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Security Testing Methodology

Your plug & play cyber security suite.

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Resilient and Reliable Security solution for your application

27,000+ Vulnerabilities Uncovered Every Month

8000+ Hours Saved of Developers & CXOs

75% Vulnerability Fixing Rate

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Cloud Security Diagnostics

Business Logic Testing

API Testing

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1. Introduction

Vulnerability Assessment & Penetration Testing that comes without a 100 emails, 250 Google searches & painstaking PDFs. Saves hundreds of hours of your & developer's time.

1.1 About Astra Security

Astra Security makes cyber security super simple for online businesses. The company offers a security suite that comprises of security audit, firewall & malware scanner.

Every solution within our suite takes under five minutes to setup & offers a 10x better experience than their contemporaries. The suite is beautifully knit, offering a homogenous experience that makes security delightful. Astra Security is a Techstars backed company, awarded by President of France & PM of India for its innovation in cyber security.

1.2 Objective of Security Testing

The security testing focuses on evaluating the security of the web, mobile, networks, API, SaaS, blockchain & cloud applications by methodically validating & verifying the effectiveness of security controls. The process involves an active analysis of any application for any available weaknesses, technical flaws, or vulnerabilities.

Every vulnerability that is found will be present with an assessment of the impact, a proposal for a technical solution using our **collaborative cloud dashboard.**

Vulnerability Assessment & Penetration Testing (VAPT)

Static & Dynamic Code Analysis

Network Devices Configuration

Payment Manipulation Testing

Server Infra. Testing & DevOps

Business Logic Testing

Vulnerability Remidiation Assistance

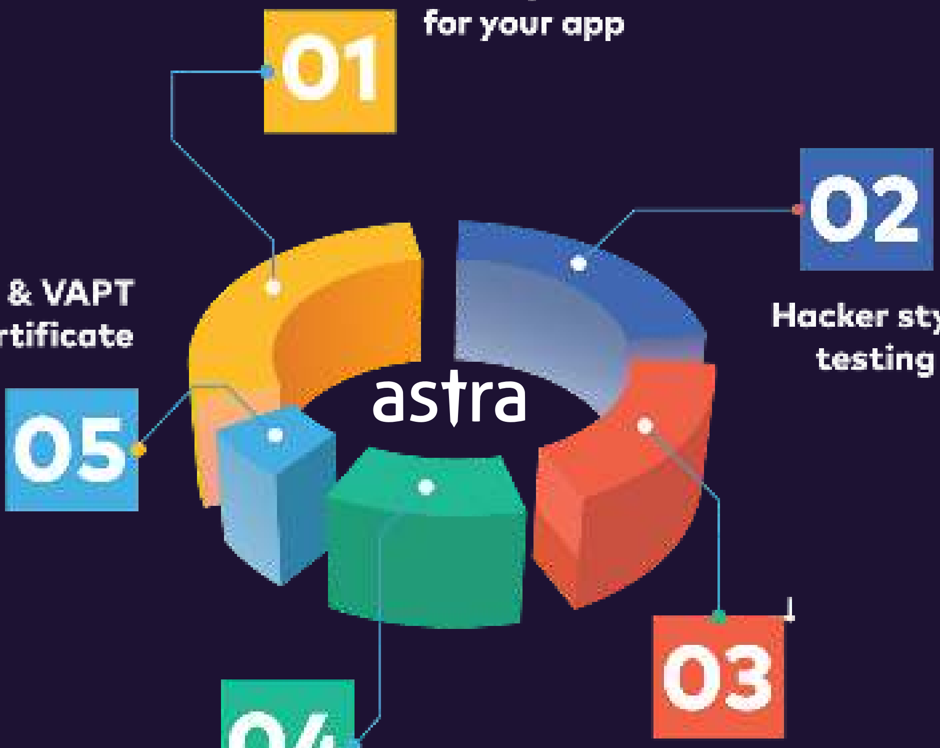
Birds Eye View with VAPT Dashboard

Testing per OWASP Standards & Known CVEs

1.3 Astra Security's VAPT Framework

Every VAPT (Vulnerability Assessment & Penetration Test) is tailored to application being tested. Apart from the standard security tests, massive stress is put on designing security tests tailored to your application's work flow.

- Web Applications
- Mobile Apps (iOS/Android)
- Blockchain Applications
- Cloud Infrastructure (AWS/Azure)
- SaaS Applications
- IOT Applications
- Website Themes & Plugins
- API Testing
- Network Devices



01 Tailoring audit for your app

02 Hacker style testing

03 Interactive video POC reports

04 Bug fix teaming up in our dashboard

05 Re-test & VAPT Certificate

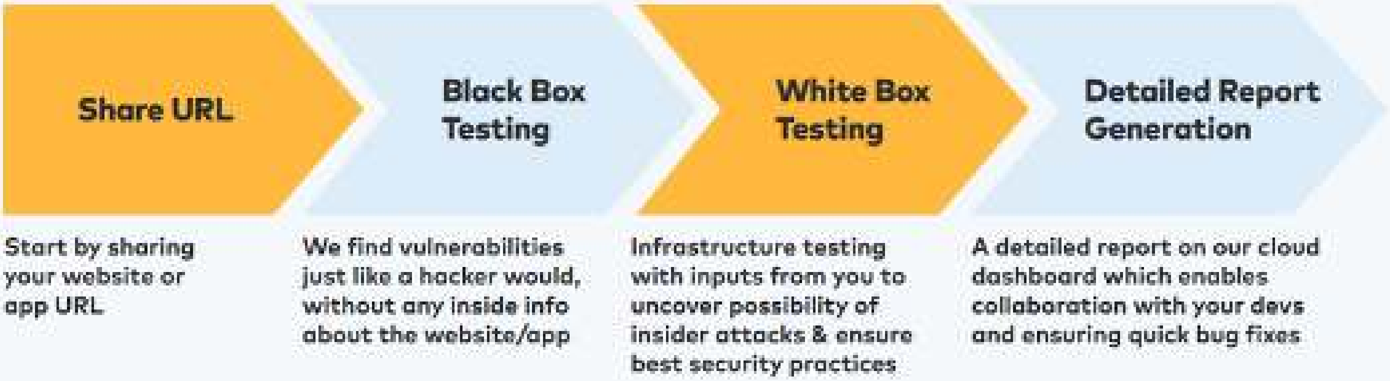
2. Security Audit Scope of Work (SOW)

Astra’s Security Testing is based on the OWASP (Open Web Application Security Project) Testing Methodologies and the OWASP Testing Framework. During the audit we perform over 1250+ ‘active’ tests that have been classified on the basis of type of vulnerabilities found. Each active test is followed by hundreds of sub-tests.

A detailed security audit's scope will be a tailored approach basis on the individual requirements such as a number applications to be audited, types of application, desired type of security testing, our predefined number of tests for each type of application, security assessment tools, and more.

The security audit scope of work will include:

- **Vulnerability Assessment and Penetration Testing (VAPT)**
- **Static & dynamic code analysis**
- **Technical assistance in patching found security vulnerabilities**
- **Collaborative cloud dashboard for vulnerability reporting & management**
- **Access to our security tools/APIs**
- **Consultation on the best security practices for your application**



Share URL

Start by sharing your website or app URL

Black Box Testing

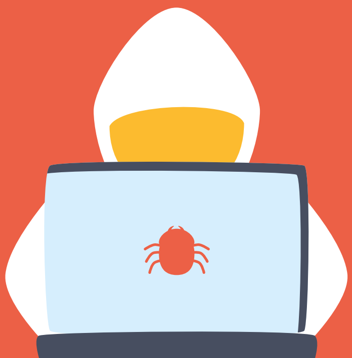
We find vulnerabilities just like a hacker would, without any inside info about the website/app

White Box Testing

Infrastructure testing with inputs from you to uncover possibility of insider attacks & ensure best security practices

Detailed Report Generation

A detailed report on our cloud dashboard which enables collaboration with your devs and ensuring quick bug fixes



Hacker style testing, powered by our powerful vulnerability management & collaboration dashboard.

Qualified & Friendly Security Team

The security audit is the high-level description of the many ways organizations can test and assess their overall security posture.

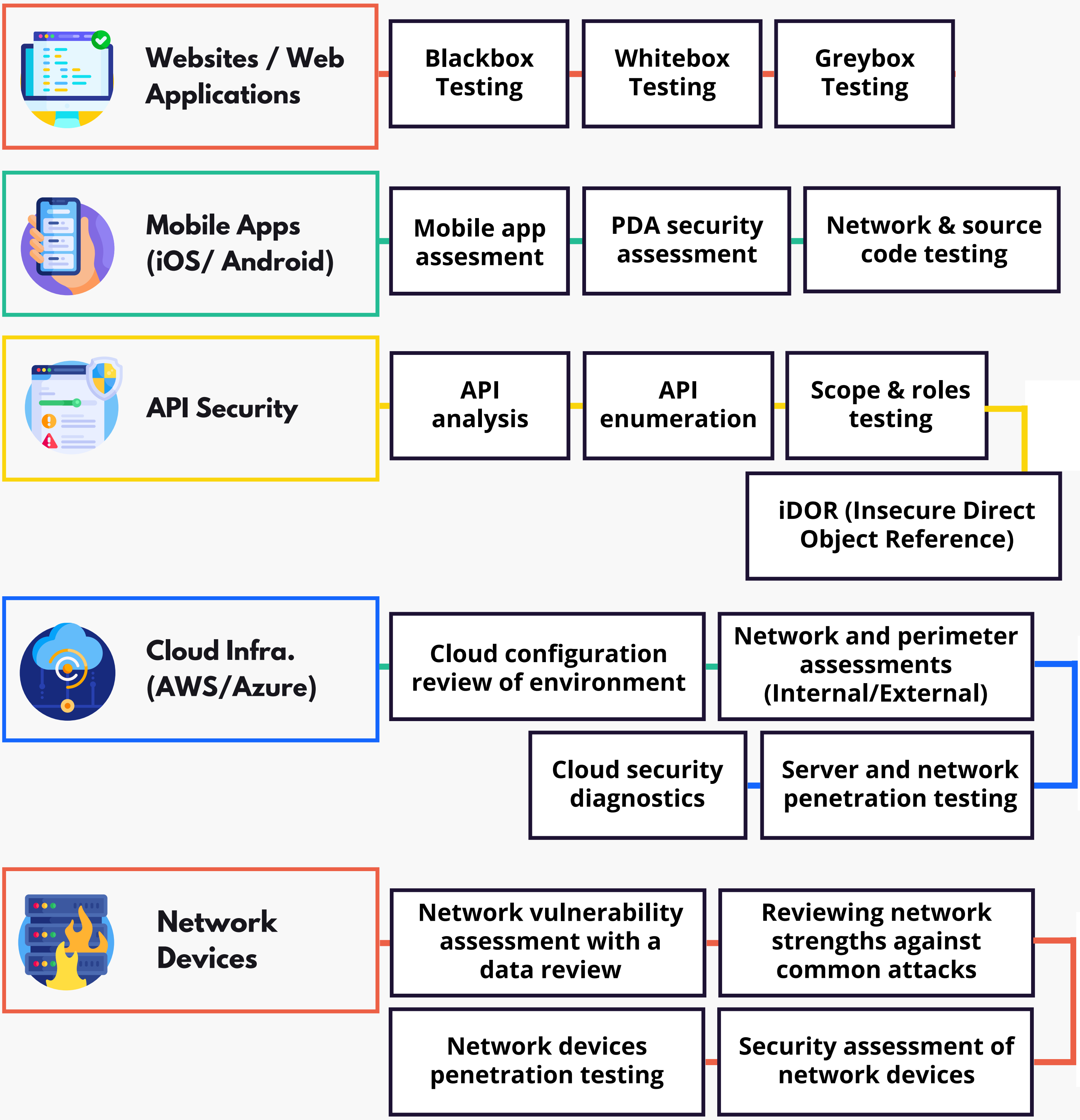
Astra's team of security auditors maintain the ethical and professional approach for the testing and assessing your organization's security posture. Our professional auditors combine the wisdom, qualifications and skills acquired over the years doing thousands of security audits. You get nothing but the best experience throughout the engagement.

In addition, the auditors have both technical & communication skills to uncover all vulnerabilities on your platform and collaborate with your development team to help them patch discovered vulnerabilities in your application/network. Our team take prides in being developer friendly.

Our security auditors have wide education backgrounds & hold industry specific certifications (not limited to the list below):

- Bachelors in Information Security from Northumbria University, Singapore
- CEH - Certified Ethical Hacker
- Advanced Diploma in Information Security, MDI, Singapore
- Cyber Security Fundamentals from Kaspersky
- Policy Compliance Certification, Qualys

Vulnerability Management Areas



Websites / Web Applications

- Blackbox Testing
- Whitebox Testing
- Greybox Testing

Mobile Apps (iOS/ Android)

- Mobile app assesment
- PDA security assessment
- Network & source code testing

API Security

- API analysis
- API enumeration
- Scope & roles testing
- iDOR (Insecure Direct Object Reference)

Cloud Infra. (AWS/Azure)

- Cloud configuration review of environment
- Network and perimeter assessments (Internal/External)
- Server and network penetration testing
- Cloud security diagnostics

Network Devices

- Network vulnerability assessment with a data review
- Reviewing network strengths against common attacks
- Security assessment of network devices
- Network devices penetration testing

3. Testing Methodologies

Our security testing approach and methodology is based on industry leading practices such as OWASP, OSSTMM, WASC, NIST etc.

3.1 For Websites/Web Applications

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Define scope of testing for an application • Document initial testing requirements • Develop testing & scanning schedule • Understand implemented functionalities in an application • Sampling of browser-server traffic flow • Finalize testing deliverables format	• Perform static code analysis of an application • Server Infrastructure Testing & DevOps • Identify the loopholes in the business logic • Do authorization checks for user access (UAC) • Schedule manual & automated application scanning using own tools • List commercial and open source tools for security testing	• Perform dynamic analysis & penetration tests • Payment manipulation testing • Test for known CVEs • Technology specific attack vectors and payloads • Verify findings and remove false positives • Catalogue all the exposed vulnerabilities • Collection of evidence and Video POCs	• Determine ease of vulnerability exploitation • Provide app vulnerabilities details on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and Final Report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

For more information, visit: https://www.getastra.com/website-vapt

Hybrid of Human & Automated Vulnerability Testing.

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3.2 For Mobile Applications (Android)

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Installation of apk file in Android security testing devices • Reconnaissance & threat modeling • All app components are identified and known to be documented • Define overall scope of testing • Document initial testing requirements • Develop testing schedule • Sampling of test data	• Intercept the proxy to analyze the incoming & outgoing packets of the app • Perform source code analysis • Understand the basic business functionality of the app to identify possible entry and exit points of information • Identify application's data store (at rest, in transit or on display) and sensitivity	• Based on the observations, formulate test cases and carry out the security testing for ◦ Data storage and privacy ◦ Cryptography ◦ Authentication & session management ◦ Encrypted network communications ◦ Platform interaction ◦ Code quality and build settings	• Determine ease of vulnerability exploitation • Provide app vulnerabilities details on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and Final Report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

Tools used for Android security testing: Network Proxy, MitmProxy, Quark, APKTool, Android Debug Bridge, MobSF, ZAP & more.

For more information, visit: https://www.getastra.com/mobile-app-vapt

3.3 For Mobile Applications (iOS)

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Installation of ipa file in iOS security testing devices • Reconnaissance & threat modeling • All app components are identified and known to be documented • Define overall scope of testing • Document initial testing requirements • Develop testing schedule • Sampling of test data	• Intercept the proxy to analyze the packets coming in and going out of the app • Perform source code analysis • Understand the basic business functionality of the app to identify possible entry and exit points of information • Identify application's data store (at rest, in transit or on display) and sensitivity	• Based on the observations, formulate test cases and carry out the security testing for ◦ Data storage and privacy ◦ Cryptography ◦ Authentication & session management ◦ Encrypted network communications ◦ Platform interaction ◦ Code quality and build settings	• Determine ease of vulnerability exploitation • Provide app vulnerabilities details on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and Final Report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

Tools used for iOS security testing: Network Proxy, MitmProxy, Quark, MobSF, ZAP, IMAS & more.

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For more information, visit: https://www.getastra.com/mobile-app-vapt

3.4 For API Security

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Analyze the API endpoints • Checking type of Authentication implemented: ○ Basic HTTP authentication ○ User Input validation checks ○ Access token ○ Cookies • Document initial testing requirements • Develop testing schedule • Setup testing environment and prepare testing tools	• Check if all the endpoints are protected behind authentication to avoid broken authentication process • Test for API Input Fuzzing • Test for Un-handled HTTP Methods • Analyzing API request and response • Testing Integration endpoints	• Test for following vulnerabilities: ○ Unauthorized Access ○ Data leakage ○ Sanctioning Fuzzy input ○ Injection Vulnerabilities ○ Parameter Tampering, etc. • Data validation testing • Access permissions • IDOR (Insecure Direct Object Reference)	• Determine ease of vulnerability exploitation • Provide vulnerabilities details on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and final report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

Tools used for API security testing: Burp Suite, Proxy, SQLmap, Acunetix, DirBuster, Fuzzapi, Commix, REST API Clients & more.

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For more information, visit: https://getastra.com/blog/knowledge-base/api-security-testing

3.5 For AWS Cloud Infrastructure

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Define scope of testing for your AWS integration • Obtain root access keys • Network and perimeter assessments (Internal/External) • Finalize testing deliverables format	• Configuration review of the environment • Reviewing Identity and Access Management (IAM) users, groups and roles • Managing the access control on the cloud • EC2, SNS, RDS Security configuration review • Reviewing other AWS policies for: ○ S3 Bucket ○ SQS queue ○ KMS keys	• Based on evaluation start finding open vulnerabilities & security loopholes • Running vulnerability scanning with tools such as CloudSploit • Perform server and network penetration testing • Perform 50+ security tests • Run cloud security diagnostics	• Provide details of vulnerabilities & misconfigurations on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and final report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

Tools used for Cloud infrastructure testing for AWS: Prowler, CloudSploit, Cloudplaining, ScoutSuite CloudJack, & more.

For more information, visit: https://getastra.com/blog/security-audit/aws-security-audit

3.6 For Azure Cloud Infrastructure

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Define scope of testing for your Azure integration • Obtain root access keys • Network and perimeter assessments (Internal/External) • Finalize testing deliverables format	• Configuration review of the environment • Reviewing Identity and Access Management (IAM) users, groups and roles • Managing the access control on the cloud • Storage, VMs, SQL Database, Keyvault, & App service environment Security configuration review • Reviewing data protection & encryption	• Based on evaluation start finding open vulnerabilities & security loopholes • Running vulnerability scanning with tools • Perform server and network penetration testing • Perform 50+ security tests • Run cloud security diagnostics	• Provide details of vulnerabilities & misconfigurations on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and final report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

Tools used for Cloud infrastructure testing for Azure: Azucar, CloudSploit, ScoutSuite, MicroBurst, cs-suite, & more.

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3.7 For Network Devices - Firewall/Routers/Printers

Phase	Phase I	Phase II	Phase III	Phase IV
Phase name	Initiation	Evaluation	Discovery	Reporting
Description	• Define scope of testing for network devices • Develop testing schedule • identify any deficiencies that put the customer at risk of a security breach • Understand integration of the device and topology • Sampling of network traffic • Finalize testing deliverables format	• Check if all the endpoints of devices are protected with authentication • Security policies & architecture review • Do authorization checks for user access (UAC) • Network data review • Evaluate the policies for remote access, etc. • Reviewing network strengths against common attacks	• Perform risk Assessment to identify threats, and analyze the control environment to determine what risks are and their potential impact. • Vulnerability assessment for device process, application & function • Perform penetration testing to find flaws in the vulnerable devices	• Provide details of vulnerabilities & misconfigured/ unpatched network devices on your Astra VAPT Dashboard • Provide technical solution or recommendations for fixes • Independent quality review and final report submissions • Provide VAPT Certificate for security audit
Outcome	Testing results are periodically updated in Astra VAPT Dashboard			

Tools used for Network devices testing: Nmap, Wireshark, Nessus, Metasploit, burp, Sublist3r & more.

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For more information, visit: https://getastra.com/blog/security-audit/it-security-audit

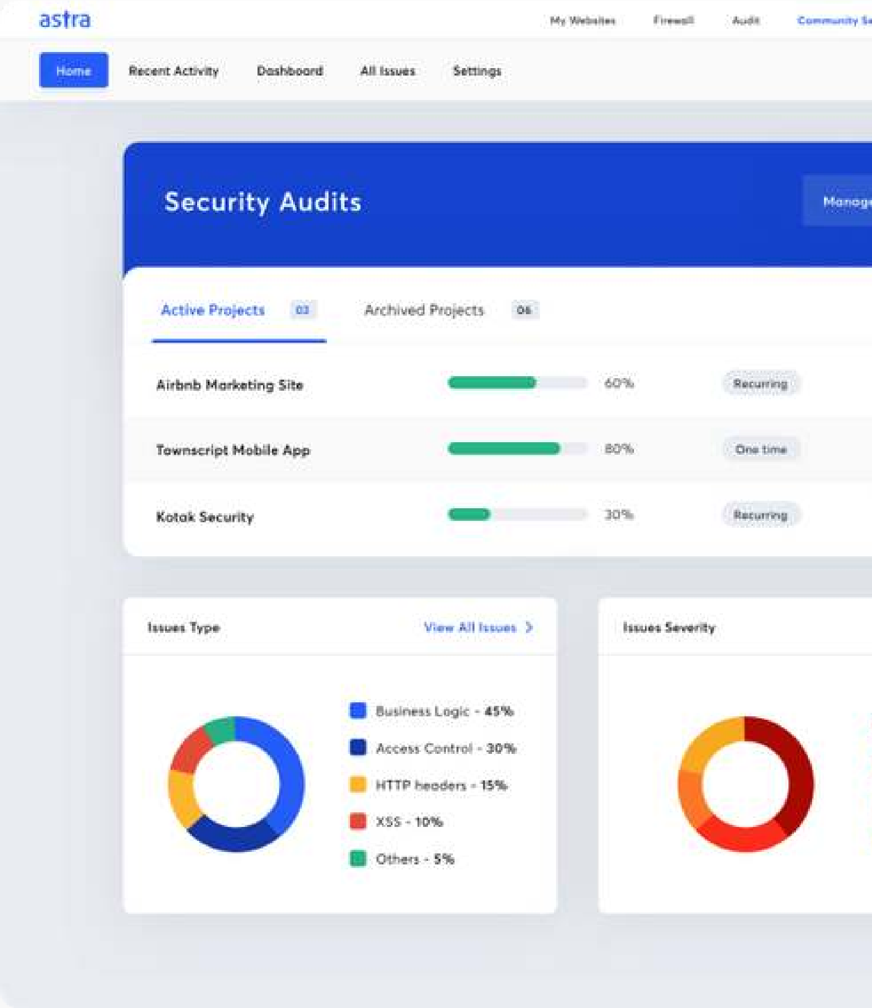
4. Security Testing Report & Video PoCs

Astra Security's proprietary vulnerability management platform is unlike anything you must have ever seen. A birds eye view for CISOs helps ensure you're always on top of the status of the security audit. A detailed vulnerability report with video proof of concepts, selenium scripts & ability to collaborate with our security engineers within dashboard ensures vulnerabilities are fixed in a record time.

- Details of vulnerability
- Screenshots & video PoCs
- Selenium scripts for your developers to help reproduce vulnerabilities
- Threat criticality with CVSS score
- Business impact & consequences
- Steps to re-create the issue
- Tailored steps to fix the vulnerability (Patching)
- Best Practices for future

Astra Security's vulnerability management dashboard comes with a birds eye view for management keeping you always on the top of security assessment status.

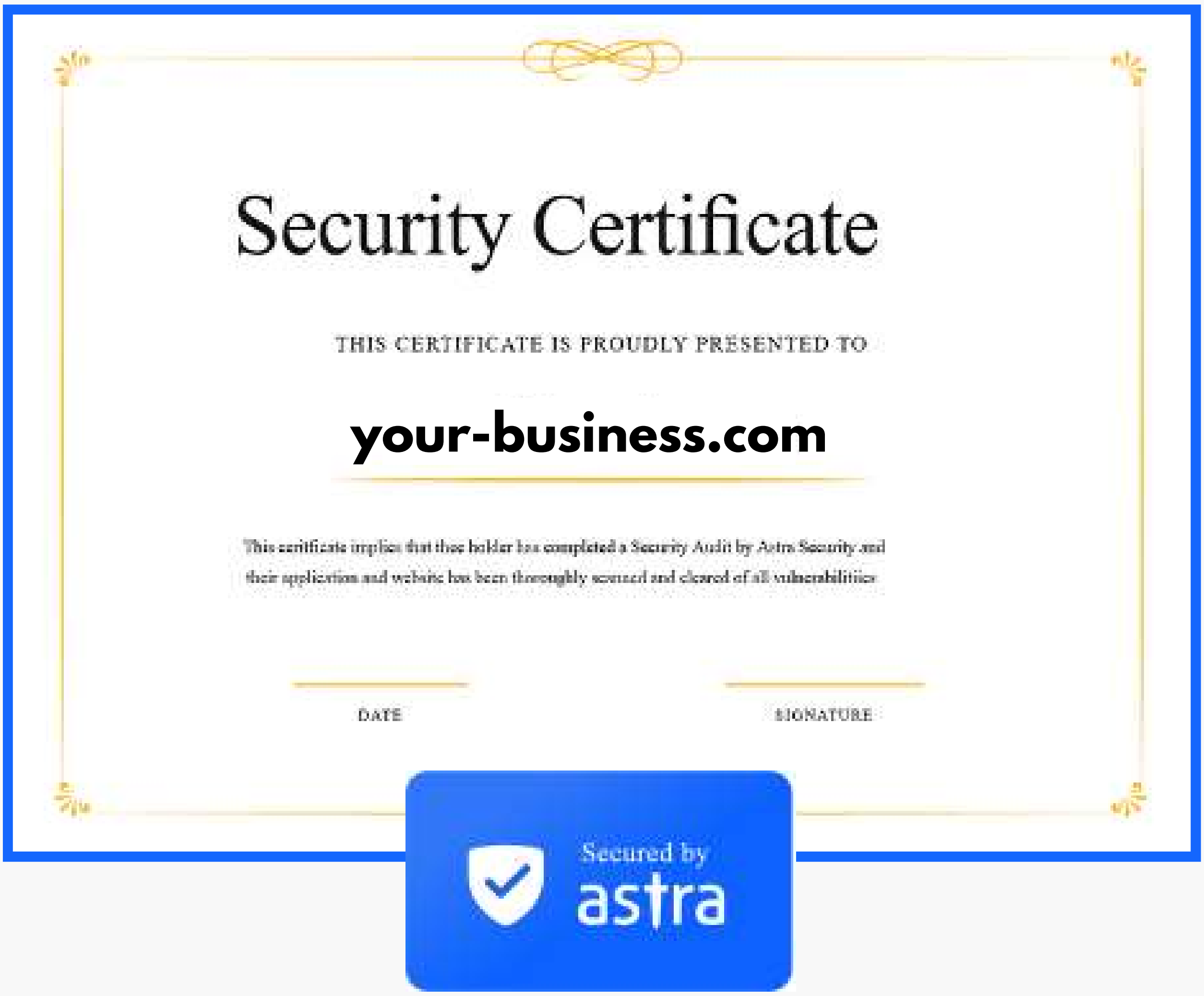
Video PoCs, selenium scripts & collaboration with security team enables your developers to fix the vulnerabilities in record time. With Astra Security, VAPT takes 40% less time than other solutions.



Airbnb Marketing Site	▬	60%	Recurring
Townscript Mobile App	▬	80%	One time
Kotak Security	▬	30%	Recurring

- 🟦 Business Logic - 45%
- 🟦 Access Control - 30%
- 🟨 HTTP headers - 15%
- 🟥 XSS - 10%
- 🟩 Others - 5%

Build trust among your customers & partners with a security certificate



Security Certificate

THIS CERTIFICATE IS PROUDLY PRESENTED TO

your-business.com

This certificate implies that thee holder has completed a Security Audit by Astra Security and their application and website has been thoroughly scanned and cleared of all vulnerabilities

DATE

SIGNATURE

Secured by
astra

A secure application calls for some bragging. After our engineers verify you've fixed the uncovered vulnerabilities, we issue a safe-to-host certificate. This helps inspire confidence among your customers and partners.

5. Methodology for patching vulnerabilities

We have a strong emphasis on security patching post the audit. It is important to close the loop and make the application bulletproof from hackers.

We achieve this by providing:

- Detailed steps for patching
- Best practices while development
- Round-the-clock technical assistance
- Video POCs of discovered vulnerabilities and security loopholes
- Re-audit to ensure the issue has been fixed

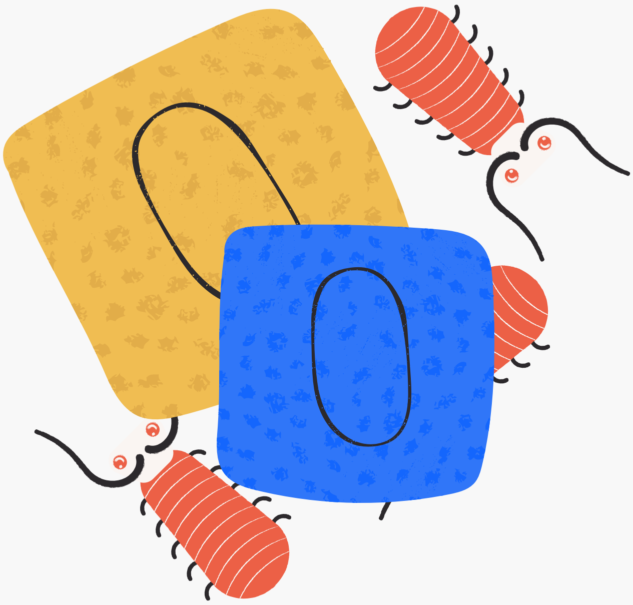
After the security vulnerabilities have been satisfactorily resolved, **a full re-scan** is conducted to ensure that there are no gaps. A certificate will be then issued to confirm the same.

Additional Security Mechanisms

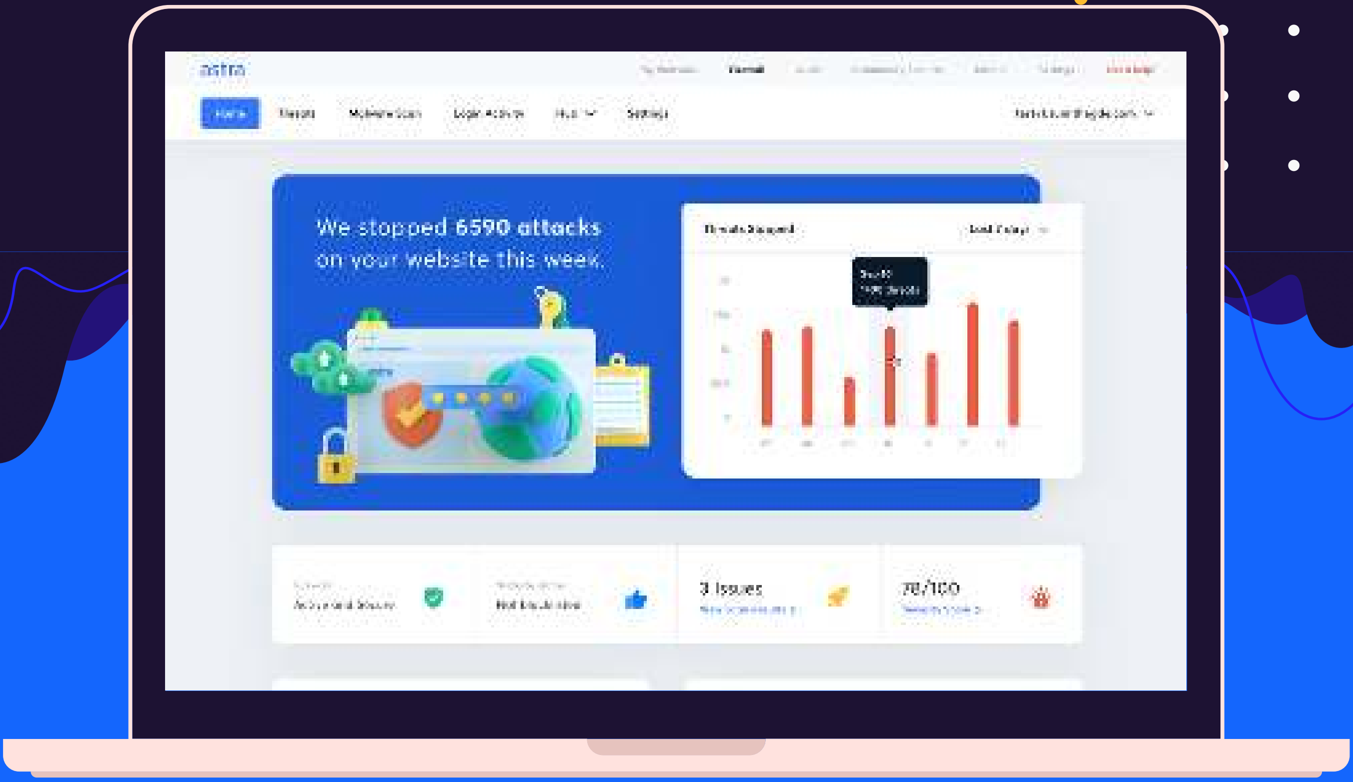
To ensure utmost security we believe in ‘Proactive Security’ measures where we anticipate the infiltration techniques used by hackers and recommend additional security countermeasures.

We take security in our own hands and fortify the application:

- Application specific security mechanisms
- Countermeasures for known attack techniques
- Framework to monitor user actions on application
- Mechanisms to tackle hackers



6. Our Security Suite



We stopped 6590 attacks on your website this week.

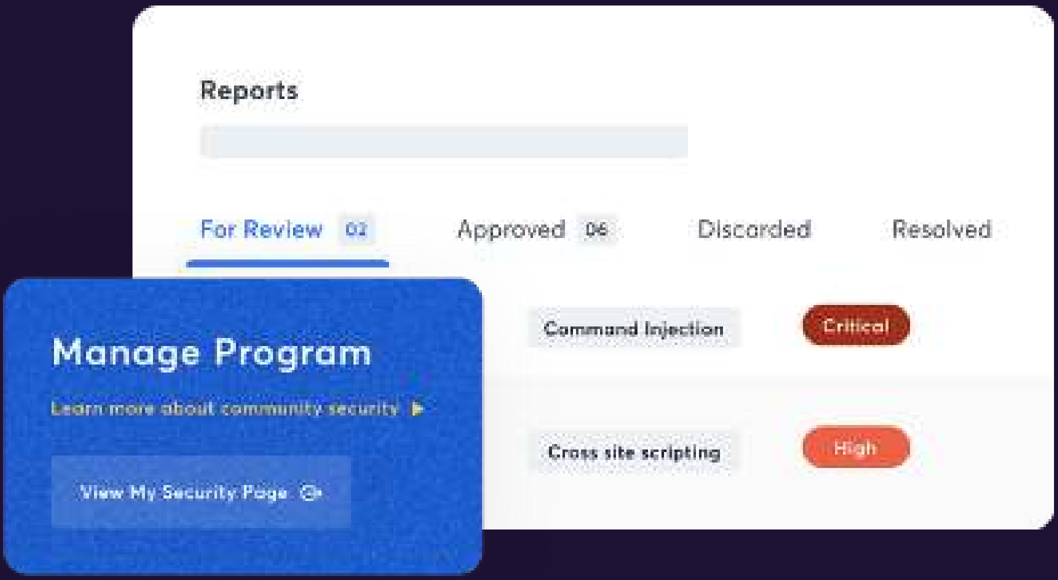
- Intelligent web application firewall & malware scanner
- Protects against 100+ types of attacks
- Daily automatic malware scans
- Community-driven
- No DNS changes required
- No routing of traffic through our servers
- We never become a single point of failure
- Protection tailored to technology stack

A Rock Solid Firewall that detects, stops & nutralizes 100+ threats neutralizes 100+ threats including bad bots, SQLi, LFI, RFI etc. Automatic decision making & dozens of security features like country blocking, GDPR cookie consent, rate limiting, fake search engine bots detection & more.

Create your own community security (Bug Bounty) program

Your business is vulnerable. There's always a new malware or hack floating around that you are not protected against.

With community security, ethical hackers guard your website, report vulnerabilities and earn rewards. You allow people to report any security weaknesses they find through a dedicated channel and strengthen your website before it's attacked—at no cost to your business.



- **Launch in 4 minutes**
- **Leverage the security community**
- **Managed by our security experts**
- **Self serves dashboard**
- **Reward hackers**
- **Be known as a security conscious company**

For more information, visit here: **https://www.getastra.com/community-security**

8. Our VAPT Customers

Trusted by The Ones You Trust

kotak Securities
TEDx
hotstar
akeneo
Ford
Gillette
Muthoot Finance
COSMOPOLITAN
HealthifyMe
African Union
GoDaddy
Unilever
Lynas CORPORATION LTD
Dr. AirWair Martens
NIIT

& more...

Astra carried out a security audit on our digital application which is a solution that allows companies to manage their whistleblower system. Due to the sensitive nature of the information that is processed in the application, we wanted to identify all possible security loopholes. I am very satisfied with the result and the recommendations of the audit report. It was an eye opener. We were able to optimize the security of the app to meet the expectations of our customers.

- Olivier Trupiano, CEO, Signalement (a whistleblowing platform in Europe)

8. Awards & Recognition

Astra Security was awarded a grant from the French Government under their French Tech Ticket program. We were awarded by the French president Mr. François Hollande himself.

Astra Security was awarded 'Best Cyber Security Startup' by the PM of India Mr. Narendra Modi at Global Conference on Cyber Security.

Astra Security is recognized by NASSCOM as top 50 emerging cyber security companies & has been awarded with the Emerge50 award.

9. List of Top Security Issues Tested

The following table captures the top security issues found. The list is illustrative of the security issues tested for. During actual security audit, under head head below thousands of tests are performed including tailored tests for your application.

Vulnerabilities Tested	Exploitability	Impact
Configuration and Deployment Misconfiguration	Easy	Moderate
Application or Framework Specific Vulnerabilities	Difficult	Severe
Business Logic Flaws	Average	High
Shopping Cart & Payment Gateway Manipulation	Difficult	Severe
Known Security Issues (CVEs)	Average	Moderate
Weak Identity Management	Average	High
Broken Authentication	Average	Severe
Improper Authorization	Average	Severe
Broken Session Management	Average	High
Weak Input Validation	Easy	Moderate
Error Handling	Difficult	Moderate
SQL Injection	Easy	Severe
Weak or Broken Cryptography	Difficult	**High**
Client Side Script Security	Easy	Moderate
Cross-Site Request Forgery (CSRF)	Average	Moderate
Cross-Site Scripting (XSS)	Average	Moderate
Clickjacking	Easy	Moderate
Unrestricted File Upload	Difficult	Severe
Sensitive Data Exposure	Difficult	Severe
Insufficient Attack Protection	Easy	Moderate
Under-protected APIs	Average	Moderate
HTTP Security Header Information	Average	Moderate

“

Secure your business from cyber threats using Astra Security Suite.

How can we help you? Let's talk.

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Schedule a Call

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Making Security Simple for thousands of online businesses