DATA ASSURED

Cyber Workbook

MARICOPA COMMUNITY COLLEGES

AMERICA'S SBDC ARIZONA

A NOTE FROM THE MARICOPA SBDC

Dear Small Business Owner,

The largest threat currently facing your small businesses is cybersecurity. Small-to medium-sized businesses are particularly at risk because they are viewed by hackers as easier to penetrate due to their general lack of awareness and resources. Small businesses can no longer afford to remain unaware of the threats or remain complacent with inadequate technology.

Business Owners have to take action to enhance their systems, processes, and staffing in order to remain viable in today's online economy. You are not alone, however. The Maricopa Small Business Development Center (Maricopa SBDC), part of the Arizona Small Business Development Center Network (AZSBDC) can help you prepare and guard against potential security breaches.

For over 30 years, the AZSBDC has been helping Arizona entrepreneurs launch, grow, and sustain Arizona small businesses. By keeping our finger on the pulse of today's rapid economic and technological changes, we have adapted our advising approaches and educational offerings to meet the unique needs of Arizona's small business community.

The information within this workbook is a starting point for your planning and should be updated regularly. As the cyber landscape continues to change rapidly, so must your business strategy and operations. As mentioned earlier, the Maricopa SBDC is here to help. If you would like to continue your learning beyond this workbook, we encourage you to visit our website where you will find upcoming events, local resource partners, and much more. The website is:

http://www.maricopa-sbdc.com/training/cyber/

Don't wait for a cyber-attack on your small business to occur. Call today to schedule an appointment with a Maricopa SBDC Business Counselor. Please go to http://www.maricopa-sbdc.com to request one-on-one, confidential, no-fee counseling with one of our Certified Business Advisors or call (480) 784-0590 for additional assistance.

Warmest regards,

Nancy Sanders
Regional Center Director
Maricopa Small Business Development Center

Executive Summary

Technology is a double-edged sword. On the one hand, it creates productivity and business opportunities never seen before. On the other it can allow remote users access to an entire business, enabling them to take it down with a few keystrokes. With fewer employees than ever, technology can allow small businesses to directly compete with medium and large firms. Federal, State, and Industry regulators have decided that the threats posed by malicious actors in cyberspace must be addressed. For the small business owner, responding to new regulatory demands to protect business and client data is essential. This is not just a matter of following the rules, nor illustrating to your clients and customers that their safety and security matters, but it is a matter of outright survival of your company should it experience a breach. Many businesses cannot afford the legal, regulatory, and forensic hassles that accompany a breach of systems exposing client or internal information, let alone the loss of trust from a client or customer base.

For the small businesses of the world, security is vital to survival.

The threat beyond regulatory concerns is significant. The Criminals, Competitors, Hacktivists, and State-Sponsored Terrorists are targeting you for several reasons:

- Do you have a relationship or dependency with a larger company who may be a target? You could be an easy access point along their path.
- Are you a retailer, health care provider, or financial firm who utilizes credit card payment and or aggregates client information? The type of business you are in may increase your risk profile and attack surface.

Bad actors believe smaller companies with less resources for both physical and digital security are a ripe target for attack. Let's prove them wrong together.

Security does not have to mean reduced productivity and increased operational costs. In fact, it can mean quite the opposite. With strong security, Bring-Your-Own-Device and other relaxed work policies can allow employees to be far more productive, increasing efficiency and saving on IT costs.

The increased productivity from effective security can far outweigh its cost.

Given this landscape of both business and regulatory threats, what can, and should a small business owner do? It is paramount for the small business owner, in the absence of vast personnel and funding, to have precise controls and solid policies in place.

The Data Assured program can help you keep it simple and effective.

Purpose

The Data Assured Cybersecurity Workbook is designed to provide the small business with a guide for creating a Written Information Security Program (WISP). Seemingly complicated at first, the essence of a WISP defines a reasonable program for handling cybersecurity within your organization. You'll need to review written items on a regular basis, but beyond that, maintenance of a WISP is a simple process that grows with your business.

This document will guide you through each of the sections of your company's WISP and leave you with a working program. This program will require adjustments going forward, and you may also wish to expand it based upon your business's unique circumstances. It is key to note that this workbook is just a starting point to develop your cybersecurity measures.

It is meant to guide your thinking and help you develop a security mindset. You must make security your own and live it day in and day out at your business.

Intended Audience

The Data Assured workbook is primarily designed for the small business that typically does not have a Chief Information Security Officer (CISO) or enough headcount to form cybersecurity committees.

Some of the advice and pointers offered in this workbook will have applicability to solopreneurs who have little to no actual infrastructure and very little in the way of retained data.

For the small company that has some headcount but maybe isn't sure where to start, we offer that all of the pointers contained herein will benefit you if applied to your daily business. As your business will undoubtedly grow, you will be in a good place to help your employees understand and embrace their role with respect to cybersecurity.

For the medium company, you many find many topics here that have not been thoroughly explored and acted upon in your day to day business. This can serve as material to train employees on the importance of cybersecurity, and ensure the security of your operations.

On the opposite end of the spectrum, large companies may find some of the information contained herein to be of an introductory nature. This workbook can be used as a communications tool within your organization. It is designed to be simple enough that you don't have to be an "IT Person" to understand it. You can simply define all of the points we list herein for your firm. Then take the opportunity to explain the work that you're doing to your senior managers. Let them know what's going on in the company. If you find that there are some items here that you can't answer easily – you have just discovered items that will help you further secure your business!

Difficulty

Easy Medium *(You can do this!)* Hard

One caveat here for all businesses – as we have said, this workbook is a starting point that you can use to help define your cybersecurity practices. It cannot prevent breach on its own nor will it be able to answer specific questions about your network or your legal liability. We recommend, if you have questions that are highly specialized and unique, you consult a security/IT vendor who may be able to help you, or in the question of liability, a qualified lawyer.

What is the Basis of This Workbook?

In 2013, the Federal Government formally addressed the issue of cybersecurity in the wake of several high-profile, front-page news breaches. The outcome of this was the Framework for Improving Critical Infrastructure Cybersecurity (or Cybersecurity Framework, the "CSF"), published by the National Institute of Standards and Technology, a division of the Commerce Department.

The complex naming conventions belie the actual simplicity of what it attempted to do. A framework is really just a list of suggested activities that your company can think about as a form of guidance for how to address cybersecurity.

Pretty simple, right?

Since the CSF was published in February of 2014, almost every significant regulatory agency has referenced it, typically in light of being an effective starting point for addressing cybersecurity. The CSF itself has gone on to enjoy success in businesses of all sizes and across all industries, because of its flexibility. When it first published the Framework, NIST stated clearly that it was to be adapted, expanded, contracted, and used as a form of guidance.

The Data Assured workbook and, by extension, your cybersecurity practices are based upon the 5 central concepts of the NIST Cybersecurity Framework:

STEP 1 **IDENTIFY**	Can you identify the assets and systems that are susceptible to cyber threats?
STEP 2 **PROTECT**	What basic practices do you have in place to protect your systems and assets?
STEP 3 **DETECT**	What do you use to detect someone or something malicious?
STEP 4 **RESPOND**	How will you deal with a breach if and when it occurs?
STEP 5 **RECOVER**	How will you restore your business back to normal after a breach?

Using this Workbook

In order to make this process as user-friendly as possible, we have included blank spaces for you to fill in your information and create a customized Written Information Security Program.

NOTE:

This workbook is general in nature and attempts to provide best practices for all businesses. Your business may have specific requirements if it retains certain types of information, such as Payment Card Information (PCI) and/or Personal Health Information (PHI). Make sure to address these information specific requirements as well as the items contained herein.

If you hit a stumbling block somewhere along the way, reach out to us at:

Main Office
GateWay Community College
108 N. 40th Street South Building
Phoenix, AZ 85034
480-784-0590

Chandler Chamber of Commerce
25 S. Arizona Pl.
Chandler, AZ 85225

Chandler-Gilbert Community College
Sun Lakes Center
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Chandler, AZ 85248
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City of Peoria
Peoria Chamber of Commerce
8385 W Mariners Way Ste 3
Peoria, AZ 85382
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STEP 1
IDENTIFY

Who, What, Where, and When?

Why Do This?

Identifying the threat is the most fundamental part in protecting against it. Specifically, identifying all the pieces that make up your network that are susceptible to attacks gives you the advantage you need to protect and/or recover.

Identify Who is Responsible for Cybersecurity

Here is the simplest starting point. Who makes the calls when it comes to the security of the company? If you are filling out this workbook for a small company, chances are it is you, but there may be someone else who takes the security lead.

Name of Person Responsible for Cybersecurity:

Identify Outside Consultants

Is there anyone outside of your company that you might turn to in order to help with your cybersecurity or enacting protection?

Name of Outside Consultant (If Any):

Prioritization

As you work though the next few items, try to prioritize them in terms of criticality. What do you really need for your business to function, and what is a convenience? This thinking will help you consider what you should restore first in the event of a disaster, and what you may want to remove to decrease complexity.

Identify What Data You Collect & Where You Keep it

This is the root of a cybersecurity policy. What data do you maintain that could be useful or valuable to a bad actor?

Data can be stored on your devices (like a laptop or external storage devices), in cloud storage (like Google Drive), or in a service (like Quickbooks). Make note of what security requirements are used to access this data (passwords, multi-factor authentication, IP whitelisting, etc.)

Examples include:

- Personal Identifiable Information or PII (SSNs, DOBs, etc.)
- Payment Card Information (Credit Card Numbers)
- Personal Health Information
- HR Records that could contain Bank Account Information
- Business Plan Documents (Bank Statements, Taxes, etc.)
- Proprietary Schematics, Patent Applications, etc.

Our Sensitive Data and Where It's Stored **Date:**

	Data Type	Location
Ex:	Credit Card Numbers	Stored in Quickbooks Desktop version on work computer in office.
1		
2		
3		
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Identify What Devices Need Protecting

What devices are you using that could be used to compromise your sensitive data? Fill in the below table to create an inventory of devices that interact with sensitive data by any means. List every single device you can think of. Chances are the more specific the purpose of the device, the harder it is to protect and update (eg: printers).

Hardware Inventory			Date:
Desktops	Laptops	Phones and Tablets	Other (printers, routers, NAS, etc.)

Identify What Operating Systems You Are Using

Windows tends to be the most targeted, yet Linux tends to be the most exposed to the open internet. Make sure that all of your operating systems are patched, updated, and supported. For instance, support for Microsoft Windows XP ended on April 8, 2014. Windows 7 support will end Jan. 14, 2020. Similarly, Apple ended support for OS X 10.6 (Snow Leopard), on February 26, 2014. Your business should not be running unsupported versions of operating systems. Check to make sure all devices are updated to the current version. If your device does not support the most updated version, it is time for an upgrade. Use of an unsupported or unpatched device is asking for a breach.

Please take some time to write down what types of operating systems you currently use and for which devices it might be time for an update. Be careful to make note of the Operating System on each individual device

OS Check	Date:
All Systems Supported	
All systems supported but the following need to be updated/losing support soon	
Non-Supported System(s)/Device(s) In Use	

Identify What Software You Are Using

Just like operating systems, software has supported versions and security updates. Backup and storage software that is out of date could allow bad actors access to your data. Old versions of password managers could leave your passwords exposed. It is vital that you keep the software used for business updated just like you would with operating systems. An operating system could be fully patched, but old software could allow remote access.

Please take some time to write down what software you currently use and check if it might be time for an update. Be careful to make note of the software on each individual device

Software Check	Date:
Up to date software	
Can be updated or losing support soon	
Out of date and unsupported by software publisher	

STEP 2
PROTECT

What Are You Protecting?

You have now identified the data that you keep. Now, we are going to go through the specific ways you can protect that data. Along the way, we'll offer tips and some industry best practices for securing your information and how employees access it. These best practices should extend into private life as well.

How Do You Manage Identities?

User Identities are a means of determining who is accessing what data when. Role-based access also provides you protection by preventing access to unauthorized data. Do users use the same account for all services and systems? Or is each login unique?

Please take some time to write down how you currently keep track of user identities. Be careful to make note of who has access to the User Identity information and who has the ability to alter them.

Account Check	Date:
User Identities accessible to only one individual (Computer passwords, emails, etc.)	
User Identities accessible to multiple people. (Ex: shared accounts)	
List areas where anyone could gain access to accounts, or places where User Identities currently do not exist	

NOTE:

Remember, if you use a personal system for logging in or accessing your company data that you should also have separate usernames for that system as well. Private computers with multiple users can be more susceptible to malware or viruses than dedicated business machines. If you use a personal computer that is shared with other members of your family, create a different username and password for business purposes and keep it distinct and separate.

How Secure Are Your Passwords?

The term 'Password' is not the best. It should really be 'Passphrase'. That alone should tell you a lot about password strength. Using passwords that have association with yourself, like a maiden name, birthday, favorite food, etc. are recipes for disaster. The key to a strong password depends on two things: character space and length. Passwords with only letters take a fraction of the time to crack compared to passwords of the same length with numbers and symbols. If your systems and software can support the use of passphrases, essentially very long passwords that are easily memorized but would be impossible for a machine to guess, go ahead and use them. They make your system more secure than a shorter password and can be easier to remember than a jumble of characters and symbols.

The evolution of creating a good passphrase is as easy as 1-2-3:

1. Create Original Passphrase "Pizza is my favorite food"
2. Ensure Passphrase Usability: "pizzaismyfavoritefood" (Removed spaces)
3. Strengthen Passphrase: "P1zz4I5Myfav*r1teF**d" (Capitalized first letter of each word, replaced non-caps letters with numbers where possible, replaced o with *)

This process will allow you to create a strong passphrase for every system, device, or service you use, thus protecting your business. As you can see, creating even a short passphrase like this can serve under many password requirements where a longer passphrase is not allowed.

When forced to use a password, the following guidelines should ensure that you keep yourself as secure as possible:

- **Complexity**: A minimum of 3 of the following 4: Upper-Case Letters, Lower-Case Letters, Numbers, Symbols
- **Length**: At least 12 characters
- **Change Frequency**: Passwords are changed every 180 days at least, more if required by specific mandate (PCI-DSS, etc.)
- **Reuse**: No reuse of the last 6 passwords
- **Lockout**: 10-minute lockout after 8 unsuccessful login attempts (if possible to customize)

Biometrics (ie. Fingerprints, Face ID) provide a great opportunity for using a very complex passphrase, while also keeping it easy to login every time. Mobile devices now use 6-Digit passcodes and biometrics by default, and most support passphrases as well. Using a passphrase with a mobile device, and then using biometrics to log in between reboots allows for immense security with ease.

Password Check	Date:

- ☐ Complex Passwords Required
  - ☐ Upper-Case Letters
  - ☐ Lower-Case Letters
  - ☐ Numbers
  - ☐ Symbols
- ☐ Length Standards Met (12 Characters Minimum)
- ☐ Change Frequency Every 180 Days or More Regularly
- ☐ No Reuse of Last 6 Passwords
- ☐ 10 Minute Lockout After 8 Unsuccessful Attempts
- ☐ Use of very long passphrases possible
- ☐ Mobile Devices Secured by a 6-Digit PIN at Minimum
- ☐ Mobile Devices Secured by a passphrase
- ☐ Additional Controls: .....

Inactive Device Locking

By default, devices will fall asleep and lock themselves after a certain period of inactivity. While you should always lock/logout of a system or device when no longer in use, humans aren't perfect, and mistakes happen. Reducing the time it takes for a device to fall asleep and lock can save your business from unauthorized physical access.

Going Further - Passwords

Entire books have been written on password construction and management. While the notions that we recommended are currently industry-standard, you have to make sure that your policy for changing passwords isn't creating vulnerabilities. If you or your employees are having a hard time remembering passwords that you have to write them down, email them, or store them on your phone, you'll need to reassess and consider using a password manager or other form of authentication.

NOTE:

Your capabilities for enforcing these controls will vary depending on your systems and services. For advanced businesses with an IT staff you may be able to use ActiveDirectory in a Windows environment, or some cloud-based systems will let you control these details. For small businesses that don't have access to such tools, you may need to rely on training your employees and manual reminders to change passwords.

Data Encryption

Encryption is something that is commonly overlooked, yet vital to secure data handling and storage. Some basic examples of encrypting data are as follows:

Databases

Databases that contain sensitive information, including PCI, PHI, or PII should have some form of encryption in place. This doesn't have to be the entire database, as it could cause performance issues, but the columns of data that are deemed to be sensitive (such as Social Security numbers) should be encrypted at the very least.

Storage on Servers

Server storage should be encrypted. This will ensure that the drive is inaccessible should it be physically removed or stolen.

Storage of Laptops

Laptops are susceptible to theft or loss. All modern operating systems will allow for full disk encryption, which should be used. With Apple laptops, FileVault is free and easy to use. With Windows enterprise, BitLocker can be used for full disk encryption.

Storage on Mobile Devices

Mobile devices from Apple are automatically encrypted when a pin number or password is put in place. Android devices require an additional setting to be switched on to fully encrypt those devices. Make sure your employees turn encryption on if they are accessing company data from their Android devices.

Cloud Storage

Many services store your files encrypted on disk. For the most part this can be enough. However, if a bad actor is able to gain access to your cloud storage, they could get at everything. An advanced step to increase your data security is having a separate system for encrypting your files before they get to the cloud like boxcryptor or rclone/rsync.

Email in Transit

Email can be encrypted in transit through the use of SSL/TLS, which is enabled by default on most mail servers. It will only work if both the sender and the recipient have SSL/TLS encryption enabled, so it is a "best efforts" process. This encryption will only protect email from being intercepted when in transit. Services like Gmail, iCloud, and Microsoft Outlook are encrypted by default

Encryption Checklist	Date:

Our Company Encrypts The Following:

- ☐ Database ☐ N/A
- ☐ Server Storage ☐ N/A
- ☐ Laptop Hard Drives
- ☐ Mobile Devices ☐ N/A (devices not used for business)
- ☐ Email in Transit
- ☐ Other .....

Role Based Access Control (RBAC) of Data

If you are a solopreneur, you probably don't need to implement a data segregation plan. However for even the smallest companies, putting your data into various places that are restricted to only those who need the information is a great idea.

In order to properly segregate data, you need to first determine what data you collect. The "identify" step you already completed on page 8 gives you that data. Now you should determine who needs access to that data.

Take your time and think through this process, because it can be very tempting to just say "everyone needs everything". This is seldom the case – especially with HR information including payroll. Below is a numbered list that correlates with the identify section of this workbook, write down who within your company needs access to that data. Set up folders or other permission methods and restrict access to those folders.

Data Segregation List: **Date:**

	Who has access:
Ex:	Accountant, Dan from billing, Mary in HR
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	Who has access:
11	
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Multi-Factor Authentication

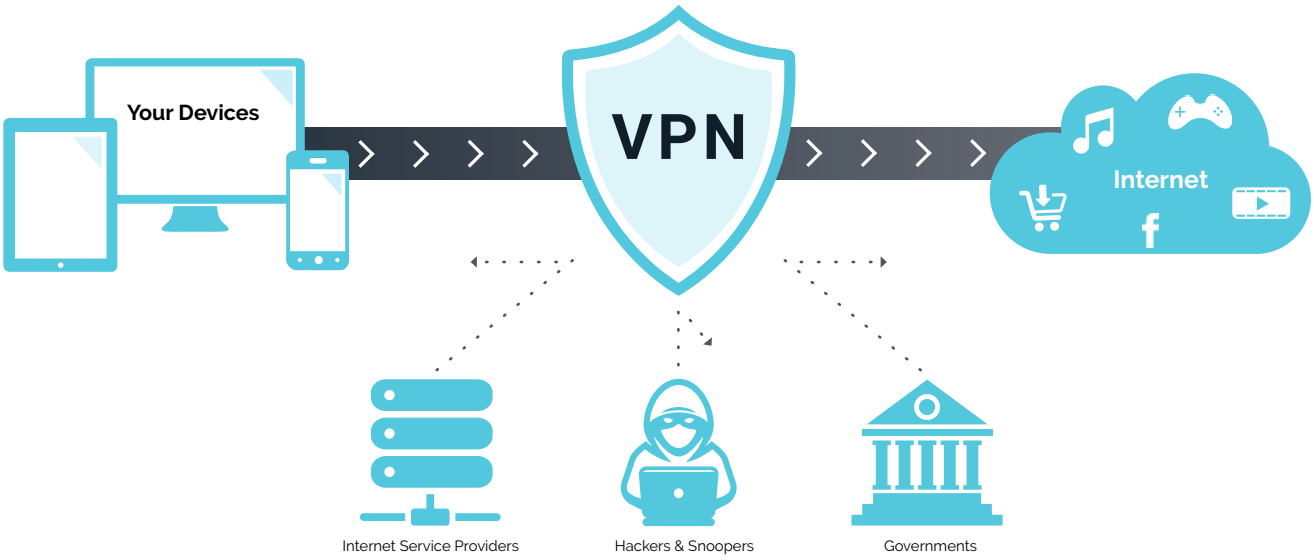
2FA, or Two-Factor Authentication is one of many forms of MFA (Multi-Factor Authentication). 2FA greatly increases account security and should be used wherever possible. If more than 2FA is possible, it should be used as appropriate. Most online services like Gsuite, Microsoft Office, etc. offer 2FA or MFA. Additionally, administrators can choose for accounts to require 2FA or MFA. If backup codes are given, make sure they are stored in a safe place whether they are stored digitally, physically, or both.

Virtual Private Networks (VPNs)

Using public wifi to run your business should be avoided at all costs. However we understand that at times you need to check your bank information or need to send some emails while away from your business network. This is where Virtual Private Networks (VPNs) come in handy.

Public networks are not very secure and allow others to intercept your data. A VPN, whether it be an app on your mobile device or software on your computer, routes your data through servers located elsewhere in the world. In other words it masks your identity, making it look as if you are using a device from somewhere else in the world. This is similar to how a company might use a VPN to allow employees to use their work computer as if they were on the company's network, even while they're on the road.

An important advantage with some VPN applications is that it can create a dedicated encrypted tunnel allowing your data being sent to be secure no matter the wifi network. Before you download a VPN application, you should know that there are benefits and risks. Not all VPNs encrypt your data, so make sure to do your research to pick the best one that works for your business.



Employee Training

If your business has employees, you should train them regularly on cybersecurity best practices. They should be provided training upon hire and annually, and also on an as-needed basis. If you have an incident at your firm that highlights poor cybersecurity choices, you may want to spend some time training your employees on how to better react to cyber threats. There are many free resources available for cybersecurity training. A couple good places to start are:

SANS Information Training – www.sans.org

OPEN DNS Phishing Training – www.opendns.com/phishing-quiz/

If you are writing down a policy to go with your plan, try the following language:

"Personnel are provided training regarding information security practices upon hire, annually going forward, and as necessary based upon events at our company."

STEP 3
DETECT

Recognize if Something is Going Wrong, and Stop it

Endpoint Protection

Most people and business owners think antivirus software is enough to detect threats and prevent a breach. Simply put, an antivirus is not enough. A common misconception about endpoint protection is associated with the term 'Antivirus'. Antivirus works by storing known signatures (fingerprints for files) of malicious code and files, and then checking against the signature of any new files on the device. Windows comes installed with Windows Defender, Microsoft's in-house antivirus software. Apple devices trust that the user knows what they are doing with yes/no prompts when opening or running files downloaded from the internet. For the individual user, this is most likely enough protection. However, businesses needs to be prepared for threats they can't predict. For businesses, regular antivirus does not provide enough protection.

This is where the term 'Endpoint Protection' comes into play. Advanced solutions like Watchdog by Anchor Security offer what is known as a Host-based Intrusion Detection System (HIDS). The HIDS software sends all computer activity to a backend server cluster that does anomaly detection, vulnerability analysis, intrusion detection, active response, reporting, historical analysis and statistics, and more to make sure that new threats are detected (and hopefully stopped) and the correct personnel are notified. These are the same methods that large businesses use internally on their infrastructure and devices to ensure their operational and data security.

Please take some time to write down any Endpoint protection products you are currently using. These include software that scans devices for vulnerabilities, wifi monitors, etc.

Endpoint Protection Check **Date:**

We use the following endpoint protection products:

Our products cover the following categories:

- ☐ Antivirus
- ☐ Vulnerability Analysis/Scanning
- ☐ Anomaly Detection
- ☐ Intrusion Detection
- ☐ Active Response
- ☐ Alerting | Notification
- ☐ Historical Analysis and Statistics
- ☐ Reporting

Vulnerability Scanning

Similar to antivirus, vulnerability scanning looks for known threats, but before the threat is present. If your endpoint protection software does not offer scheduled or persistent vulnerability analysis, scheduled vulnerability scanning is something that should be introduced into your security arsenal.

Vulnerability scanning is one of the many actions performed by security consultants and penetration testers to detect weak spots in your network.

NOTE:

Some antivirus/antimalware, endpoint protection, and vulnerability analysis software are not compatible with each other and may recognize each other as threats. An endpoint protection package that offers all features is the ideal scenario.

Network Intrusion Detection System (IDS) and Firewalls

By scanning all network traffic, bad actors can be discovered. However, an IDS requires a very powerful server and great knowledge to maintain. Firewalls offer a sort of 'dumb protection'. While some have active response features, firewalls generally just block and allow whatever the user configures them to block or allow. Firewalls don't look for threats or notify personnel about anomalies. Reporting is an essential feature for network security analysis and to determine if network usage has changed, which could indicate compromise.

Determining the Impact of an Intrusion

When you do discover an intrusion (ex: a piece of malware has infected your system), you will need to make a determination of the impact of that event. Generally, your endpoint protection will block most attempts to install viruses or malware. In this instance the impact is pretty low – the software blocked it, and you should determine how and why it was attempted to be installed in the first place in order to decide further actions.

In the event that a malicious piece of code does make it on to your systems, you will need to determine what that code's purpose is - is it ransomware looking for a payment or a keystroke logger designed to steal usernames and passwords?

With that understanding you can make a determination of the impact the piece of malware or virus has on your business and begin to take steps to respond. For the small business, this is usually the time to bring in third party consulting and disaster recovery, as the enemy is now in the building.

STEP 4
RESPOND

What is Your Plan for an Incident?

A security breach requires a plan. Incident response and recovery is usually a struggle for smaller companies, so having a strong plan in place will control the chaos. Smaller companies generally don't have the time to create elaborate plans and test those plans, which is where this section comes in.

How Often Do You Backup Data?

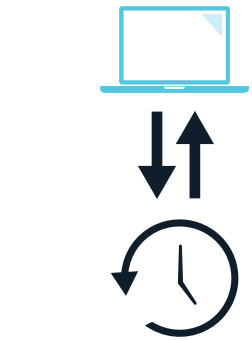
One of the most prevalent forms of attack is the ransomware. Ransomware encrypts all files on the system and demands a ransom to unlock the files (which it frequently never does). The severity of this attack depends on a few key factors:

- How many devices were impacted?
- How frequently do you backup your data?
- Are your backups version controlled?

The more frequently you backup your data, the less of an impact ransomware has due to less lost data. If you work entirely online using Gsuite or similar business web-apps, this should not be an issue. Businesses should create a series of backups, also known as version-controlled backups. These are backups that have all happened at different points in time. This will ensure that you always have a clean backup to restore your system in the event your system becomes infected. If you do not have version-controlled backups and you continuously overwrite a single backup file, you could possibly be backing up the infected files leaving you with no usable, clean backup file to restore your system.

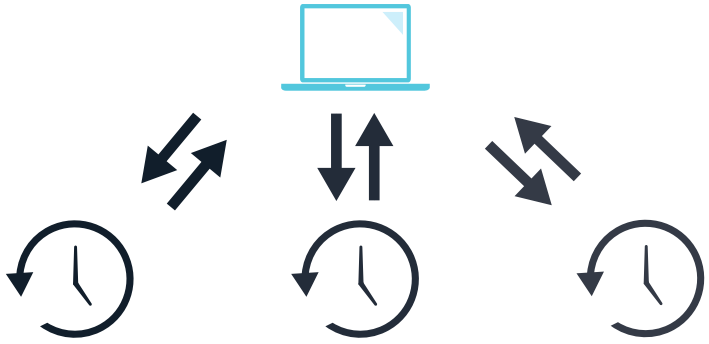
These attacks can be quite harmless if you have good backups in place, however it can be quite tedious to restore data if you use raw file backup instead of full system backups like Time Machine for macOS.

One Continuously Overwritten Backup File



Monday, Wednesday, Friday

Several Version-Controlled Backup Files



Monday Wednesday Friday

What Types of Backups Do You Do?

There are different types of backups that a small business can run in their environment. The level of sensitivity of the data and the importance of it, will dictate what type of backup up should be run.

- **Full System Backup**: This backup will create an exact copy of the computer, including all operating system files. This can also be considered a mirror of your computer's hard drive.
- **File Level Backup**: This is a backup of only user created files on a system. This backup uses less space since it is not copying system files but it will have all of the user's data such as pictures, documents, etc.
- **Incremental Backup**: This backup scans the system for any file changes since the last Full System or File Level backup and only backs up the files that have changed, saving time and space during routine backups.

Each backup comes with different sets of advantages and disadvantages. A small business should consider running a Full System or File Level Backup once a week and run an incremental back up daily. This is to ensure that their files are always up to date.

For small businesses running Windows 7 there is a native free backup program called Backup and Restore. For Windows 8 or higher there is a file level backup called File History. For all businesses running macOS there is Time Machine.

Please take some time to write down any types of data protection that you use. These can come in many forms such as: Storing data in the cloud, keeping an on-site backup of all data, creating regular backups, and using version control software

Backup Schema: **Date:**

We backup the following information:

We Back Up Data on the Following Timeline:

☐ Daily ☐ Weekly ☐ Monthly ☐ Other .....

☐ Backups are version controlled

☐ Full system backups are created (ex — Time Machine)

Who Is In Your Corner?

In the event of a data breach your business needs to move quickly and strategically. In order to do so you should put together an incident response team. An incident response team should be formed with all relevant business personnel. This team includes technical workers to investigate the breach such as a digital forensic investigator that we cover later in this section, along with your IT staff whether they are internal or an external company. You will also want to include your human resource personnel, intellectual property experts, a legal representive when customer data is involved, and your marketing team.

If you are a small business, chances are, you or one of your employees wears all the hats mentioned above. That is okay as long as you acknowledge that you know where to go for help in all the specified areas. A number of legal issues can arise around a data breach, so it is imperative that you seek legal advice as soon as a breach is discovered.

Incident Response Team		Date:
Name:	Department:	Contact Info:

Containing an Event

To the extent possible when you do discover an event, you will want to contain it. Systems that have been infected with malware or a virus should be taken off the network as quickly as possible. Do not power off an infected system as you may lose valuable forensic evidence, instead quarantine the system. by disconneting from the network. Your endpoint protection may actively respond and quarantine the infected files automatically.

Do You Require Digital Forensics?

Conducting a thorough investigation in the event of a breach in order to determine what information was actually exfiltrated is crucial. This type of skill set is specialized, and most businesses do not possess the required capabilities in house, so you may require the expertise of a digital forensics investigator. We recommend that you find a company, firm, or individual who can handle these services. You don't necessarily need to have them on retainer but knowing who you will call and perhaps having an initial conversation about how to preserve files for forensics work will help you.

Digital Forensics Contact: .....

Telephone: .....

Contact Email: .....

☐ On Retainer

Cyber Insurance

Data breaches and other cyber crimes are becoming a lot more common. They result in major fines and legal fees as well as unexpected expenses and down time. Cyber insurance has come into play in the last few years and can be a smart precaution for businesses.

Cyber insurance generally covers your business' liability for a data breach involving sensitive customer information. Your general business liability policy does not cover data loss. This is why it is necessary to have cyber insurance.

Typical cyber insurance is designed to provide insurance coverage necessary to help protect your business from the high unexpected costs and effects of a cyber attack or other types of data breaches: This coverage also helps you comply with state and federal regulations.

America's SBDC has partnered with insurance providers to offer a comprehensive cyber insurance policy for all SBDC clients.

Check it out at www.SBDC360Cyber.org

When shopping for cyber insurance you want to make sure it has a comprehensive liability coverage for both first-party (internal) and third-party (external) losses.

First-Party Liability Coverage

This coverage type covers any general cost incurred as a result of a cyber or data breach. Make sure the following items are covered when looking for this type of liability coverage:

- Legal fees
- Cost of notifying affected customers
- Forensics investigation costs
- Business interruption costs
- Public relations expenses
- Expenses to recover or restore lost data

Third-Party Liability Coverage

This coverage type covers defense costs if the affected parties seek legal action against your business. It also is designed to cover regulatory fines and other costs. Make sure the following items are covered when looking for this type of liability coverage:

- Payments to affected parties
- Cyber extortion costs/payments
- Regulatory fines and penalties
- Settlements, damages and judgments
- Cost to responding to regulatory inquiries
- Bookkeeping costs

STEP 5
RECOVER

Get Your Business Back on Track Fast and Smoothly

Putting The Pieces Back Together

Response and recovery notions go hand-in-hand, but you want to make sure you are considering the viability of your company and protecting your customers in the event of a significant incident. Once again, time, resources, and expense are all considerations, but some firms find it beneficial to think about "the day after". Who are you going to call first? How do you ensure your actions will help your company prevent harm to its reputation?

Managing Your Brand

Most small businesses go out of business after a breach. This is due in part to having a tarnished reputation. That is why it is imperative you get in front of the story as soon as possible. The sooner the incident response team knows about the breach, the sooner they can work to fix the issue requiring less down time and loss of revenue. If your business is consumer-facing and you are breached, keeping the public up-to-date within reason helps save face with your customers. Not all security breaches will become public, but if your customers find out and they were not informed you are likely to lose customer loyalty which is hard to get back. Being timely, open, honest and accurate is crucial when making public announcements.

Legal Responsibilities

The size of the data breach and and the type of data taken determines what your legal responsibilities are. In the event of breach your first call should likely be to legal support, an attorney with knowledge of breach response and remediation. Few states have specific detailed cybersecurity laws, but that is rapidly changing. Some laws will apply across all business industries, while industry-specific legislation is continuing to develop and target more at-risk sectors. Being aware of what your state and federal laws are will help protect you in the event of a breach.

Anchor Security as a resource. info@anchorsecurity.com

Legal Contact: .....

Telephone: .....

Contact Email: .....

☐ On Retainer

Lessons Learned

As you respond to an event, you will always want to incorporate the lessons you learned into your security program going forward. You want to prevent the same type of attack from happening again. If you were subject to a ransomware attack, take the time to train your employees and yourself on identifying malicious links. If you lost data that was unrecoverable because your backup schema didn't adequately address it, take the time to go back and tighten up that area again.

You can never be one hundred percent impervious to cyberattacks, but a real weakness would be to have the exact same type of attack affect your company multiple times without taking steps to identify the root causes. Use the table below to help identify lessons from a breach.

Date of Incident:

Explanation of Incident:

How was it Discovered?:

How was it Remediated?:

Data Affected:

Steps Taken to Close Vulnerability:

You may also wish to consider identifying your local resources who may be of assistance. The Arizona Cybersecurity Team will be able to assist you in finding proper law enforcement reporting and support points. They can be reached at:

Email: azsoc@azdoa.gov
Phone: 602-542-2252
azgovernor.gov/sites/default/files/related-docs/cybersecurityprimerv2.pdf

Beyond Arizona, the FBI's field offices can provide assistance in the event of breach. They can be found online at:
www.fbi.gov/contact-us

Maricopa SBDC Resources

The Maricopa SBDC Data Assured program offers many resources free of charge to all small businesses looking to become cyber secure. These resources range from simple cybersecurity check-lists to more detailed industry specific workforce development. Below you will notice just a few of our resources with many more on the Maricopa SBDC website.

The Data Assured program is always looking to grow and expand its resources. Please reach out to us with any suggestions you might have on possible topics you would like to see covered.

Resources

Ariz. Rev. Stat. § 18-105

Cybersecurity Tips

Cybersecurity Solutions

Risk Assessment Tools

In-person Trainings

Additional resources can be found at: **maricopa-sbdc.com**

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