

CompTIA PenTest+ Certification Exam Objectives

EXAM NUMBER: PTO-002



About the Exam

Candidates are encouraged to use this document to help prepare for the CompTIA PenTest+ (PTo-002) certification exam. The CompTIA PenTest+ certification exam will verify the successful candidate has the knowledge and skills required to:

- · Plan and scope a penetration testing engagement
- · Understand legal and compliance requirements
- Perform vulnerability scanning and penetration testing using appropriate tools and techniques, and then analyze the results
- Produce a written report containing proposed remediation techniques, effectively communicate results to the management team, and provide practical recommendations

This is equivalent to three to four years of hands-on experience working in a security consultant or penetration tester job role.

These content examples are meant to clarify the test objectives and should not be construed as a comprehensive listing of all the content of this examination.

EXAM ACCREDITATION

The CompTIA PenTest+ (PTo-002) exam is accredited by ANSI to show compliance with the ISO 17024 standard and, as such, undergoes regular reviews and updates to the exam objectives.

EXAM DEVELOPMENT

CompTIA exams result from subject-matter expert workshops and industry-wide survey results regarding the skills and knowledge required of an IT professional.

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PLEASE NOTE

The lists of examples provided in bulleted format are not exhaustive lists. Other examples of technologies, processes, or tasks pertaining to each objective may also be included on the exam although not listed or covered in this objectives document. CompTIA is constantly reviewing the content of our exams and updating test questions to be sure our exams are current, and the security of the questions is protected. When necessary, we will publish updated exams based on existing exam objectives. Please know that all related exam preparation materials will still be valid.



TEST DETAILS

Required exam PTo-002

Number of questions Maximum of 85

Types of questions Multiple-choice and performance-based

Length of test 165 minutes

Recommended experience 3-4 years of hands-on experience performing

penetration tests, vulnerability assessments,

and code analysis

Passing score 750 (on a scale of 100-900)

EXAM OBJECTIVES (DOMAINS)

The table below lists the domains measured by this examination and the extent to which they are represented.

DOMAIN PERCENTAGE	GE OF EXAMINATION
1.0 Planning and Scoping	14%
2.0 Information Gathering and Vulnerability Scanning	22%
3.0 Attacks and Exploits	30%
4.0 Reporting and Communication	18%
5.0 Tools and Code Analysis	16%
Total	100%





1.0 Planning and Scoping

- ¹¹ Compare and contrast governance, risk, and compliance concepts.
 - Regulatory compliance considerations
 - Payment Card Industry Data Security Standard (PCI DSS)
 - General Data Protection Regulation (GDPR)
 - Location restrictions
 - Country limitations

- Tool restrictions
- Local laws
- Local government requirements
 - Privacy requirements
- · Legal concepts
 - Service-level agreement (SLA)
 - Confidentiality

- Statement of work
- Non-disclosure agreement (NDA)
- Master service agreement
- Permission to attack

- Explain the importance of scoping and organizational/customer requirements.
 - · Standards and methodologies
 - MITRE ATT&CK
 - Open Web Application Security Project (OWASP)
 - National Institute of Standards and Technology (NIST)
 - Open-source Security Testing Methodology Manual (OSSTMM)
 - Penetration Testing Execution Standard (PTES)
 - Information Systems Security
 Assessment Framework (ISSAF)

- · Rules of engagement
 - Time of day
 - Types of allowed/disallowed tests
 - Other restrictions
- Environmental considerations
 - Network
 - Application
 - Cloud
- Target list/in-scope assets
 - Wireless networks
 - Internet Protocol (IP) ranges
 - Domains

- Application programming interfaces (APIs)
- Physical locations
- Domain name system (DNS)
- External vs. internal targets
- First-party vs. third-party hosted
- · Validate scope of engagement
 - Question the client/review contracts
 - Time management
 - Strategy
 - Unknown-environment vs. known-environment testing
- Given a scenario, demonstrate an ethical hacking mindset by maintaining professionalism and integrity.
 - Background checks of penetration testing team
 - Adhere to specific scope of engagement
 - · Identify criminal activity
 - Immediately report breaches/ criminal activity
- Limit the use of tools to a particular engagement
- · Limit invasiveness based on scope
- Maintain confidentiality of data/information
- · Risks to the professional
 - Fees/fines
 - Criminal charges





2.0 Information Gathering and Vulnerability Scanning

- Given a scenario, perform passive reconnaissance.
 - DNS lookups
 - · Identify technical contacts
 - Administrator contacts
 - · Cloud vs. self-hosted
 - Social media scraping
 - Key contacts/job responsibilities
 - Job listing/technology stack
 - Cryptographic flaws
 - Secure Sockets Layer (SSL) certificates
 - Revocation

- · Company reputation/security posture
- Data
 - Password dumps
 - File metadata
 - Strategic search engine analysis/enumeration
 - Website archive/caching
 - Public source-code repositories

- Open-source intelligence (OSINT)
 - Tools
 - Shodan
 - Recon-ng
 - Sources
 - Common weakness enumeration (CWE)
 - Common vulnerabilities and exposures (CVE)

Given a scenario, perform active reconnaissance.

- Enumeration
 - Hosts
 - Services
 - Domains
 - Users
 - Uniform resource locators (URLs)
- Website reconnaissance
 - Crawling websites
 - Scraping websites
 - Manual inspection of web links
 - robots.txt

- Packet crafting
 - Scapy
- Defense detection
 - Load balancer detection
 - Web application firewall (WAF) detection
 - Antivirus
 - Firewall
- Tokens
 - Scoping
 - Issuing
 - Revocation

- Wardriving
- Network traffic
 - Capture API requests and responses
 - Sniffing
- Cloud asset discovery
- Third-party hosted services
- Detection avoidance





²³ Given a scenario, analyze the results of a reconnaissance exercise.

- Fingerprinting
 - Operating systems (OSs)
 - Networks
 - Network devices
 - Software
- · Analyze output from:
 - DNS lookups
 - Crawling websites

- Network traffic
- Address Resolution
- Protocol (ARP) traffic
- Nmap scans
- Web logs

Given a scenario, perform vulnerability scanning.

- Considerations of vulnerability scanning
 - Time to run scans
 - Protocols
 - Network topology
 - Bandwidth limitations
 - Query throttling
 - Fragile systems
 - Non-traditional assets
- Scan identified targets for vulnerabilities
- Set scan settings to avoid detection
- Scanning methods
 - Stealth scan
 - Transmission Control Protocol (TCP) connect scan
 - Credentialed vs. non-credentialed

- Nmar
 - Nmap Scripting Engine (NSE) scripts
 - Common options
 - -A
 - -sV
 - -sT
 - -Pn
 - -O
 - -sU
 - -sS -T 1-5
 - -script=vuln
 - -p
- Vulnerability testing tools that facilitate automation





3.0 Attacks and Exploits

- Given a scenario, research attack vectors and perform network attacks.
 - Stress testing for availability
 - Exploit resources
 - Exploit database (DB)
 - Packet storm
 - Attacks
 - ARP poisoning
 - Exploit chaining
 - Password attacks
 - Password spraying
 - Hash cracking
 - Brute force
 - Dictionary
 - On-path (previously known as man-in-the-middle)
 - Kerberoasting

- DNS cache poisoning
- Virtual local area network
- (VLAN) hopping
- Network access control (NAC) bypass
- Media access control (MAC) spoofing
- Link-Local Multicast Name Resolution (LLMNR)/NetBIOS-Name Service (NBT-NS) poisoning
- New Technology LAN Manager (NTLM) relay attacks
- Tools
 - Metasploit
 - Netcat
 - Nmap
- Given a scenario, research attack vectors and perform wireless attacks.
 - Attack methods
 - Eavesdropping
 - Data modification
 - Data corruption
 - Relay attacks
 - Spoofing
 - Deauthentication
 - Jamming
 - Capture handshakes
 - On-path
 - Attacks
 - Evil twin

- Captive portal
- Bluejacking
- Bluesnarfing
- Radio-frequency identification (RFID) cloning
- Bluetooth Low Energy (BLE) attack
- Amplification attacks [Near-field communication (NFC)]
- WiFi protected setup (WPS) PIN attack
- Tools
 - Aircrack-ng suite
 - Amplified antenna



- Given a scenario, research attack vectors and perform application-based attacks.
 - OWASP Top 10
 - Server-side request forgery
 - · Business logic flaws
 - · Injection attacks
 - Structured Query Language (SQL) injection
 - Blind SQL
 - Boolean SQL
 - Stacked queries
 - Command injection
 - Cross-site scripting
 - Persistent
 - Reflected
 - Lightweight Directory Access Protocol (LDAP) injection

- Application vulnerabilities
 - Race conditions
 - Lack of error handling
 - Lack of code signing
 - Insecure data transmission
 - Session attacks
 - Session hijacking
 - Cross-site request forgery (CSRF)
 - Privilege escalation
 - Session replay
 - Session fixation
- API attacks
 - Restful
 - Extensible Markup Language-Remote Procedure Call (XML-RPC)
 - Soai

- · Directory traversal
- Tools
 - Web proxies
 - OWASP Zed Attack Proxy (ZAP)
 - Burp Suite community edition
 - SQLmap
 - DirBuster
- Resources
 - Word lists

Given a scenario, research attack vectors and perform attacks on cloud technologies.

- Attacks
 - Credential harvesting
 - Privilege escalation
 - Account takeover
 - Metadata service attack
 - Misconfigured cloud assets
 - Identity and access management (IAM)
 - Federation misconfigurations
 - Object storage
 - Containerization technologies
 - Resource exhaustion
 - Cloud malware injection attacks
 - Denial-of-service attacks
 - Side-channel attacks
 - Direct-to-origin attacks

- Tools
 - Software development kit (SDK)



Explain common attacks and vulnerabilities against specialized systems.

- Mobile
 - Attacks
 - Reverse engineering
 - Sandbox analysis
 - Spamming
 - Vulnerabilities
 - Insecure storage
 - Passcode vulnerabilities
 - Certificate pinning
 - Using known
 - vulnerable components
 - (i) Dependency vulnerabilities
 - (ii) Patching fragmentation
 - Execution of activities using root
 - Over-reach of permissions
 - Biometrics integrations
 - Business logic vulnerabilities
 - Tools
 - Burp Suite
 - Drozer
 - Needle
 - Mobile Security Framework (MobSF)
 - Postman
 - Ettercap

- Frida
- Objection
- Android SDK tools
- Androzer
- ApkX
- APK Studio
- Internet of Things (IoT) devices
 - BLE attacks
 - Special considerations
 - Fragile environment
 - Availability concerns
 - Data corruption
 - Data exfiltration
 - Vulnerabilities
 - Insecure defaults
 - Cleartext communication
 - Hard-coded configurations
 - Outdated firmware/hardware
 - Data leakage
 - Use of insecure or outdated components
- Data storage system vulnerabilities
 - Misconfigurations—on-premises and cloud-based

- Default/blank username/password
- Network exposure
- Lack of user input sanitization
- Underlying software vulnerabilities
- Error messages and debug handling
- Injection vulnerabilities
 - Single quote method
- · Management interface vulnerabilities
 - Intelligent platform
 - management interface (IPMI)
- Vulnerabilities related to supervisory control and data acquisition (SCADA)/ Industrial Internet of Things (IIoT)/ industrial control system (ICS)
- Vulnerabilities related to virtual environments
 - Virtual machine (VM) escape
 - Hypervisor vulnerabilities
 - VM repository vulnerabilities
- Vulnerabilities related to containerized workloads

Given a scenario, perform a social engineering or physical attack.

- Pretext for an approach
- · Social engineering attacks
 - Email phishing
 - Whaling
 - Spear phishing
 - Vishing
 - Short message service (SMS) phishing
 - Universal Serial Bus (USB) drop key
 - Watering hole attack

- Physical attacks
 - Tailgating
 - Dumpster diving
 - Shoulder surfing
 - Badge cloning
- Impersonation
- Tools
 - Browser exploitation framework (BeEF)

- Social engineering toolkit
- Call spoofing tools
- · Methods of influence
 - Authority
 - Scarcity
 - Social proof
 - Urgency
 - Likeness
 - Fear



Given a scenario, perform post-exploitation techniques.

- Post-exploitation tools
 - Empire
 - Mimikatz
 - BloodHound
- Lateral movement
 - Pass the hash
- Network segmentation testing
- Privilege escalation
 - Horizontal
 - Vertical
- Upgrading a restrictive shell
- Creating a foothold/persistence
 - Trojan
 - Backdoor
 - Bind shell
 - Reverse shell
 - Daemons
 - Scheduled tasks

- Detection avoidance
 - Living-off-the-land techniques/fileless malware
 - PsExec
 - Windows Management Instrumentation (WMI)
 - PowerShell (PS) remoting/Windows Remote Management (WinRM)
 - Data exfiltration
 - Covering your tracks
 - Steganography
 - Establishing a covert channel
- Enumeration
 - Users
 - Groups
 - Forests
 - Sensitive data
 - Unencrypted files





4.0 Reporting and Communication

- 6-1 Compare and contrast important components of written reports.
 - · Report audience
 - C-suite
 - Third-party stakeholders
 - Technical staff
 - Developers
 - Report contents (** not in a particular order)
 - Executive summary
 - Scope details
 - Methodology
 - Attack narrative

- Findings
 - Risk rating (reference framework)
 - Risk prioritization
 - Business impact analysis
- Metrics and measures
- Remediation
- Conclusion
- Appendix
- · Storage time for report
- Secure distribution
- Note taking

- Ongoing documentation during test
- Screenshots
- Common themes/root causes
 - Vulnerabilities
 - Observations
 - Lack of best practices

Given a scenario, analyze the findings and recommend the appropriate remediation within a report.

- Technical controls
 - System hardening
 - Sanitize user input/ parameterize queries
 - Implemented multifactor authentication
 - Encrypt passwords
 - Process-level remediation
 - Patch management
 - Key rotation

- Certificate management
- Secrets management solution
- Network segmentation
- Administrative controls
 - Role-based access control
 - Secure software development life cycle
 - Minimum password requirements
 - Policies and procedures

- · Operational controls
 - Job rotation
 - Time-of-day restrictions
 - Mandatory vacations
 - User training
- Physical controls
 - Access control vestibule
 - Biometric controls
 - Video surveillance





Explain the importance of communication during the penetration testing process.

- Communication path
 - Primary contact
 - Technical contact
 - Emergency contact
- Communication triggers
 - Critical findings
 - Status reports
 - Indicators of prior compromise
- Reasons for communication
 - Situational awareness
 - De-escalation

- Deconfliction
- Identifying false positives
- Criminal activity
- Goal reprioritization
- Presentation of findings

Explain post-report delivery activities.

- · Post-engagement cleanup
 - Removing shells
 - Removing tester-created credentials
 - Removing tools
- · Client acceptance
- · Lessons learned
- Follow-up actions/retest

- Attestation of findings
- Data destruction process





-5.0 Tools and Code Analysis

- 5.1 Explain the basic concepts of scripting and software development.
 - Logic constructs
 - Loops
 - Conditionals
 - Boolean operator
 - String operator
 - Arithmetic operator
 - Data structures
 - JavaScript Object Notation (JSON)
 - Key value
 - Arrays

- Dictionaries
- Comma-separated values (CSV)
- Lists
- Trees
- Libraries
- Classes
- Procedures
- Functions
- Given a scenario, analyze a script or code sample for use in a penetration test.
 - Shells
 - Bash
 - PS
 - · Programming languages
 - Python
 - Ruby
 - Perl
 - JavaScript
 - · Analyze exploit code to:
 - Download files
 - Launch remote access
 - Enumerate users
 - Enumerate assets

- · Opportunities for automation
 - Automate penetration testing process
 - Perform port scan and then automate next
 - steps based on results
 - Check configurations and produce a report
 - Scripting to modify IP addresses
 - during a test
 - Nmap scripting to enumerate cyphers and produce reports





Explain use cases of the following tools during the phases of a penetration test.

(**The intent of this objective is NOT to test specific vendor feature sets.)

Scanners

- Nikto
- Open vulnerability assessment scanner (Open VAS)
- SQLmap
- Nessus
- Open Security Content Automation Protocol (SCAP)
- Wapiti
- WPScan
- Brakeman
- Scout Suite

· Credential testing tools

- Hashcat
- Medusa
- Hydra
- CeWL
- John the Ripper
- Cain
- Mimikatz
- Patator
- DirBuster
- waaf

Debuggers

- OllyDbg
- Immunity Debugger
- GNU Debugger (GDB)
- WinDbg
- Interactive Disassembler (IDA)
- Covenant
- SearchSploit

OSINT

- WHOIS
- Nslookup
- Fingerprinting Organization with Collected Archives (FOCA)
- theHarvester
- Shodan
- Maltego
- Recon-ng
- Censys

Wireless

- Aircrack-ng suite
- Kismet
- Wifite
- Rogue access point
- EAPHammer
- mdk4
- Spooftooph
- Reaver
- Wireless Geographic Logging Engine (WiGLE)
- Ferr

Web application tools

- OWASP ZAP
- Burp Suite
- Gobuster

Social engineering tools

- Social Engineering Toolkit (SET)
- BeEF

Remote access tools

- Secure Shell (SSH)

- Ncat
- Netcat
- ProxyChains

Networking tools

- Wireshark
- Hping

· Misc.

- SearchSploit
- PowerSploit
- Responder
- Impacket tools
- Empire
- Metasploit
- mitm6
- CrackMapExec
- TruffleHog
- Censys

Steganography tools

- Open steg
- Steghide
- Snow
- Coagula
- Sonic Visualiser
- TinEye
- Metagoofil
- Online SSL checkers

Cloud tools

- Scout Suite
- CloudBrute
- Pacu
- Cloud Custodian

PenTest+ (PTo-002) Acronym List

The following is a list of acronyms that appear on the CompTIA PenTest+ exam. Candidates are encouraged to review the complete list and attain a working knowledge of all listed acronyms as part of a comprehensive exam preparation program.

ACRONYM	SPELLED OUT	ACRONYM	SPELLED OUT
AAA	Authentication, Authorization and Accounting	IaaS	Infrastructure as a Service
ACL	Access Control List	IAM	Identity and Access Management
AES	Advanced Encryption Standard	ICMP	Internet Control Message Protocol
AP	Access Point	ICS	Industrial Control System
API	Application Programming Interface	IDA	Interactive Disassembler
APT	Advanced Persistent Threat	IDS	Intrusion Detection System
ARP	Address Resolution Protocol	IIoT	Industrial Internet of Things
AS2	Applicability Statement 2	IMEIs	International Mobile Equipment Identity
BeEF	Browser Exploitation Framework	IoT	Internet of Things
BLE	Bluetooth Low Energy	IP	Internet Protocol
BSSID	Basic Service Set Identifiers	IPMI	Intelligent Platform Management Interface
CA	Certificate Authority	IPS	Intrusion Prevention System
CAPEC	Common Attack Pattern	ISO	International Organization for Standardization
	Enumeration and Classification	ISP	Internet Service Provider
CLI	Command-Line Interface	ISSAF	Information Systems Security
CSRF	Cross-Site Request Forgery		Assessment Framework
CSV	Comma-Separated Values	JSON	JavaScript Object Notation
CVE	Common Vulnerabilities and Exposures	LAN	Local Area Network
CVSS	Common Vulnerability Scoring Systems	LDAP	Lightweight Directory Access Protocol
CWE	Common Weakness Enumeration	LLMNR	Link-Local Multicast Name Resolution
DB	Database	LSASS	Local Security Authority Subsystem Service
DDoS	Distributed Denial-of-Service	MAC	Media Access Control
DHCP	Dynamic Host Configuration Protocol	MDM	Mobile Device Management
DLL	Dynamic Link Library	MobSF	Mobile Security Framework
DLP	Data Loss Prevention	MOU	Memorandum of Understanding
DNS	Domain Name System	MSA	Master Service Agreement
DNSSEC	Domain Name System Security Extensions	MX	Mail Exchange
EAP	Extensible Authentication Protocol	NAC	Network Access Control
FOCA	Fingerprinting Organization with	NBT-NS	NetBIOS Name Service
	Collected Archives	NDA	Non-disclosure Agreement
FTP	File Transfer Protocol	NFC	Near-Field Communication
FTPS	File Transfer Protocol Secure	NIST	National Institute of Standards and Technology
GDB	GNU Debugger	NIST SP	National Institute of Standards
GDPR	General Data Protection Regulation		and Technology Special Publication
GPU	Graphics Processing Unit	NS	Name Server
HTTP	Hypertext Transfer Protocol	NSE	Nmap Scripting Engine
HTTPS	Hypertext Transfer Protocol Secure	NTLM	New Technology LAN Manager

ACRONYM	SPELLED OUT	ACRONYM	SPELLED OUT
NTP	Network Time Protocol	URL	Uniform Resource Locator
OS	Operating System	URI	Uniform Resource Identifier
OSINT	Open-source Intelligence	USB	Universal Serial Bus
OSSTMM	Open-source Security Testing	UTF	Unicode Transformation Format
	Methodology Manual	VAS	Vulnerability Assessment Scanner
OWASP	Open Web Application Security Project	VLAN	Virtual Local Area Network
PBKDF2	Password-Based Key Deviation Function 2	VM	Virtual Machine
PCI DSS	Payment Card Industry Data Security Standard	VoIP	Voice over Internet Protocol
PHP	Hypertextm Preprocessor	VPN	Virtual Private Network
PII	Personal Identifiable Information	VPS	Virtual Private Server
PKI	Public Key Infrastructure	WAF	Web Application Firewall
PLC	Programmable Logic Controller	WEP	Wired Equivalent Privacy
PS	PowerShell	WiGLE	Wireless Geographic Logging Engine
PSK	Pre-Shared Key	WinRM	Windows Remote Management
PTES	Penetration Testing Execution Standard	WMI	Windows Management Instrumentation
RAT	Remote Access Trojan	WPA	Wi-Fi Protected Access
RDP	Remote Desktop Protocol	WPS	Wi-Fi Protected Setup
RF	Radio Frequency	XML-RPC	Extensible Markup Language-Remote
RFC	Request for Comment		Procedure Call
RFID	Radio-Frequency Identification	XSS	Cross-Site Scripting
ROE	Rules of Engagement	ZAP	Zed Attack Proxy
SCADA	Supervisory Control and Data Acquisition		•
SCAP	Security Content Automation Protocol		
SDK	Software Development Kit		
SDLC	Software Development Life Cycle		
SDR	Software-defined Radio		
SET	Social Engineering Toolkit		
SGID	Set Group ID		
SIEM	Security Information and Event Management		
SIP	Session Initiation Protocol		
SLA	Service-level Agreement		
SMB	Server Message Block		
S/MIME	Secure/Multipurpose Internet Mail Extensions		
SMS	Short Message Service		
SMTP	Simple Mail Transfer Protocol		
SNMP	Simple Network Management Protocol		
SOC	Security Operations Center		
SOW	Statement of Work		
SQL	Structured Query Language		
SSD	Solid-State Drive		
SSH	Secure Shell		
SSHD	Solid-State Hybrid Drive		
SSID	Service Set Identifier		
SSL	Secure Sockets Layer		
SSO	Single Sign-On		
SUID	Set User ID		
TCP	Transmission Control Protocol		
TKIP	Temporal Key Integrity Protocol		
TLS	Transport Layer Security		
TTL	Time to Live		
TTPs	Tactics, Techniques and Procedures		
UDP	User Datagram Protocol		

PenTest+ Proposed Hardware and Software List

CompTIA has included this sample list of hardware and software to assist candidates as they prepare for the PenTest+ exam. This list may also be helpful for training companies that wish to create a lab component to their training offering. The bulleted lists below each topic are sample lists and are not exhaustive.

EQUIPMENT

- Laptops
- · Wireless access points
- Servers
- Graphics processing units (GPUs)
- Switches
- Cabling
- Monitors
- Firewalls
- HID/door access controls
- Wireless adapters capable of packet injection
- · Directional antenna
- Mobile device
- IoT equipment (cameras, Raspberry Pi, smart TV, etc.)
- · Bluetooth adapter
- Access to cloud environment
- Command-line interface (CLI) access
- Management console access
- Instances of cloud services
- Multifunction printers (wired/ wireless enabled)
- Domain joined printer
- RFID readers
- Biometric device
- Programmable logic controller
- Software-defined radio (SDR) kit
- USB flash drives
- Weaponized USB drive

SPARE HARDWARE

- Cables
- Keyboards
- Mouse
- Power supplies
- · Dongles/adapters

SPARE PARTS

- HDMI cables
- Spare hard drives
- Spare monitors

TOOLS

- Lock pick kit
- · Badge cloner
- Fingerprint lifter
- Nail polish (to mask fingerprints)

SOFTWARE

- OS licensing
- · Open-source OS
- · Penetration testing frameworks
- VM software
- · Scanning tools
- · Credential testing tools
- Spraying tools
- Password crackers
- Debuggers
- Fuzzing tools
- Software assurance tools

- Wireless testing tools
- Web proxying tools
- Social engineering tools
- Remote access tools
- Network tools
- Mobility testing tools
- Security information and event management (SIEM)/intrusion detection system (IDS)/intrusion prevention system (IPS)
- Command and control tools
- Detection and avoidance tools

