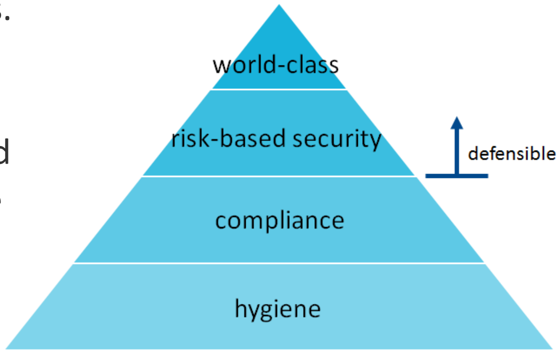
Defensible Security for Organizations

Cybersecurity has never been as imperative as it is today. Most organizations have failed to invest at a rate that has sustained previously achieved capability levels. Others have never reached a level of security maturity adequate to mitigate risks to an acceptable level. Organizations must target a level at or above risk-based security. It is critical to ensure hygiene and compliance level controls are effective. Organizations have a duty and responsibility to apply appropriate safeguards and maintain a defensible level of security.

Defensible security is at or above hygiene + compliance:



The following are prerequisites to success for security:

- ❑ Ensure the importance of cybersecurity is recognized by executives
- ❑ Information Security roles and responsibilities are identified and assigned
- ❑ Identify critical systems and data as the crown jewels of the organization
- ❑ Organization's risk appetite is known and a risk register is reviewed quarterly
- ❑ Risk assessments are conducted for new systems and material changes to existing ones
- ❑ Conduct security assessments regularly against an established security standard

Organizations must have documented, followed, reviewed, updated, and tested:

- ❑ Asset Management & Disposal
- ❑ Change Management
- ❑ Incident Management
- ❑ Business Continuity Plan (BCP)
- ❑ Disaster Recovery Plan (DRP)
- ❑ Backup & Retention
- ❑ Logging & Monitoring
- ❑ Physical Security & Visible Identification
- ❑ Security Incident Response
- ❑ Information Security Policy
- ❑ Information Security Program
- ❑ Information Security Classification
- ❑ Background Checks
- ❑ Security Awareness Program & Course
- ❑ Vendor Security Requirements
- ❑ Application Security

The following practices must be in effect:

- ❑ Access Control
- ❑ Defence in Depth for Endpoints and Networks
- ❑ Security Governance
- ❑ Vulnerability & Patch Management

Defensible Security – Prerequisites

Prerequisites for success

- **Ensure the importance of cybersecurity is recognized by executives** H
  - review the security threat landscape and request executive support
  - ensure agreement on the organization's risk tolerance at the executive level
  - can be accomplished with a 30-60 minute presentation, conversation, or briefing note with 5-10 hours of prep time
- **Information Security roles and responsibilities are identified and assigned** H
  - document roles, approve them, and communicate who is responsible for what components of security
  - ensure employee, contractor, and vendor responsibilities are covered
  - communicate to employees that security is everyone's responsibility
- **Identify critical systems and data as the crown jewels of the organization** W
  - build, review, and update a list of key systems and data, and the controls in place to protect them
  - if security controls are inadequate then review for opportunities to improve
  - ensure availability requirements are documented and met
- **Organization's risk appetite is known and a risk register is reviewed quarterly** 🪥 W
  - assess organization's risk appetite (ask, review decisions, or both to determine)
  - populate, publish, review, and update risk register quarterly
  - compare residual risk with risk appetite and augment as necessary
- **Risk assessments are conducted for new systems and material changes to existing ones** 🪥 W
  - risk assessment process is documented and followed (with signoff)
- **Conduct security assessments regularly against an established security standard** W
  - identify an appropriate security standard and determine whether to undergo self-assessment or a third-party assessment (for independence)
  - review gaps between present and future state, build plan to remediate, execute

Durations are based on an average-sized organization and intended as a guide. Whether an organization must invest more or less time will depend on scope , volume, and maturity.

H *hours* W *week(s)* M *month* ⚠ *hazard* 🪥 *hygiene*

Defensible Security – Definitions (1/3)

- **Access Control** ⚠ M
  - policy is documented, followed, reviewed, and updated regularly
  - address onboarding, off-boarding, transition between roles, regular access reviews, limit and control use of administrator privileges, inactivity timeouts
  - employees/contractors/vendors are provided only the access they are authorized
  - ensure separation of duties and segregate areas of responsibility to reduce fraud
  - multi-factor authentication is required to access sensitive data from untrusted networks
  - system accounts unable to use multi-factor must leverage strong authentication (eg. password aging, length/complexity, history, monitoring)
- **Application Security** W
  - applications, programming interfaces developed according to industry standards
  - web application vulnerability scans are performed prior to and following production launch and vulnerabilities are addressed
  - code is reviewed in accordance with industry best practices
- **Asset Management & Disposal** W
  - policy is documented, followed, reviewed, and updated regularly
  - includes both hardware and software and other critical business assets
  - inventory must include name of system, location, purpose, owner, and criticality
  - assets are added to inventory on commission and removed on decommission
  - disposal requirements are based on the sensitivity of the information
- **Background Checks** W
  - employees must complete a satisfactory criminal record check and are required to proactively disclose relevant offences
- **Backup & Retention** M
  - policy is documented, followed, reviewed, updated, and tested regularly
  - regular backups are taken and tested regularly in accordance with backup policy
  - frequency and completeness is based on the value of the information (eg. daily for high value information)
- **Business Continuity Plan (BCP)** M
  - plan is documented, followed, reviewed, updated, and tested regularly
- **Change Management** H
  - policy is documented, followed, reviewed, updated, and tested regularly
  - changes to production environments must be reviewed, tested, and approved

Defensible Security – Definitions (2/3)

- **Defence in Depth for Endpoints and Networks** ⚠ 🔧 M
  - endpoints include servers, desktops, laptops, tablets, mobile devices
  - networks include wired and wireless and require secure perimeter, network segmentation, and ingress/egress points must be known and documented
  - controls must exist to prevent, detect, and respond to security incidents
  - technologies must include firewall, intrusion prevention, web content filtering, email content filtering, and anti-virus at a minimum
  - systems must be hardened (eg. default passwords and shared accounts may not be used, unnecessary services are disabled, insecure protocols disabled)
  - additional controls may be required to mitigate risk to your organization

- **Disaster Recovery Plan (DRP)** M
  - plan is documented, followed, reviewed, updated, and tested regularly

- **Incident Management** M
  - policy is documented, followed, reviewed, updated, and tested regularly

- **Information Security Classification** ⚠ M
  - classification is documented, approved, communicated, and followed
  - employees must understand not all data is created equal, some data is more sensitive than others and should benefit from greater controls
  - employees must identify sensitive information, only have access to information they are authorized to have, and handle it appropriately
  - sensitive information must be encrypted in transit and at rest
  - prohibit production data in test environments unless security controls are equivalent to production or better

- **Information Security Policy** 🔧 M
  - policy is documented, approved, followed, reviewed, and updated regularly
  - policy should be standards-based in order to evolve over time
  - include Appropriate Use so employees know what they may and may not do

- **Information Security Program** M
  - program is documented, approved, executed, reviewed, and updated regularly
  - program is aligned with organization’s mission, vision, and goals, and provides clear direction on security strategy
- **Logging & Monitoring** M
  - collect system logs to determine who did what when, retain according to retention policy, correlate and monitor to identify and act on suspicious activity

Defensible Security – Definitions (3/3)

- **Physical Security & Visible Identification** M
  - policy is documented, followed, reviewed, updated, and tested regularly
  - facilities must benefit from adequate controls (eg. alarms, fences, locks, lighting, access control systems, cameras, guards)
  - staff and visitors must wear visible identification (including a picture) and challenge those who do not

- **Security Awareness Program and Course** 🔧 M
  - program is documented, followed, reviewed, and updated regularly
  - includes annual information security course for employees
  - educate employees common threats and impacts to business
  - educate employees on importance of using strong credentials and not sharing
  - educate employees to avoid clicking on suspicious links and attachments

- **Security Governance** M
  - security review to be performed on each business case prior to allocation of funding and implementation of systems with business signoff to promote security by design

- **Security Incident Response** 🔧 M
  - plan is documented, followed, reviewed, updated, and tested regularly
  - dedicated, virtual, or on-retainer team to lead response activities
  - identify roles and responsibilities in advance (eg. communications)
  - address preparation, identification, containment, eradication, recovery, and lessons learned and ensure chain of custody

- **Vendor Security Requirements** M
  - vendor requirements are documented, followed, reviewed, and updated regularly
  - requires vendors to meet or exceed adequate security for the organization
  - vendors are required to demonstrate evidence of compliance

- **Vulnerability & Patch Management** M
  - policy is documented, approved, followed, reviewed, and updated regularly
  - scans to be performed prior to and following production launch
  - systems must be patched regularly and ensure current OS and application levels
  - vulnerability assessments are regularly conducted as part of a program and vulnerabilities are rated according to severity
  - critical and high vulnerabilities must be remediated in a timely manner