Penetration Testing

Scientifically grounded cybersecurity assessments for the highest standards

In an increasingly digital and interconnected world, IT infrastructures form the backbone of modern organizations. At the same time, system complexity is rising – and with it the risks of security vulnerabilities, cyberattacks, and regulatory non-compliance. Penetration Testing by the AIT Austrian Institute of Technology provides an evidence-based, technologically advanced method to simulate real attack scenarios, uncover vulnerabilities, and strengthen the resilience of public and private sector organizations. This approach combines scientific excellence, extensive research experience, and state-of-the-art technologies, resulting in a security standard that far exceeds conventional IT audits.

Quick Facts

- Solution area: **Processes, Regulations and compliance, Social participation and engagement, Technological innovation**
- Administrative level: **State, Federation**
- Solution process: **Digitization and technology, Judiciary, Public service, Science and research, Security and defense**
- Technology: **Information technology, Internet of Things, Networks**

How it works

Penetration Testing is an empirical security assessment that uses real attacker methods to uncover vulnerabilities, misconfigurations, and deviations from best practices. AIT conducts these assessments through certified cybersecurity experts with strong scientific and research expertise.

The process follows a four-phase model:

Planning – Define scope, methods, and sector-specific threats.

Preparation – Gather intelligence and analyze attack surfaces.

Execution – Safely exploit vulnerabilities and simulate real attacks using black-box, white-box, or hybrid approaches.

Presentation – Deliver a report with findings, risk evaluations, and prioritized recommendations.

AIT tests applications, networks, cloud services, IoT environments, and physical security. For SMEs, three tiered packages combine automated and manual testing. A research-driven approach also identifies unknown zero-day vulnerabilities through red teaming, reverse engineering, and advanced analysis — delivering security above typical market standards.

The Big Picture

AIT's Penetration Testing helps organizations demonstrate compliance, mitigate risks, and strengthen long-term security. Public authorities, critical infrastructure operators, and enterprises gain an independent, scientifically grounded assessment that quantifies attack risks and provides clear guidance. The process delivers a validated snapshot of cybersecurity maturity, reducing financial, data, and reputational risks while supporting compliance with NIS2, GDPR, and the Cyber Resilience Act.

AIT recommends annual tests — or more frequent assessments when conditions change — to keep organizations prepared for evolving cyber threats.

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