

atsec CST: Security Content Automation Protocol (SCAP)

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Federal Desktop Core Configuration Security Content Automation Protocol



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What is the problem?

- Many vulnerabilities are presented due to mis-configured systems
- An opportunity exists to strengthen U.S. Federal IT security by reducing opportunities for hackers to access and exploit government computer systems
- FDCC standards define common configuration criteria to standardize the configuration of various settings on their Windows XP and Vista Computers
- A companion standard, the Security Content Automation Protocol (SCAP), has also been created to define configurations, monitor compliance with the FDCC, enforce patching, and assist with security posture assessment

How is it tackled?

- An opportunity to reduce vulnerabilities
 - Define checklists and standards
 - Mandate their use
 - Test products for compliance
 - Tools
 - A Validation Program



OMB mandate

- The Federal Desktop Core Configuration is an OMB-mandated security configuration.
- The FDCC currently exists for Microsoft Windows Vista and XP operating system software.
- The FDCC was originally called for in a 22 March 2007 memorandum from OMB to all U.S. Federal agencies and department heads and a corresponding memorandum from OMB to all U.S. Federal agency and department Chief Information Officers
- Compliance was mandated by February 2008



**FDCC = Federal
Desktop Core
Configuration**

**OMB = Office of
Management
and Budget**

The FDCC standard



- The FDCC baseline was developed (and is maintained) by the National Institute of Standards and Technology in collaboration with OMB, DHS, DISA, NSA, USAF, and Microsoft with input from public comment
- The United States Air Force common security configurations for Windows XP were proposed as an early model on which standards could be developed.
- Released in 20 June 2008, FDCC Major Version 1.0 specified 674 settings. For example, "all wireless interfaces should be disabled"
- The latest version is FDCC Version 1.2 (4 Aug 2009)

**DHS =
Department of
Homeland
Security**

**DISA = Defense
Information
Security Agency**

**NSA = National
Security Agency**

**USAF = U.S. Air
Force**

http://nvd.nist.gov/fdcc/download_fdcc.cfm



Checklists

- The National Checklist Program (NCP), defined by the NIST SP 800-70 Rev. 1, is the repository of publicly available security checklists giving detailed low level guidance on setting the security configuration of OS and applications.
- NCP is migrating its repository of checklists to conform to SCAP
- Several checklists exist that are not yet formally part of the SCAP program (Which **only covers Windows XP and VISTA to date**)
 - Linux
 - AIX
 - Solaris
 - HP Unix
 - Windows 2000
 - Windows Server
 - MS Explorer
 - MS Office
 - MS Sharepoint

<http://web.nvd.nist.gov/view/ncp/repository>

The SCAP standard

- The Security Content Automation Protocol is a specification established by NIST for expressing and manipulating security data in standardized ways.
 - enumerates product names and vulnerabilities (both software flaws and configuration issues);
 - identifies the presence of vulnerabilities;
 - assigns severity scores to software flaw vulnerabilities.
- The SCAP specification defines what SCAP's components are and how they relate to each other within the context of SCAP
 - the SCAP specification does not define the SCAP components themselves; each component has its own standalone specification.

**Pronounce
SCAP**



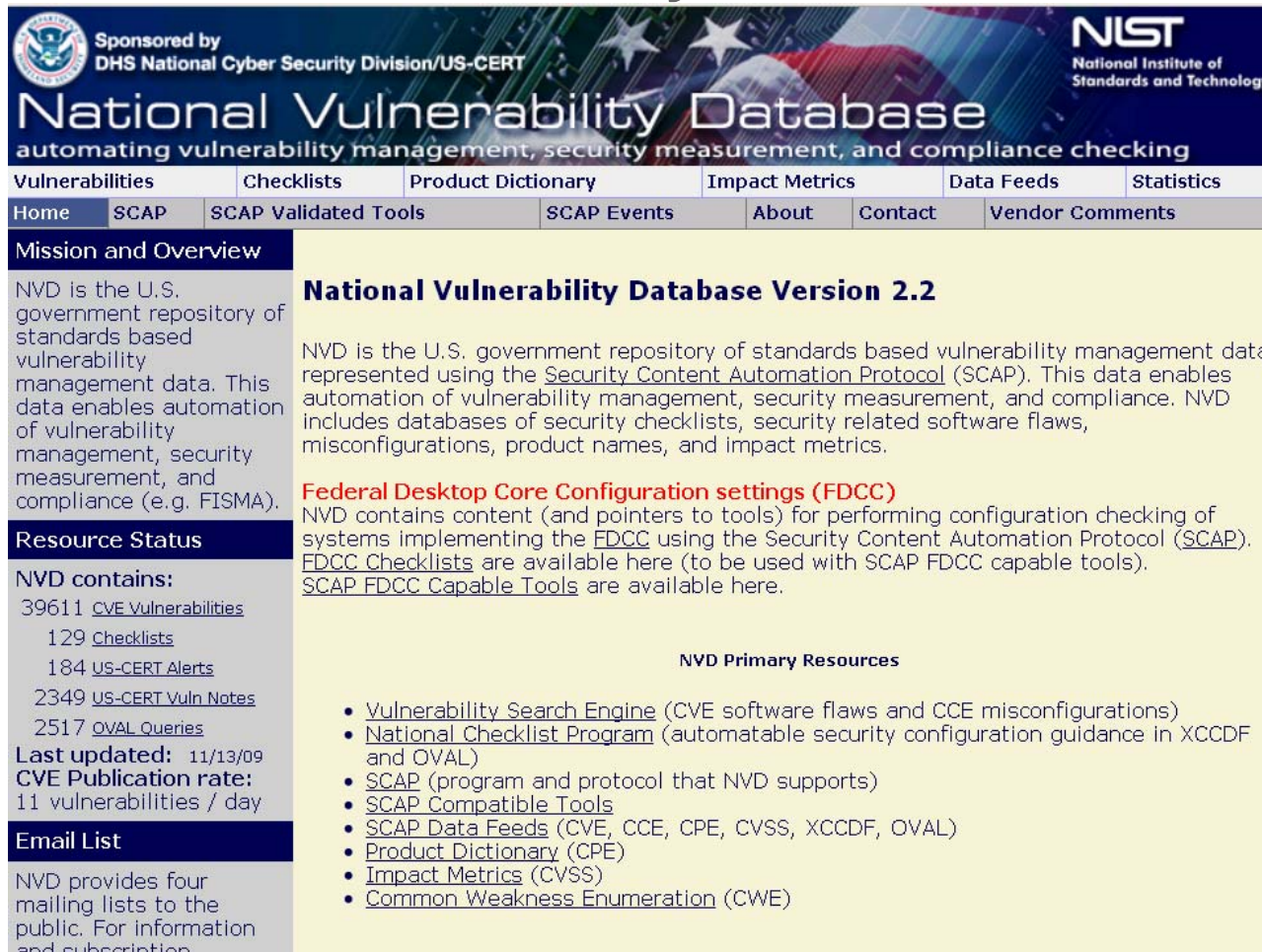
“Ess” “CAP”

The SCAP standard

- NIST provides SCAP content, such as vulnerability and product enumeration identifiers, through a repository supplied by the National Vulnerability Database (NVD).
- SCAP is used for automating activities such as security monitoring, vulnerability management, and security policy compliance evaluation reporting.
- The SCAP Standard is an interagency report.
 - Several versions (all 1.0!)
 - Give the test requirements
NIST. 2009, 'Security Content Automation Protocol (SCAP) Version 1.0 Validation Program Test Requirements.'

http://csrc.nist.gov/publications/drafts/nistir-7511/draft-nistir-7511_rev1.pdf

National vulnerability database



Sponsored by
DHS National Cyber Security Division/US-CERT

NIST
National Institute of
Standards and Technology

National Vulnerability Database

automating vulnerability management, security measurement, and compliance checking

Vulnerabilities | Checklists | Product Dictionary | Impact Metrics | Data Feeds | Statistics

Home | SCAP | SCAP Validated Tools | SCAP Events | About | Contact | Vendor Comments

Mission and Overview

NVD is the U.S. government repository of standards based vulnerability management data. This data enables automation of vulnerability management, security measurement, and compliance (e.g. FISMA).

Resource Status

NVD contains:
39611 [CVE Vulnerabilities](#)
129 [Checklists](#)
184 [US-CERT Alerts](#)
2349 [US-CERT Vuln Notes](#)
2517 [OVAL Queries](#)

Last updated: 11/13/09
CVE Publication rate:
11 vulnerabilities / day

Email List

NVD provides four mailing lists to the public. For information and subscription

National Vulnerability Database Version 2.2

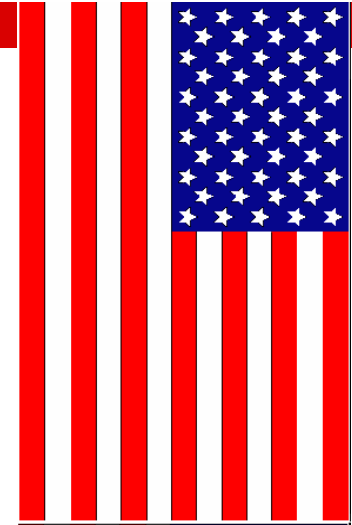
NVD is the U.S. government repository of standards based vulnerability management data represented using the [Security Content Automation Protocol \(SCAP\)](#). This data enables automation of vulnerability management, security measurement, and compliance. NVD includes databases of security checklists, security related software flaws, misconfigurations, product names, and impact metrics.

Federal Desktop Core Configuration settings (FDCC)

NVD contains content (and pointers to tools) for performing configuration checking of systems implementing the [FDCC](#) using the [Security Content Automation Protocol \(SCAP\)](#). [FDCC Checklists](#) are available here (to be used with SCAP FDCC capable tools). [SCAP FDCC Capable Tools](#) are available here.

NVD Primary Resources

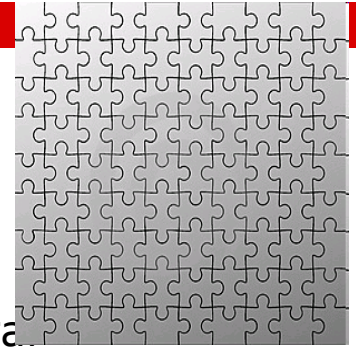
- [Vulnerability Search Engine](#) (CVE software flaws and CCE misconfigurations)
- [National Checklist Program](#) (automatable security configuration guidance in XCCDF and OVAL)
- [SCAP](#) (program and protocol that NVD supports)
- [SCAP Compatible Tools](#)
- [SCAP Data Feeds](#) (CVE, CCE, CPE, CVSS, XCCDF, OVAL)
- [Product Dictionary](#) (CPE)
- [Impact Metrics](#) (CVSS)
- [Common Weakness Enumeration](#) (CWE)



NVD at <http://nvd.nist.gov/>



SCAP components



- The SCAP components were created and are maintained by several entities, including the MITRE Corporation, the National Security Agency (NSA), and the Forum of Incident Response and Security Teams (FIRST).
- **Extensible Configuration Checklist Description Format (XCCDF)**
 - an XML specification for structured collections of security configuration rules used by operating system and application platforms
- **Open Vulnerability and Assessment Language (OVAL)**
 - an XML specification for exchanging technical details on how to check systems for security-related software flaws, configuration issues, and patches
- **Common Configuration Enumeration (CCE)**
 - a dictionary of names for software security configuration issues (e.g., access control settings, password policy settings)
- **Common Platform Enumeration (CPE)**
 - a naming convention for hardware, OS, and application products
- **Common Vulnerabilities and Exposures (CVE)**
 - a dictionary of names for publicly known security-related software flaws
- **Common Vulnerability Scoring System (CVSS)**
 - a method for classifying characteristics of software flaws and assigning severity scores based on these characteristics.



I'M FROM THE
GOVERNMENT,
I'M HERE
TO HELP



Current SCAP capability validations

- **FDCC Scanner:**
 - audit and assess a target system to determine its compliance with the FDCC requirements.
- **Authenticated Configuration Scanner:**
 - audit and assess a target system to determine its compliance with a defined set of configuration requirements using target system logon privileges.
- **Authenticated Vulnerability and Patch Scanner:**
 - scan a target system to locate and identify the presence of known vulnerabilities and evaluate the software patch status to determine compliance with a defined patch policy using target system logon privileges.
- **Unauthenticated Vulnerability Scanner:**
 - determining the presence of known vulnerabilities by evaluating the target system over the network.
- **Patch Remediation:**
 - install patches on a target system in compliance with a defined patching policy.
- **Misconfiguration Remediation:**
 - alter the configuration of a target system to bring it into compliance with a defined set of configuration recommendations.

Testing and validation

- The NIST SCAP Validation Program is designed to test the ability of products to use the features and functionality available through SCAP and its components.
- Independent laboratories are accredited by the NIST National Voluntary Laboratory Accreditation Program (NVLAP)
- Accredited laboratories conduct the tests on IT security products and deliver the results to NIST
- The SCAP Validation Program then validates the product under test
- The validation certificates awarded to vendor products are publicly posted on the NIST SCAP Validated Products web page

<http://nvd.nist.gov/scaproducts.cfm>

