Cyber Assessments

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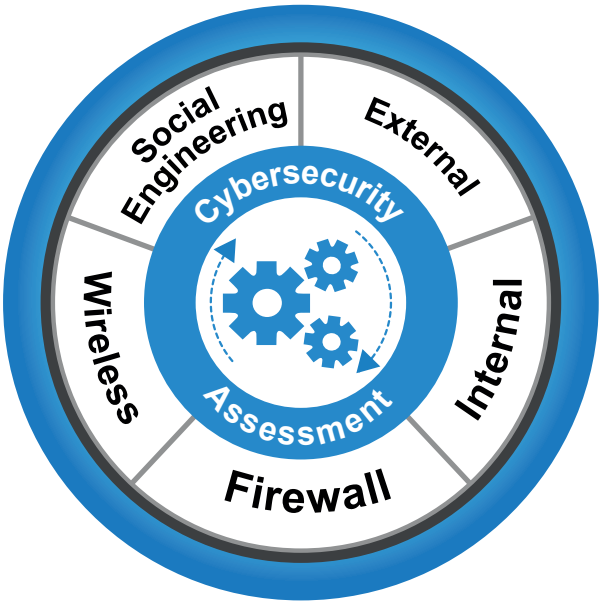
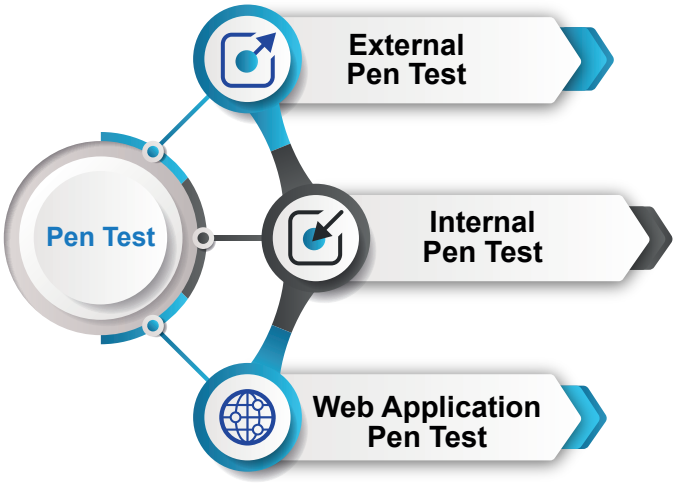
ecfirst

Cybersecurity Assessment Page 2



Pen Test Page 9



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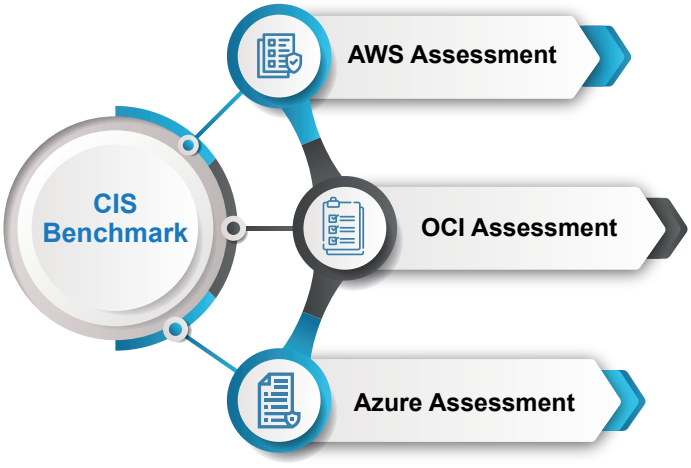
CIS Benchmark Page 13



Cybersecurity Assessment

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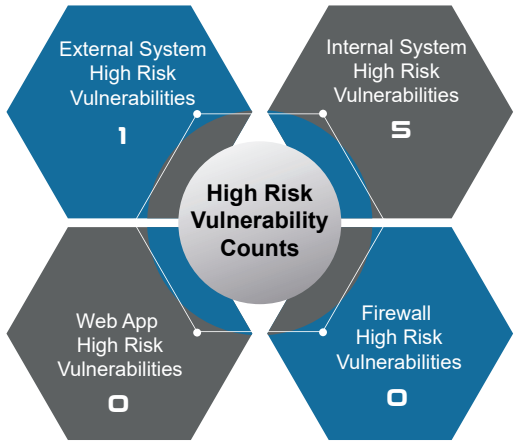
Every organization must conduct a thorough and comprehensive assessment of the potential risks and vulnerabilities to the Confidentiality, Integrity, and Availability (CIA) of all sensitive, confidential information.

Cybersecurity Assessment Scope	Titanium	Platinum	Gold	Silver	Bronze
External Assessment	✓ Customized	✓	✓	✓	✓
Internal Assessment	✓ Customized	✓	✓	✗	✗
Firewall Assessment	✓ Customized	✓	✓	✓	✗
Wireless Assessment	✓ Customized	✓	✗	✗	✗
Detailed Analysis	✓	✓	✓	✓	✗
Corrective Action Plan (CAP)	✓	✓	✓	✗	✗
Detailed Remediation Steps	✓	✓	✓	✗	✗
Executive Brief	✓	✓	✗	✗	✗

Executive Dashboard

Significant Findings



Risk Summary

- An overall Security Grade: **B**
- An overall Security Risk: **Medium**

Cyber Risk Status

External System Vulnerability Totals

High Risk	Medium Risk	Low Risk	Medium Risk of Successful Attack
1	27	8	

Web App Vulnerability Totals

High Risk	Medium Risk	Low Risk	Low Risk of Successful Attack
0	1	5	

Internal Vulnerability Totals

High Risk	Medium Risk	Low Risk	Medium Risk of Successful Attack
5	105	11	

Firewall Configuration Vulnerability Totals

High Risk	Medium Risk	Low Risk	Low Risk of Successful Attack
0	0	0	

Social Engineering

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- Customized phishing campaigns to identify % of phish-prone users.
- Targeted end user security awareness training to reduce risk from phish-prone users.
- Development of tailored phishing, vishing, pretexting, CEO Fraud campaigns to understand business risk.
- Detailed reports that describe findings from social engineering campaigns.
- Access to security awareness emails for compliance with mandates such as HIPAA, CCPA, GDPR.

Executive Dashboard

Significant Findings

Industry Benchmark Data

Phish-prone % **23.9%**

Phishing emails sent to users that did not fall victim in the previous 4 weeks	
Campaign Start Date	Number of Phishing Victims
Dec 6, 2021	11

Phishing emails sent to users that fell victim in the previous 4 weeks	
Campaign Start Date	Number of Phishing Victims
Dec 3, 2021	1
Nov 19, 2021	0

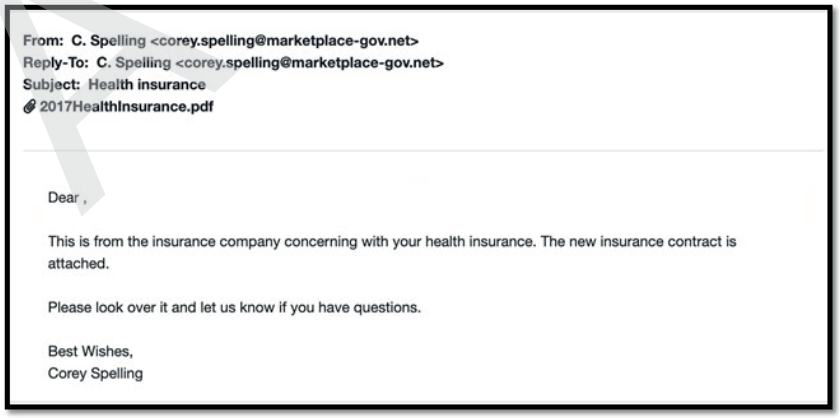
Risk Summary

Based on the number of users that fell victim to the phishing performed, ecfirst estimates the risk of a successful Social Engineering attack against to be a Medium risk.

Findings

ecfirst was successful in the Social Engineering campaign by enticing 15 users to open and interact with phishing emails we sent. Users that interacted with the emails were then presented information informing them they had fallen victim to a phishing test and identified “red flags” in the email they received that could have indicated the email was not legitimate. Had the users interacted with real phishing emails, the attackers could potentially have performed a number of malicious actions, such as collecting sensitive data or delivering malware to the user.

Sample email sent to user:


From: C. Spelling <corey.spelling@marketplace-gov.net>
Reply-To: C. Spelling <corey.spelling@marketplace-gov.net>
Subject: Health insurance
2017HealthInsurance.pdf

Dear ,

This is from the insurance company concerning with your health insurance. The new insurance contract is attached.

Please look over it and let us know if you have questions.

Best Wishes,
Corey Spelling

Cybersecurity Assessment

Performed Remotely!

Titanium

Titanium Level is organized into four (4) distinct areas.

You must be able to deploy a Virtual Machine image (in OVF format) supporting our defined specifications, such as an ESX server or VMWare Workstation installation. If you are unable to deploy our Virtual Machine image, we will send you a hardware device at an additional cost.

Cybersecurity Assessment Scope	Titanium
External Assessment	✓ Customized
Internal Assessment	✓ Customized
Firewall Assessment	✓ Customized
Wireless Assessment	✓ Customized
Detailed Analysis	✓
Corrective Action Plan (CAP)	✓
Detailed Remediation Steps	✓
Executive Brief	✓

External Assessment

- Externally accessible IP addresses (up to 256) scanned for vulnerabilities; all identified vulnerabilities validated to the extent possible
- Up to four (4) external domains tested for:
  - Google Hacking Database entries
  - Domain Name Server misconfigurations
  - Metadata in publicly accessible documents
- Up to two (2) websites/applications crawled/scanned for vulnerabilities under one (1) user role
- Scope does not include Biomedical Device Cybersecurity Assessment or other specialized devices and equipment

Wireless Assessment

- *We will send a handheld device (along with instructions) that someone in your organization will utilize to assist us in this portion of the assessment*

Assessment of one (1) physical building to identify:

- Potentially rogue Access Points/SSIDs
- Open wireless access segmentation review, including testing of segmentation
- Insecure authentication/encryption configurations including testing of Pre-Shared Key strength

Firewall Assessment

- Review of up to four (4) supported firewall configurations to identify Operating System related vulnerabilities and best practice adherence
  - Includes review of firewall rules on a single (1) firewall to assist with business justification documentation and configuration according to the principle of least privilege

Internal Assessment

- Internal IP addresses (up to 4096) scanned for vulnerabilities; all identified vulnerabilities validated to the extent possible
- Up to 16 Class C network ranges scanned for:
  - Devices responding to “default” SNMP Community Strings
  - Systems running up to three (3) database server types (i.e. MSSQL, MySQL, Oracle, etc.) that allow open access
  - Identified systems also tested for “default” credentials
- Up to three (3) Active Directory domains tested for:
  - Identity and Access Management best practice adherence
  - Password Policy best practice adherence
  - User account password strength
  - USB device enumeration of systems registered in Active Directory
  - Identification of currently connected devices

Cybersecurity Assessment

Performed Remotely!

Platinum

Platinum Level is divided into four (4) distinct areas.

You must be able to deploy a Virtual Machine image (in OVF format) supporting our defined specifications, such as an ESX server or VMWare Workstation installation. If you are unable to deploy our Virtual Machine image, we will send you a hardware device at an additional cost.

Cybersecurity Assessment Scope	Platinum
External Assessment	✓
Internal Assessment	✓
Firewall Assessment	✓
Wireless Assessment	✓
Detailed Analysis	✓
Corrective Action Plan (CAP)	✓
Detailed Remediation Steps	✓
Executive Brief	✓

External Assessment

- Up to sixteen (16) externally accessible IP addresses scanned for vulnerabilities; all identified vulnerabilities validated to the extent possible
- Up to three (3) external domains tested for:
  - Google Hacking Database entries
  - Domain Name Server misconfigurations
  - Metadata in publicly accessible documents
- Up to two (2) websites/applications crawled/scanned for vulnerabilities under one (1) user role

Wireless Assessment

- *We will send you a handheld device (along with instructions) that someone in your organization will utilize to assist us in this portion of the assessment*
- Assessment of one (1) physical building to identify:
  - Potentially rogue Access Points/SSIDs
  - Open wireless access segmentation review, including testing of segmentation
  - Insecure authentication/encryption configurations including determination of Pre-Shared Key strength

Firewall Assessment

- Review of up to two (2) supported firewall configurations to identify Operating System related vulnerabilities and best practice adherence

Internal Assessment

- Up to sixteen (16) internal IP addresses scanned for vulnerabilities
  - All identified vulnerabilities validated to the extent possible
- Up to three (3) class C network ranges scanned for:
  - Devices responding to “default” SNMP Community Strings
  - Systems running up to three (3) database server types (i.e. MSSQL, MySQL, Oracle, etc.) that allow open access
  - Identified systems are also tested for “default” credentials
- Up to two (2) Active Directory domains tested for:
  - Identity and Access Management (IAM) best practice adherence
  - Password Policy best practice adherence
  - User account password strength
  - USB device enumeration of systems registered in Active Directory (AD)
  - Identification of currently connected devices

Cybersecurity Assessment

Performed Remotely!

Gold

Gold level is organized into three (3) distinct areas.

You must be able to deploy a Virtual Machine image (in OVF format) supporting our defined specifications, such as an ESX server or VMWare Workstation installation. If you are unable to deploy our Virtual Machine image, we will send you a hardware device at an additional cost.

Cybersecurity Assessment Scope	Gold
External Assessment	✓
Internal Assessment	✓
Firewall Assessment	✓
Wireless Assessment	✗
Detailed Analysis	✓
Corrective Action Plan (CAP)	✓
Detailed Remediation Steps	✓
Executive Brief	✗

External Assessment

- Up to eight (8) externally accessible IP addresses scanned for vulnerabilities
- One (1) external domains tested for:
  - Google Hacking Database entries
  - Domain Name Server misconfigurations
  - Metadata in publicly accessible documents
- One (1) websites/applications anonymously crawled/scanned for vulnerabilities

Firewall Assessment

Review of one (1) supported firewall configuration to identify Operating System related vulnerabilities and best practice adherence

Internal Assessment

- Up to eight (8) internal IP addresses scanned for vulnerabilities
- One (1) class C network ranges scanned for:
  - Devices responding to “default” SNMP Community Strings
  - Systems running one (1) database server type (i.e. MSSQL, MySQL, etc.) that allows open access
  - Systems also tested for “default” credentials
- One (1) Active Directory domains tested for:
  - Identity and Access Management best practice adherence
  - Password Policy best practice adherence
    User account password strength
  - USB device enumeration of systems registered in Active Directory

Cybersecurity Assessment

Performed Remotely!

Silver

Silver level is divided into two (2) distinct areas.

Please note that the Cybersecurity Assessment – Silver would most likely not be considered a comprehensive cybersecurity assessment, as critical areas related to the internal network/system management are not included in the testing.

External Assessment

- Up to eight (8) externally accessible IP addresses scanned for vulnerabilities
- One (1) external domains tested for:
  - Google Hacking Database entries
  - Domain Name Server misconfigurations
  - Metadata in publicly accessible documents
- One (1) websites/applications anonymously crawled/scanned for vulnerabilities

Firewall Assessment

Review of one (1) supported firewall configuration to identify Operating System related vulnerabilities

Cybersecurity Assessment Scope	Silver
External Assessment	✓
Internal Assessment	✗
Firewall Assessment	✓
Wireless Assessment	✗
Detailed Analysis	✓
Corrective Action Plan (CAP)	✗
Detailed Remediation Steps	✗
Executive Brief	✗

Periodic Cybersecurity Scanning

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- Periodic external cybersecurity scans (performed remotely)
  - Up to thirty-two (32) externally accessible IP addresses scanned quarterly for vulnerabilities
- Report containing:
  - Detailed cybersecurity findings
  - Corrective Action Plan
  - Detailed remediation information
- Periodic internal cybersecurity scans (performed remotely)
  - Up to thirty-two (32) internal IP addresses scanned quarterly for vulnerabilities
- Report containing:
  - Detailed cybersecurity findings
  - Corrective Action Plan
  - Detailed remediation information

Cybersecurity Assessment

Performed Remotely!

Web Application Cybersecurity Assessment

- The scope of a Web Application Cybersecurity Assessment includes the following specific items:
  - One (1) Web Application
  - One (1) user role type to be utilized for testing
    - "Client" user account type
    - Anonymous access will also be tested

General Goal(s)

- Identify vulnerabilities related to the OWASP Top 10
- Identify deviations from best practice

Out-of-scope

- Underlying System vulnerability testing
- Web Application Firewall (WAP) and/or IDS/IPS evasion

Web Application Cybersecurity Assessment Methodology

Mapping

- Analyzing HTTPS Support
- Analyze Software Configuration
- Crawl the site/application
- Application flow charting
- Relationship analysis
- Session analysis

Discovery

- Automated Vulnerability Scanning
- Information Leakage & Directory Browsing Discovery
- Username Harvesting & Password Guessing
- Command Injection Discovery
- Directory Traversal & File Inclusion Discovery
- SQL Injection Discovery
- Cross-site Scripting (XSS) Discovery
- Cross-site Request Forgery (CSRF) Discovery
- Session Flaw Discovery
- Insecure Redirects & Forwards Discovery

Upon completion of the penetration test and receiving the initial report, there will be 60 days to remediate. After that time, ecfirst will review the remediation and retest as necessary and will provide a new updated report.

Pen Test

Performed Remotely!

External Penetration Test

- External Penetration Test is “pre-scoped” to the following general criteria:
  - A “grey box” test provides the following:
    - IP address ranges owned/operated
    - All domains owned/associated with up to sixteen (16) external systems
  - Testing takes place across 5 business days, primarily during business hours

Primary Goal

- Primary goal is to gain unauthorized elevated access to an externally accessible system
  - A secondary goal is to gain unauthorized access to other systems utilizing the primary goal system

Out-of-Scope

- Denial of Service attacks

- The External Penetration Test methodology is described below:

Reconnaissance

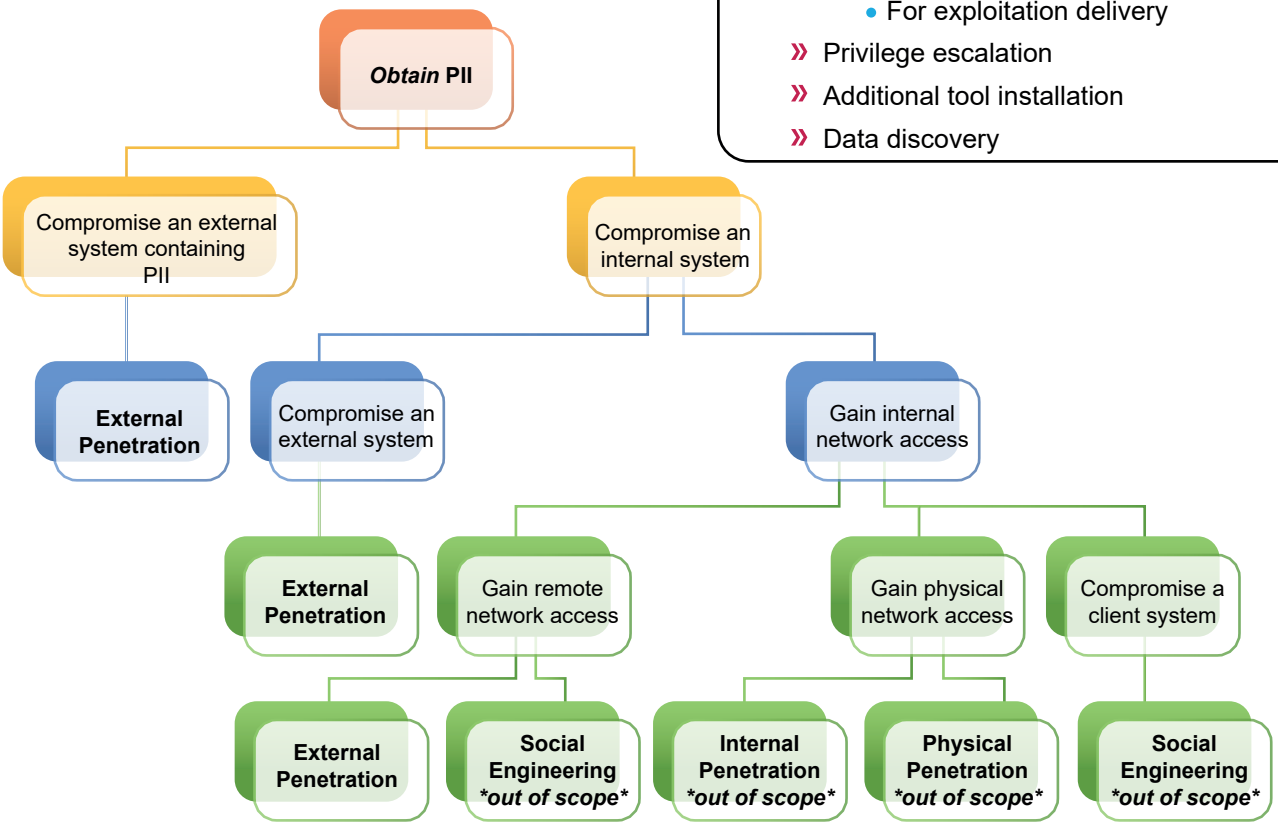
- Client personnel and cultural information
- Client business terminology
- Technical infrastructure information

Scanning

- Network discovery
- Network port and service identification
- Cybersecurity identification
- Enumeration

Exploitation

- Password cracking
- Discovered credential usage
- Manual and automated cybersecurity validation
- Phishing attempts
  - For credential gathering
  - For exploitation delivery
- Privilege escalation
- Additional tool installation
- Data discovery



Pen Test

Performed Remotely!

Internal Penetration Test

- Internal Penetration Test is “pre-scoped” to the following general criteria:
  - A “grey box” test provides the following:
    - Domain User account configured as a “regular” employee
    - Remote access to the internal network via a virtual machine or physical device provided by us
  - Not all vulnerabilities identified will be validated and/or exploited
    - Only those deemed most likely to assist in reaching the defined Goal will be further validated and exploited

Primary Goal

- Primary goal is to gain Domain Administrator level access on the internal network.
  - Secondary goal is to gain unauthorized access to sensitive data

Out-of-Scope

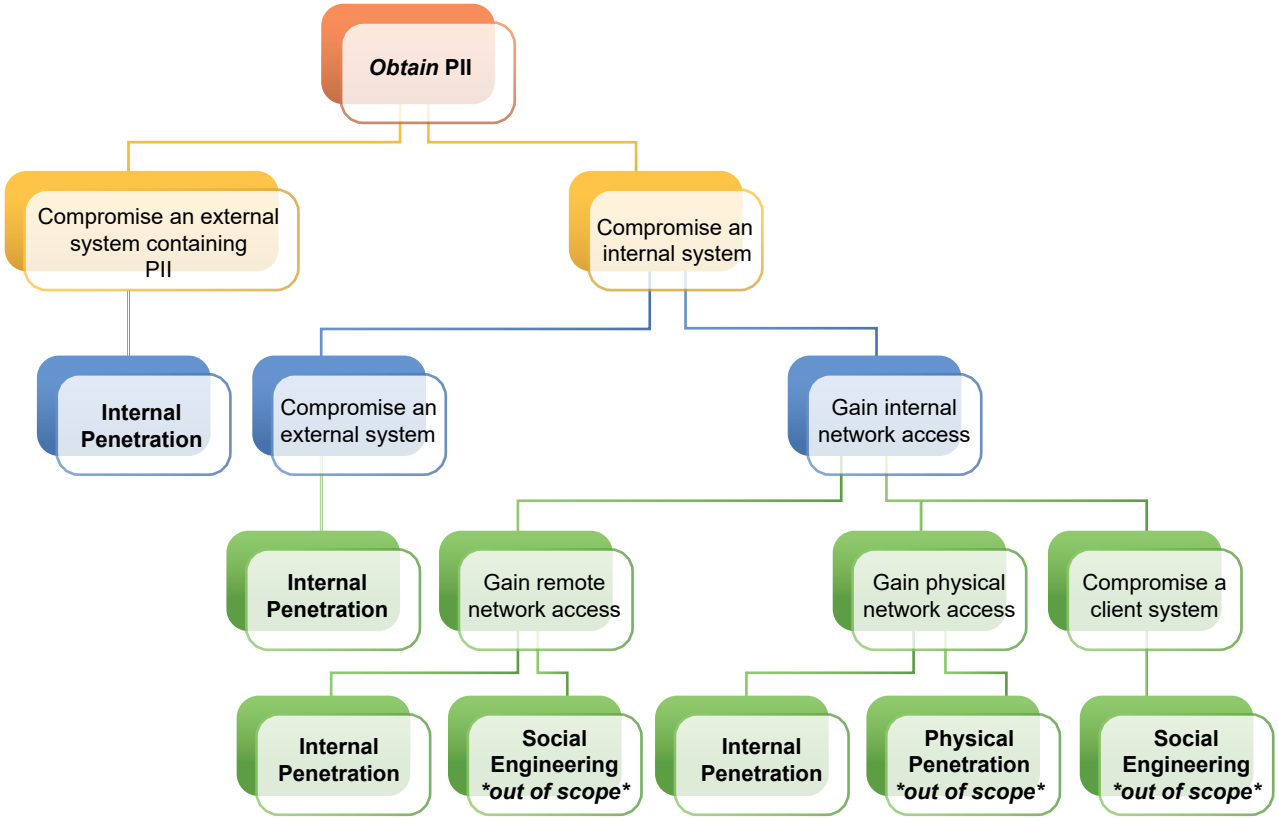
- End-user attacks (i.e. phishing, man-in-the-middle, client-side exploitation, etc.)
- Denial of Service attacks

Scanning

- Network discovery
- Network port and service identification
- Cybersecurity identification
- Enumeration

Exploitation

- Password cracking
- Discovered credential usage
- Manual and automated cybersecurity validation
- Privilege escalation
- Additional tool installation
- Data discovery



Pen Test

Performed Remotely!

Web Application Penetration Test

- A Web Application Penetration Test includes the following specific items:
  - One (1) Web Application
  - One (1) user role type to be utilized for testing
    - "Client" user account type
    - Anonymous access will also be tested

General Goal(s)

- Gain anonymous access to authenticated sections of the application
- Gain access to other client data within the application

Out-of-Scope

- Underlying system cybersecurity exploitation
- System account creation
- Web Application Firewall and/or Intrusion Detection System/Intrusion Protection System evasion

The Web Application Penetration Test methodology is described below.

Reconnaissance

- Technical infrastructure information

Discovery

- Automated cybersecurity scanning
- Information leakage and directory browsing discovery
- Username harvesting and password guessing
- Command injection discovery
- Directory traversal and file inclusion discovery
- SQL injection discovery
- Cross-site scripting discovery
- Cross-site Request Forgery discovery
- Session flaw discovery
- Insecure redirects and forwards discovery

Mapping

- Network discovery
- Network port and service identification
- Analyzing HTTPS support
- Identify virtual hosting and load balancers
- Analyze software configuration
- Spider the site/application
- Application flow charting
- Relationship analysis
- Session analysis

Exploitation

- Exploit identified enumeration flaws
- Exploit identified bypass flaws
- Exploit identified injection flaws
- Exploit identified session flaws
- Chain exploits together, pivot to other systems, data exfiltration, raid, etc.

Deep Database Assessment

Performed Remotely!

The ecfirst Deep Database Instance Assessment checks for and reports on:

- **Known vulnerabilities on the database instance.**
- **Configuration issues based on standards such as NIST, Center for Internet Security (CIS) & Defense Information Systems Agency (DISA) - Security Technical Implementation Guide (STIG).**
- **Identification and Access Control issues.**
- **Combinations of settings that could lead to escalation of privilege attacks, data leakage, Denial-of-Service (DoS), or the unauthorized medication of data.**

Executive Dashboard

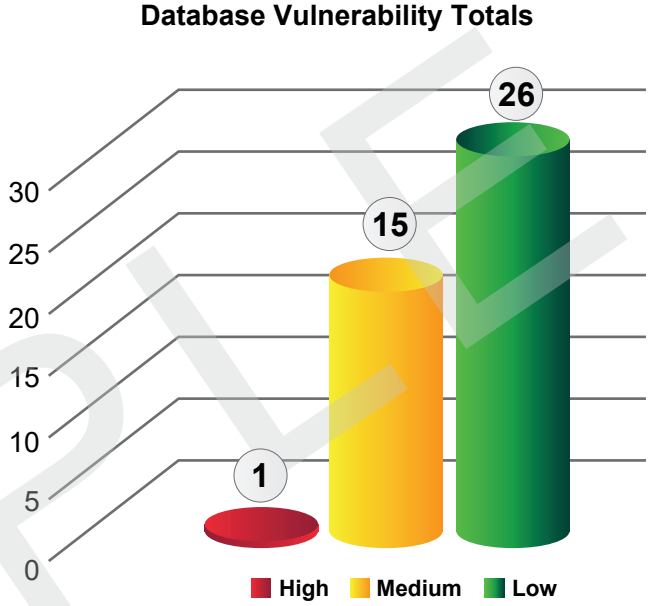
Overall Risk: High

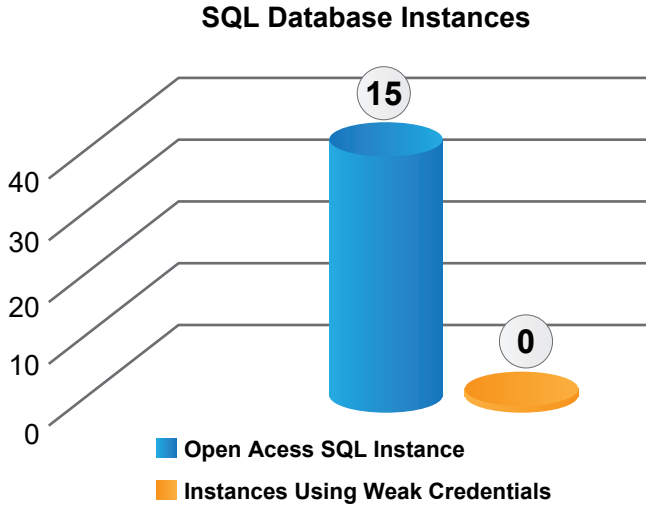
ecfirst scanned specific subnets to identify systems running MSSQL databases that allow open access; by open access we mean access to the login prompt. ecfirst was able to identify 37 database instances that allow open access. This allows an attacker the opportunity to attempt unauthorized logins to the database, as well as attempt to exploit any vulnerabilities associated with the SQL instance.

ecfirst also attempted to login to the identified SQL servers with default or easy to guess credentials. No database instances were discovered using default or easy to guess credentials.

A select database instance was further scanned for known vulnerabilities and misconfiguration issues. During this assessment, ecfirst identified a total of 42 vulnerabilities on the in-scope systems. Within this total number of vulnerabilities, 42 unique vulnerabilities were identified; 16 of these unique vulnerabilities are rated as a High or Medium risk.

Issue	Impact
Permission on registry extended proc	If not configured properly, the registry extended stored procedures can be used to read or write sensitive information from the registry.





CIS Benchmark Assessment

Performed Remotely!

AWS Assessment

Advancing Cloud Security with CIS on AWS

Increased demand for remote work capabilities continues since 2020. Customer security in the cloud remains an important part of that growth. The Center for Internet Security (CIS), in conjunction with Amazon Web Services (AWS), has worked to enhance security in the already secure AWS Cloud since 2015.

The AWS Shared Responsibility Model makes it easy to understand the role cloud consumers play in protecting their unique AWS environments. CIS security best practices can help organizations achieve cloud security from the customer's side of the responsibility model.

Best practice configuration guides include the CIS AWS Foundations Benchmark, CIS Amazon Linux 2 Benchmark, and service-based guidance like the CIS Amazon Elastic Kubernetes Service (EKS) Benchmark. Guides contain prescriptive guidance to secure configurations for a subset of AWS services and account-level settings.

ecfirst AWS Report includes:

- Alignment with CIS Benchmark for AWS Foundations, Level 1 settings
- Correctly configured settings where further action is required to achieve full security benefits
- Review of available versus used licenses and their impact
- Analysis of findings, including strengths and prioritized areas for improvement

Configuration benchmark alignment areas include:

- Identity and access management
- Storage
- Logging
- Monitoring
- Networking

Readiness Assessment

The AWS Cloud Readiness Assessment is **your first step in organizational readiness for leveraging the cloud effectively.** The assessment provides analysis and planning to identify, measure, and create business value using technology services and document current business objectives for cloud enablement.
The phases for this assessment are:

- **Initiation:** Capture the business context including the general and specific drivers for the assessment.
- **Preliminary Analysis:** Establishes the architecture frameworks to be used and data-points to be collected. In this phase we also identify sources of information, and named points-of-contact.
- **Discovery:** Construction of a catalogue of applications, data, technologies, processes and organisation structure, which is populated with multiple data points against each element.
- **Analysis:** Interpretation and presentation of the assessment findings, typically expressed in terms of the fitness of each component, its sustainability and contribution to the overall risk profile.

CIS Benchmark Assessment

Performed Remotely!

OCI Assessment

CIS Foundations Benchmark for Oracle Cloud

The recommendations in the new CIS Foundations Benchmark for Oracle Cloud include:

- Encouraging the use of multi-factor authentication (MFA) for all console users
- Restricting remote administration ports outside of the enterprise network
- Configuring logging and notifications to aid in identifying anomalous behavior and investigate potential compromise.

The CIS Oracle Cloud Infrastructure Foundations Benchmark. Provides prescriptive guidance to securely configure an Oracle Cloud account. The step-by-step checklist includes detailed recommendations for Identity and Access Management, networking, and logging and monitoring. It's available as a free download to public and private organizations worldwide.

The CIS Oracle Cloud Infrastructure (OCI) Foundations Benchmark provides prescriptive guidance for establishing a secure baseline configuration for the OCI environment. The scope of this benchmark is to establish a base level of security for anyone utilizing the included OCI services.

While all organizations require a prudent level of cybersecurity these days, It is recommended for organizations who use OCI meet the CIS Benchmark for OCI Foundations at Level 1.

- Review of compliance with each "Level 1" item contained in the Benchmark.
- Report detailing each item contained in the assessment along with your Compliant/Non-Compliant status.

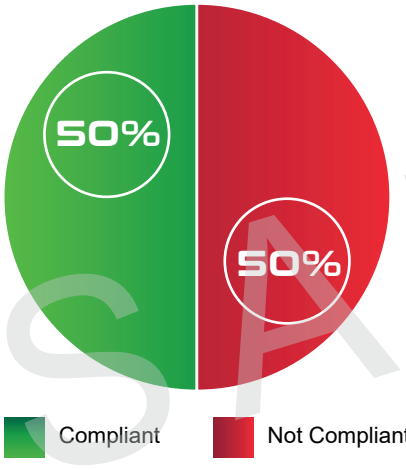
ecfirst OCI Report includes:

- Alignment with CIS Benchmark for OCI Foundations, Level 1 settings
- Correctly configured settings where further action is required to achieve full security benefits
- Review of available versus used licenses and their impact
- Analysis of findings, including strengths and prioritized areas for improvement

Configuration benchmark alignment areas include:

- Identity and access management
- Network configurations
- Log management
- Object storage
- Asset management

Executive Dashboard



Area	Total # of CAP Items	Not-Compliant CAP Items	Compliant
IAM	12	3	9
Networking	5	2	3
LogMon	17	12	5
Object Storage	2	1	1
Asset Management	2	1	1
Total	**38**	**19**	**19**

CIS Benchmark Assessment — Performed Remotely!

Azure Assessment

CIS Microsoft Azure Foundations Benchmark v1.3.0 Highlights

The CIS Foundations Benchmarks provide prescriptive guidance for various areas including: Identity and Access Management (IAM), database services, logging and monitoring, networking, virtual machines, and Azure's Security Center and Storage Accounts. Key changes to this new release include:

- Reference links in multiple recommendations to the CIS Azure Security Benchmark v2
- Multiple recommendations for the change of Advanced Data Security to Azure Defender New recommendations for additional Azure Defender bundles
- Multiple activity log alert console remediation steps
- Removal of multiple recommendations for features that have been deprecated

Azure Virtual VM Assessment

The ecfirst An Azure VM Assessment describes:

- **Azure Readiness:** Whether servers are suitable for migration to Azure.
- **Monthly Cost Estimation:** The estimated monthly compute and storage costs for running the VMs in Azure.
- **Monthly Storage Cost Estimation:** Estimated costs for disk storage after migration.

ecfirst Azure Report includes:

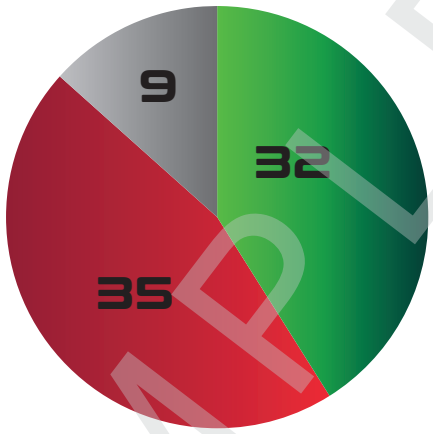
- Alignment with CIS Benchmark for Azure Foundations, Level 1 settings
- Correctly configured settings where further action is required to achieve full security benefits
- Review of available versus used licenses and their impact
- Analysis of findings, including strengths and prioritized areas for improvement

Configuration benchmark alignment areas include:

- Identity and access management
- Data storage
- Logging functions
- System monitoring
- System networking

Executive Dashboard

Compliance Progress



Area	Compliant	Non-Compliant	N/A
IAM	1	1	0
SecCenter	11	8	0
StorageAccounts	2	1	0
Database	2	9	8
Log-Monitor	9	7	0
Networking	3	2	0
VM	1	2	0
Other	1	2	1
AppService	2	3	0

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Reimagining Cyber Defense