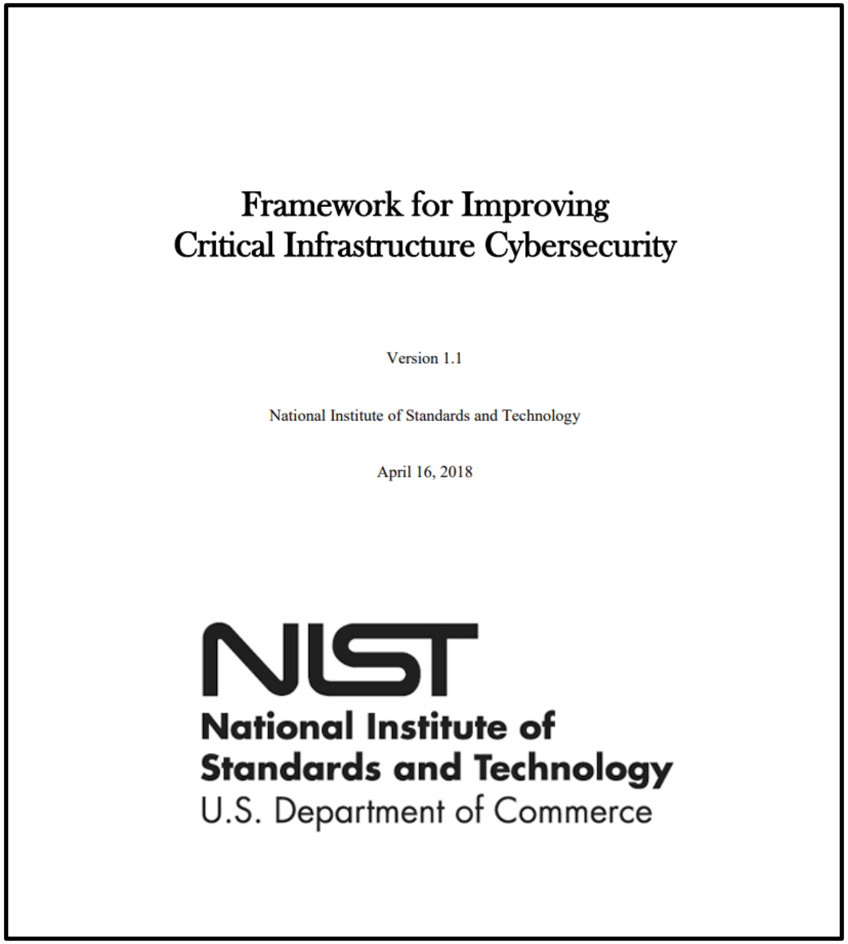
https://www.sec.gov/spotlight/cybersecurity

Step 2: Go to NIST cybersecurity section, read framework



Source: NIST


Framework for Improving
Critical Infrastructure Cybersecurity

Version 1.1

National Institute of Standards and Technology

April 16, 2018

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

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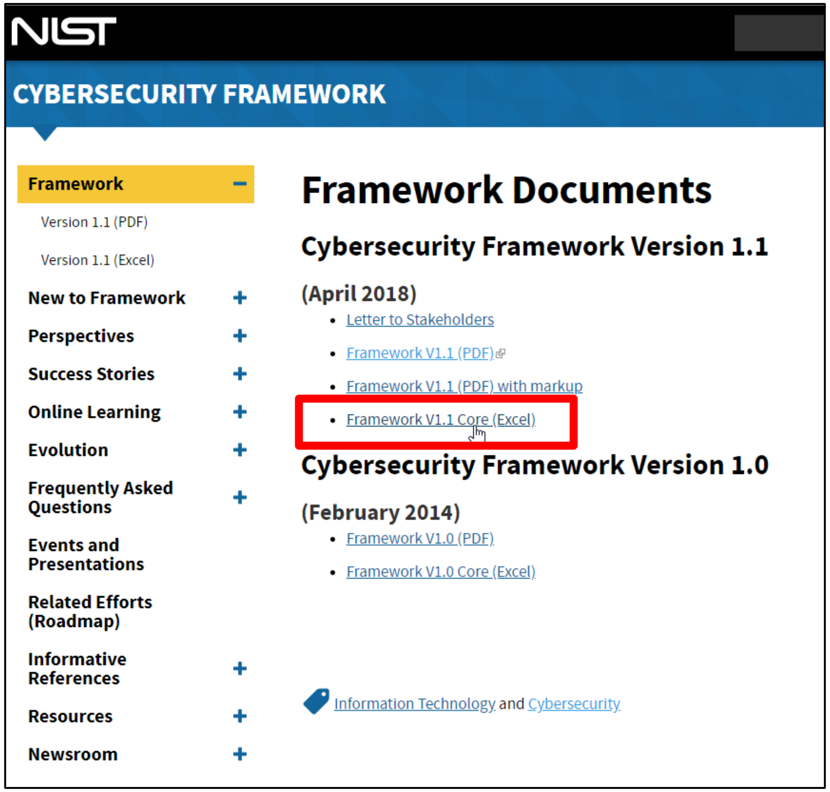
https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf

Step 3: Export NIST framework and write your manual



NIST

CYBERSECURITY FRAMEWORK

- Framework −
  - Version 1.1 (PDF)
  - Version 1.1 (Excel)
- New to Framework +
- Perspectives +
- Success Stories +
- Online Learning +
- Evolution +
- Frequently Asked Questions +
- Events and Presentations
- Related Efforts (Roadmap)
- Informative References +
- Resources +
- Newsroom +

Framework Documents

Cybersecurity Framework Version 1.1

(April 2018)

- Letter to Stakeholders
- Framework V1.1 (PDF)
- Framework V1.1 (PDF) with markup
- Framework V1.1 Core (Excel)

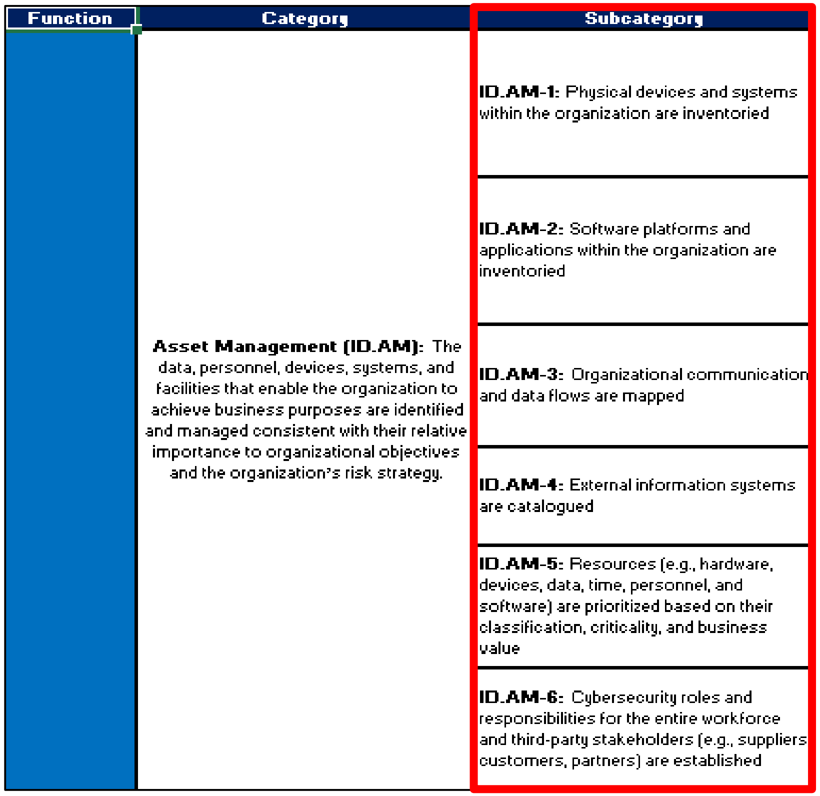
Cybersecurity Framework Version 1.0

(February 2014)

- Framework V1.0 (PDF)
- Framework V1.0 Core (Excel)

Information Technology and Cybersecurity

Download Excel Version from NIST website…



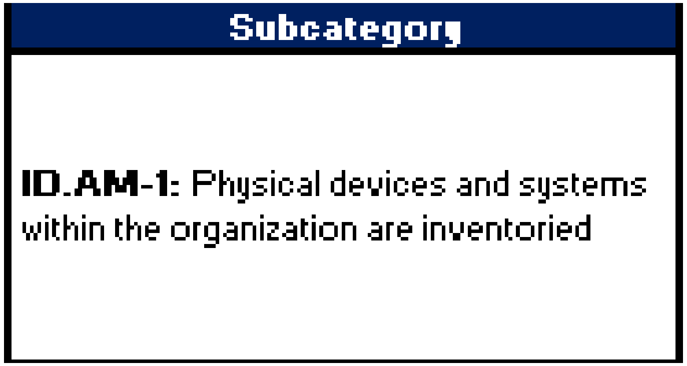
Function	Category	Subcategory
	Asset Management (ID.AM): The data, personnel, devices, systems, and facilities that enable the organization to achieve business purposes are identified and managed consistent with their relative importance to organizational objectives and the organization's risk strategy.	**ID.AM-1:** Physical devices and systems within the organization are inventoried
		ID.AM-2: Software platforms and applications within the organization are inventoried
		ID.AM-3: Organizational communication and data flows are mapped
		ID.AM-4: External information systems are catalogued
		ID.AM-5: Resources (e.g., hardware, devices, data, time, personnel, and software) are prioritized based on their classification, criticality, and business value
		ID.AM-6: Cybersecurity roles and responsibilities for the entire workforce and third-party stakeholders (e.g., suppliers, customers, partners) are established

…and write a step that meets each subcategory

Source: NIST

https://nvlpubs.nist.gov/nistpubs/CSWP/NIST.CSWP.04162018.pdf

Step 3 (example): “ID.AM-1” – inventory of physical assets

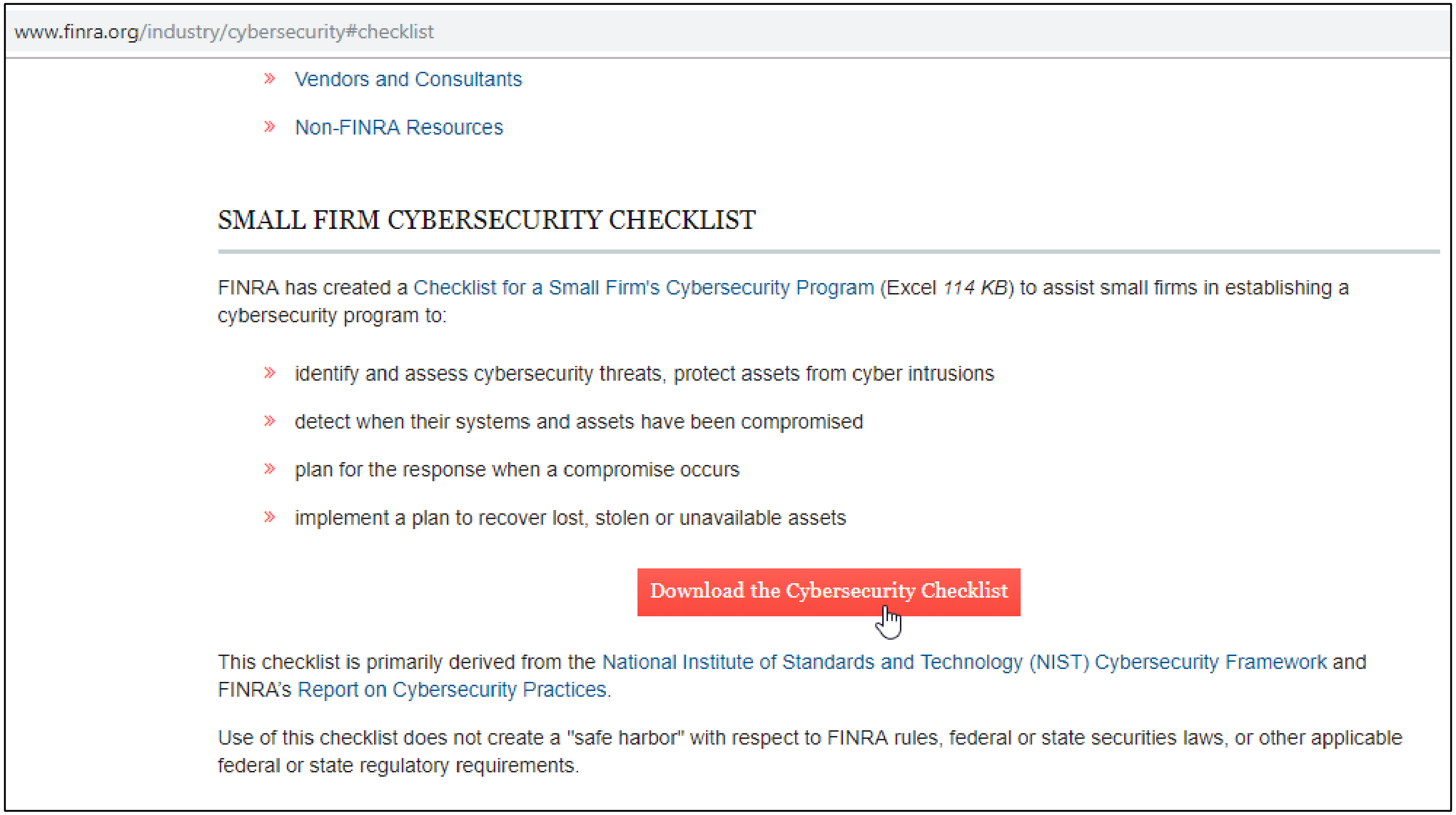


Subcategory
ID.AM-1: Physical devices and systems within the organization are inventoried

Source: NIST

“Acme Advisors will inventory all desktops, laptops, and mobile phones annually and check inventory monthly.”

Step 4: Download the FINRA small firm cybersecurity checklist



www.finra.org/industry/cybersecurity#checklist

- Vendors and Consultants
- Non-FINRA Resources

SMALL FIRM CYBERSECURITY CHECKLIST

FINRA has created a Checklist for a Small Firm's Cybersecurity Program (Excel *114 KB*) to assist small firms in establishing a cybersecurity program to:

- identify and assess cybersecurity threats, protect assets from cyber intrusions
- detect when their systems and assets have been compromised
- plan for the response when a compromise occurs
- implement a plan to recover lost, stolen or unavailable assets

This checklist is primarily derived from the National Institute of Standards and Technology (NIST) Cybersecurity Framework and FINRA's Report on Cybersecurity Practices.

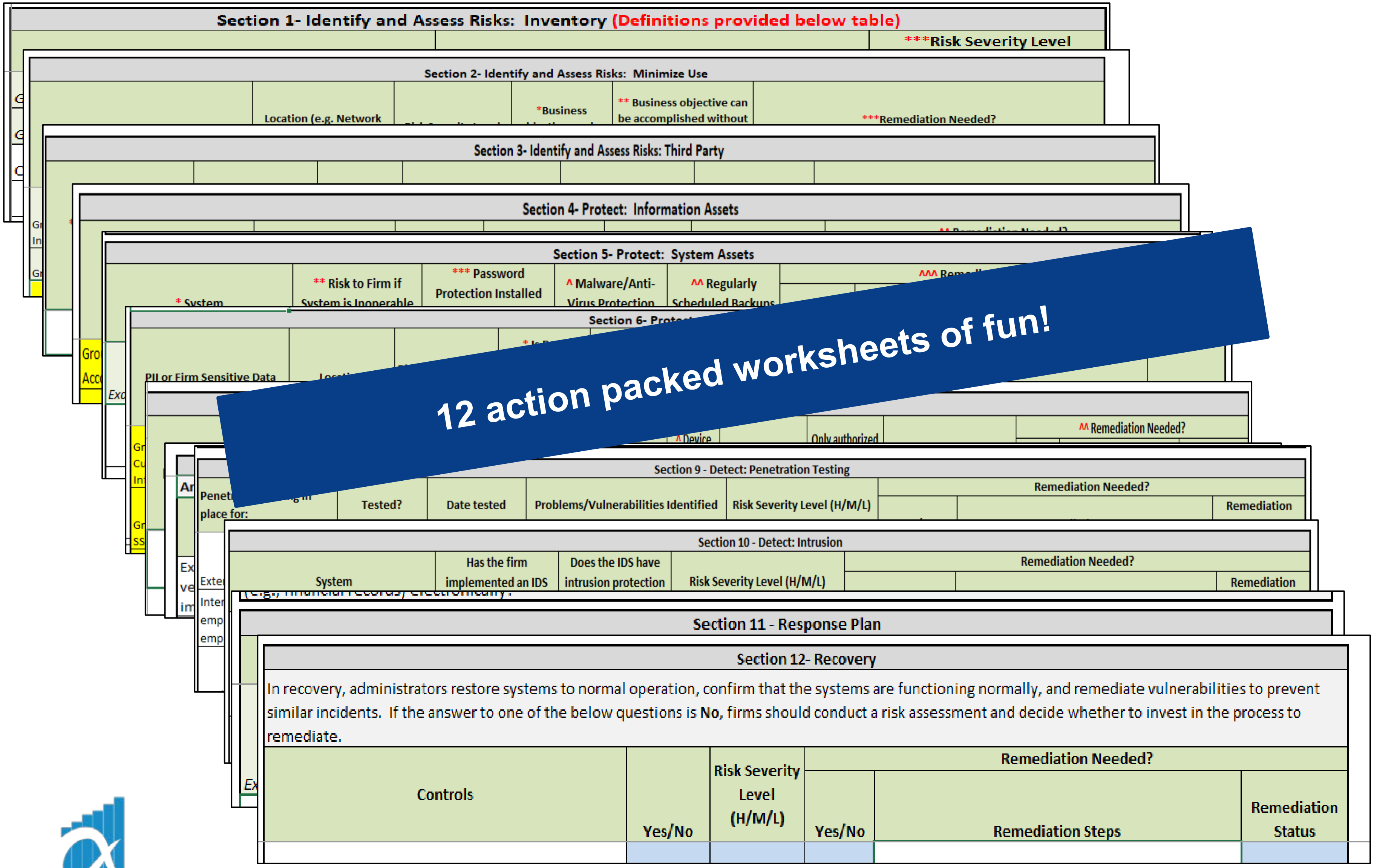
Use of this checklist does not create a "safe harbor" with respect to FINRA rules, federal or state securities laws, or other applicable federal or state regulatory requirements.

Source: FINRA

This is your risk assessment

http://www.finra.org/industry/cybersecurity#checklist

Step 5: Complete the checklist and identify gaps / needs



12 action packed worksheets of fun!

Section 1- Identify and Assess Risks: Inventory (Definitions provided below table)

***Risk Severity Level

Section 2- Identify and Assess Risks: Minimize Use

Location (e.g. Network

*Business

** Business objective can be accomplished without

***Remediation Needed?

Section 3- Identify and Assess Risks: Third Party

Section 4- Protect: Information Assets

Section 5- Protect: System Assets

* System

** Risk to Firm if System is Inoperable

*** Password Protection Installed

^ Malware/Anti-Virus Protection

^^ Regularly Scheduled Backups

Section 6- Prot

PII or Firm Sensitive Data

^ Remediation Needed?

Section 9 - Detect: Penetration Testing

Penet… place for:	Tested?	Date tested	Problems/Vulnerabilities Identified	Risk Severity Level (H/M/L)	Remediation Needed?		
							Remediation

Section 10 - Detect: Intrusion

System	Has the firm implemented an IDS	Does the IDS have intrusion protection	Risk Severity Level (H/M/L)	Remediation Needed?		
						Remediation

Section 11 - Response Plan

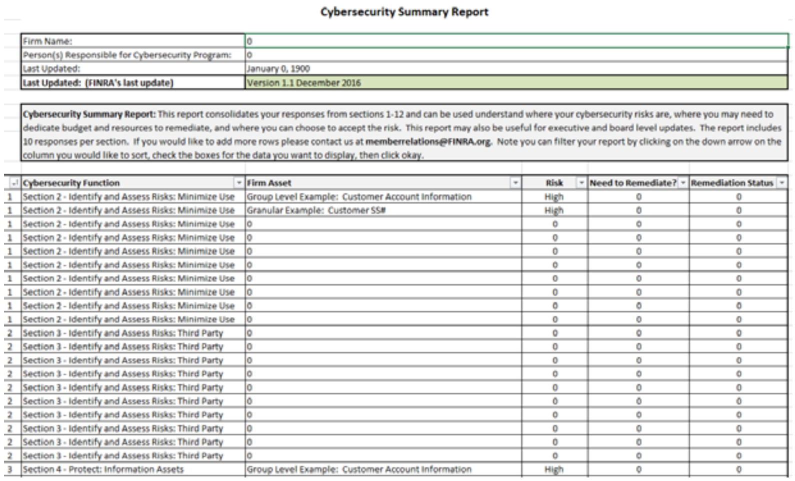
Section 12- Recovery

In recovery, administrators restore systems to normal operation, confirm that the systems are functioning normally, and remediate vulnerabilities to prevent similar incidents. If the answer to one of the below questions is **No**, firms should conduct a risk assessment and decide whether to invest in the process to remediate.

Controls	Yes/No	Risk Severity Level (H/M/L)	Remediation Needed?		
			Yes/No	Remediation Steps	Remediation Status

Source: FINRA

Step 5: Checklist generates a list of “to-dos” → do them!



Cybersecurity Summary Report

Firm Name:	0
Person(s) Responsible for Cybersecurity Program:	0
Last Updated:	January 0, 1900
Last Updated: (FINRA's last update)	Version 1.1 December 2016

Cybersecurity Summary Report: This report consolidates your responses from sections 1-12 and can be used understand where your cybersecurity risks are, where you may need to dedicate budget and resources to remediate, and where you can choose to accept the risk. This report may also be useful for executive and board level updates. The report includes 10 responses per section. If you would like to add more rows please contact us at **memberrelations@FINRA.org**. Note you can filter your report by clicking on the down arrow on the column you would like to sort, check the boxes for the data you want to display, then click okay.

	Cybersecurity Function	Firm Asset	Risk	Need to Remediate?	Remediation Status
1	Section 2 - Identify and Assess Risks: Minimize Use	Group Level Example: Customer Account Information	High	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	Granular Example: Customer SS#	High	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
1	Section 2 - Identify and Assess Risks: Minimize Use	0	0	0	0
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
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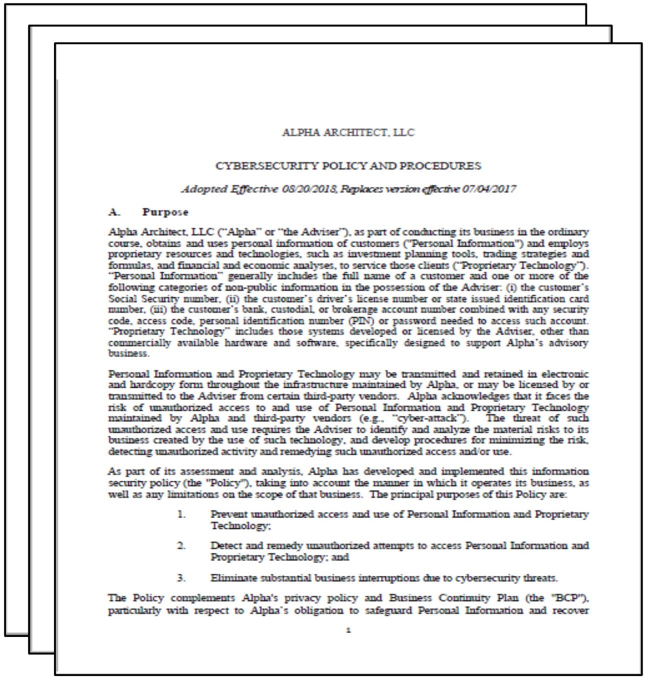
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
2	Section 3 - Identify and Assess Risks: Third Party	0	0	0	0
3	Section 4 - Protect: Information Assets	Group Level Example: Customer Account Information	High	0	0

Source: FINRA, Alpha Architect

Summary Report tells you what you should fix / improve



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1

Source: Alpha Architect, FINRA

Be sure to update your cybersecurity manual too!

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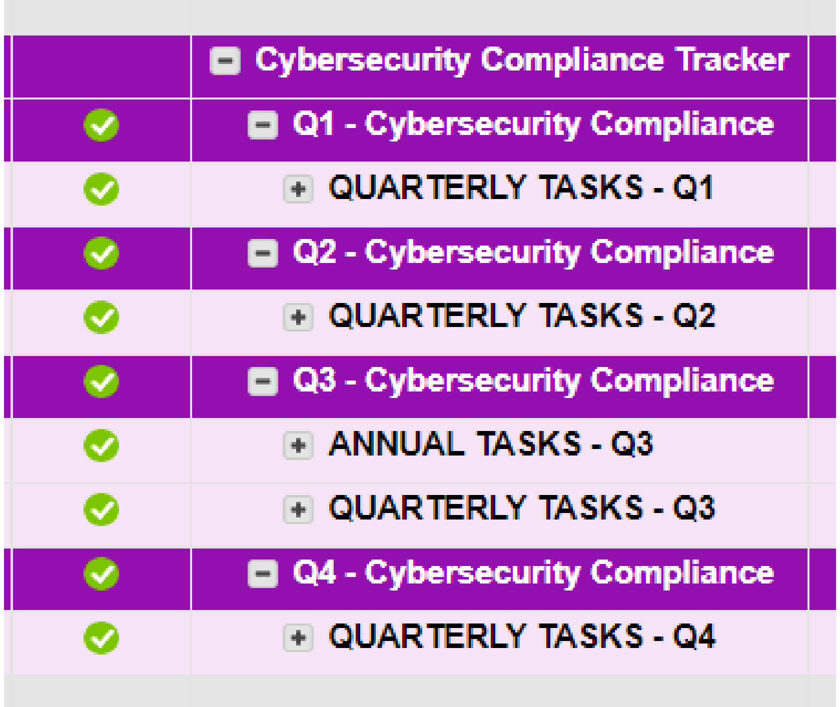
Step 5: Lots of low hanging fruit to help you!

Compliance Manual?	▶	NIST Framework (Excel)
Risk Assessment?	▶	FINRA Small Firm Checklist
Encryption?	▶	Windows Bitlocker (on!!!)
2 Factor?	▶	Google Suite (on!!!)
Updates / Patches?	▶	Windows Defender (on!!!)
Cloud?	▶	Google Drive (FedRamp'd!)
Network security?	▶	Buy a new router!
Vendor Management	▶	SOC-2? Ask helpdesk?
Network Map?	▶	PowerPoint and elbow grease
Alerts?	▶	DHS Cert Listserve

Step 6: Implement a simple process to carry out your manual



	⊟ Cybersecurity Compliance Tracker
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✓	⊞ QUARTERLY TASKS - Q3
✓	⊟ Q4 - Cybersecurity Compliance
✓	⊞ QUARTERLY TASKS - Q4

Source: Alpha Architect, FINRA

I *Go through your manual, highlight key "to do" items*

II *Write down these steps, with calendar reminders*

III *Have "sign-off" process to document completion*

This can be a high tech solution or low tech solution

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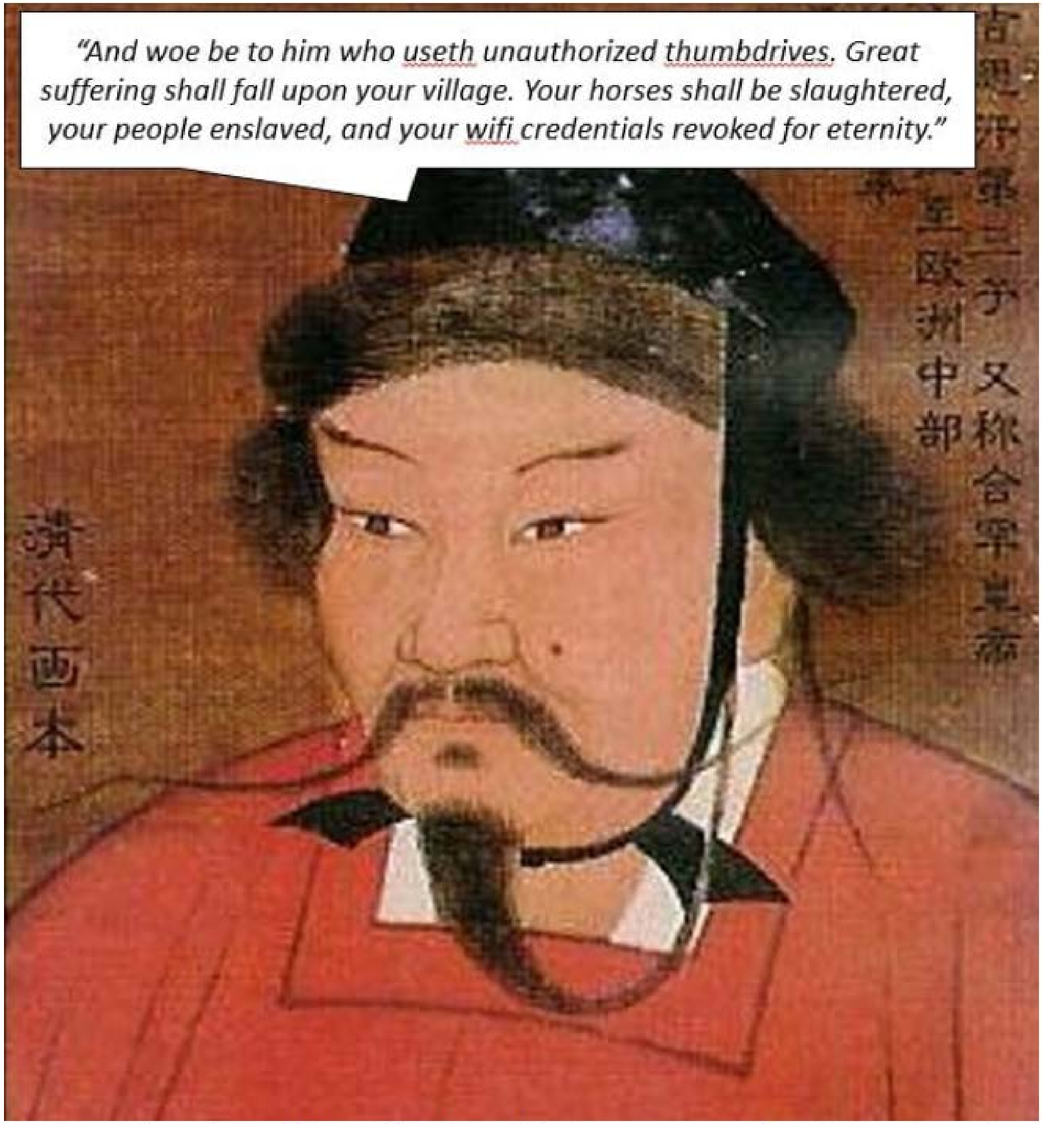
Step 7: Train your employees!!!


"And woe be to him who useth unauthorized thumbdrives. Great suffering shall fall upon your village. Your horses shall be slaughtered, your people enslaved, and your wifi credentials revoked for eternity."
古思汗第三子 又称合罕皇帝
至欧洲中部
清代画本

Ogadai Khan, Second Khan of the Mongol Empire, conqueror of the Jin Dynasty, and Cybersecurity Overlord of All that is Living, pictured here during an annual cybersecurity training module given to Mongolian forces (c. 1231 AD).

Source: Wikipedia

A few blog posts to help

How to build an Investment Advisor Cybersecurity program

SEC Cybersecurity Requirements for RIAs

Vendor Management and Cybersecurity Compliance for RIAs

Penetration Testing for Financial Advisors

Key takeaways

Read the NIST framework – the SEC reads it too

Writing your manual = knowing your manual

Low hanging fruit can get 80% of the tech covered

Documentation of processes is critical

Use common sense – do you need an SSN for KYC?

Learning is cumulative. You don’t need to be an expert day one

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